STATE WATER AND SANITATION MISSION
UTTARAKHAND

FINAL REPORT

DOCUMENTATION OF RWSS GOOD PRACTICES

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EXECUTIVE SUMMARY

Taking forward the experience of SWAJAL project piloted under the World Bank from 1996 to 2003, the Uttarakhand Rural Water Supply and Sanitation Project (URWSSP) was initiated under a Sector Wide Approach (SWAp) in 2006. Since then, the URWSSP has been empowering rural communities and the implementing agencies in carrying out rural water supply and sanitation (RWSS) project based on a decentralized service delivery mechanism under SWAp. The SWAp ensures that irrespective of the funding source, the RWSS sector in the state operates under demand driven approach to RWSS service delivery based on participatory process of decision making in an inclusive manner.

The URWSSP revolves around the Panchayat Raj Institutions (PRIs), who are the core and pivotal institution around which all the other organizations work in a coordinated manner to provide RWSS service delivery in the state of Uttarakhand. The organizations that are involved includes Support Organizations (SO), such as Non-Governmental Organizations (NGOs) and other sector professionals and the District Implementing Agencies (DIA), such as Swajal Project Management Unit (PMU), Uttarakhand Peyjal Nigam (UJN) and Uttarakhand Jal Sansthan (UJS) who work with the User Water Supply and Sanitation Committee (UWSSC) at the village level to facilitate implementation of the RWSS project scheme. The role of the SO and the DIA is to encourage the beneficiaries in taking lead for planning, implementation and maintenance of the RWSS schemes including empowering women and vulnerable groups for promoting inclusiveness and participation in decision making, while developing the institutional capacities of the PRIs at the same time.

The URWSSP has already accomplished construction of 3851 drinking water supply schemes covering 8641 habitations with a population of 1.57 million and also sanitation activities covering 857,768 households, i.e., 97% of targeted households of 886,301 benefiting 4.28million population. Working for all these activities, has helped URWSSP to learn several best practices regarding process of accomplishing successful results of demand-led as well as community-driven SWAp focused on drinking water and sanitation services.

The best practices of the URWSSP have been documented by studying 20 project schemes and compared their performance with 20 control schemes (i.e., non-project schemes). Comparison of performance have been confined to five major innovations that have been used under the URWSSP. These include; Implementing SWAp, Empowering PRIs, Integrated Approach, Sustainability and Transparency & Accountability.

The successful implementation of the URWSSP has made the agencies realize that the demand-based selection of project schemes has a positive effect in promoting planning, implementation and O&M responsibilities amongst the community. Similarly, there is a realization that the reduction of capital costs is possible through the partnership with local communities. The URWSSP also found integration of health and hygiene education with water supply and sanitation services useful to change people's attitude for better hygienic practices amongst the community. Likewise, it has found that the local ownership of schemes can enhance sustainability potential.

One of unique practices that have brought good benefits to the community is the insurance of the equipment and materials during the implementation phase. Considering that a number of schemes have come up in disaster prone areas, the availability of insurance helped many a scheme in minimizing cost over-runs resulting from natural calamities. In fact, over Rs. 71.52 Lakhs of insurance claims have been received during the project period. However, none of the project schemes that were part of the study have benefited from the insurance.

The URWSSP has also been able to save scheme costs by transfer of funds, functions and functionaries to the PRIs. In this regard, it should be noted that the earmarked project funds have been transferred to the respective DIAs immediately upon approval of the project at all levels. And, the release of funds have been based on the progress on the ground. This is in contrast to the control schemes wherein the project funds are transferred to the respective DIAs every year as part of the budget provisions and released based on progress on the ground. In fact, the timely release of funds based on progress on the ground has minimized project and cost over-runs. Additionally, savings have been realized in the project schemes because certain functions such as purchase of the materials has been carried out through the locally formed procurement committees. Further, certain functionaries such as the Project

Accountant and Community Engineer have been transferred to the project schemes for the duration of the project and this enables the communities to obtain reliable professional expertise for implementing the project, thereby resulting in savings, as well.

Overall per-capita cost of URWSSP supported drinking water scheme is Rs. 4,854 for single-village schemes as compared to Rs. 12,000 per capita norm for Government of India (NRDWP) and Rs. 7,972 for multi-village schemes as compared to Rs. 25,000 per capita norm for GoI (NRDWP). This is a relatively cost-effective rate as compared to other schemes. One of the reasons for such lower cost has been attributed by the PRIs to the direct involvement of community members in the construction and management of scheme.

Opening bank account emerged as a way for ensuring accountability. The sense of ownership has increased through integration of software and hardware interventions. Third party monitoring has been useful for maintaining transparency and ensuring good quality construction. The social audit process adopted in the project schemes has built trust among the community members and other related stakeholders. The installation of wall writings and other hoarding boards on project-related information has been useful for maintaining transparency.

All the project schemes, the single-village schemes in particular, that are part of this documentation study, are functioning well and the beneficiaries have reported satisfaction with the water and sanitation service delivery provided by the UWSSC. Challenges do remain in the multi-village schemes especially in regard to services to the tail-end villages. The high satisfaction levels are also reflected by the fact that the tariff collection efficiency in certain single-village project schemes is at a high order in the region of 95% as compared to the control schemes which are at approximately 40%. The tariff collection efficiency in the multi-village schemes are at a lower level in the region of 70-75%. The average collection efficiency in the project schemes is at 80%.

Women affiliated with the operating schemes have acknowledged saving on an average three (3) hours' time in fetching water. Their saved time has been effectively used in childcare, kitchen garden, animal husbandry and other income generation activities. In one project

scheme that is located on a pilgrimage route, home stays have increased because of the excellent drinking water and sanitation facilities made available in the village. On an average, these families earn an additional income of between Rs. 5K and Rs. 40K per annum, depending on the activities taken up. Through the training programmes supported by URWSSP, the community members have benefited on leadership development, resource mobilization process and skills for project planning, implementation and M&E for water supply and sanitation schemes and other associated community development activities.

Despite the excellent strides made by the URWSSP in realizing the objective of increasing WSS coverage in a sustainable manner using a demand-driven decentralized approach under a SWAp, challenges do remain. The emerging challenges include in strengthening the UWSSC in O&M, Management and Technical aspects of the scheme especially when the completed schemes that have been implemented under other funding programmes are being transferred to the PRIs in keeping with the 73rd Constitutional Amendment that mandate the PRIs to provide the services. The strengthening is required as in these completed schemes have been implemented without the PRIs being involved in the planning and implementation phases. Another challenge is to ensure that the livelihood water demand are included in the scheme design to create economic opportunities for the community, thereby improving the income levels of the community. Additionally, there is a need to create a model RWSS project within a cluster so that the PRIs around the project can seek guidance to implement a sustainable RWSS project in their respective communities. Also, considering the fact that the RWSS project are located in a disaster-prone area, there is a need to look at insuring the schemes through user-contribution in the post-implementation phase and minimize rehabilitation costs. Moreover, as communities get used to piped-supply of good quality drinking water in a regular manner, there is a felt need to incorporate a MIS integrated mobile-based grievance redressal mechanism so that it is easier for the community to reach the technicians for carrying out timely repairs during disruption of services. Further, in the light of climate change impacts being felt in country, there is a need to ensuring drinking water security in the region through climate change adaptation programmes. All the above challenges can be addressed through the SWAp that has been institutionalized under the URWSSP.

INTRODUCTION

1.1 BACKGROUND

Uttarakhand Rural Water Supply and Sanitation Project (URWSSP) was planned and designed to overcome the drinking water scarcity in the rural areas of the state of Uttarakhand where almost 88 percent of the territory falls within the Himalayan region. In addition to drinking water scarcity, the existing system was plagued with the problems of maintenance arising out of the damage occurring to water pipes and other water supply infrastructure because of frequent landslides. It took the existing state-run agencies, Uttarakhand Peyjal Nigam (UJN) and Uttarakhand Jal Sansthan (UJS) often weeks or even more for their technicians to reach remote villages, especially during extreme weather conditions or at times of disaster. Moreover, in such a scenario not enough attention could be paid to water quality or to ensure that water sources remain sustainable. Streams and springs have been depleting and nearly a third of the state's rural water supply systems suffer from water shortages, especially during the summer months. Women and children were required to spend between one to three hours a day to collect water - even longer in hilly locations – or potable water had to be brought in from other sources by tankers and mules. In addition, the large majority of the state's rural population - some 75 to 80 percent – did not have access to sanitary latrines. This, together with the acute scarcity of drinking water and poor drainage facilities had become a major cause of health problems in the state.

The objective of the URWSSP were to address the above challenges facing the water and sanitation sector in the state in a holistic manner under a Sector Wide Approach (SWAp). A Pilot Project in Uttarakhand (Swajal Project 1996 – 2003) showed that rural communities can indeed plan, construct and maintain their rural water supply systems. The experience from the Pilot Project was utilized to design the URWSSP under the SWAp. Under SWAp, all significant sector investments were channelled to achieve the same objectives, followed a consistent approach and was guided by a consolidated investment plan, along with simplified implementation procedures. In fact, the SWAp allowed the different agencies operating in the rural water and sanitation sector in the state of Uttarakhand, viz., Swajal PMU, UJN and UJS, to contribute to a state-wide programme instead of piece-meal project specific / agency specific development. Appropriate decentralization of functions was introduced to

accomplish the objective. In this regard, the challenge involved in convincing all levels of political leadership – parliamentarians, legislators, gram-pradhans – about its benefits. Additionally, the mind-set of the sector personnel needed to be changed i.e., from being the designers and builders of schemes to becoming the trainers and facilitators of communities who would henceforth plan, build and operate the schemes. The outstanding success of the pilot Swajal Project gave a fillip to the SWAp and the agencies and communities were eager to take on their new roles and responsibilities.

The URWSSP decentralized decision-making at all stages - planning, procurement, construction and management – to panchayats and communities in all 13 districts of the state.

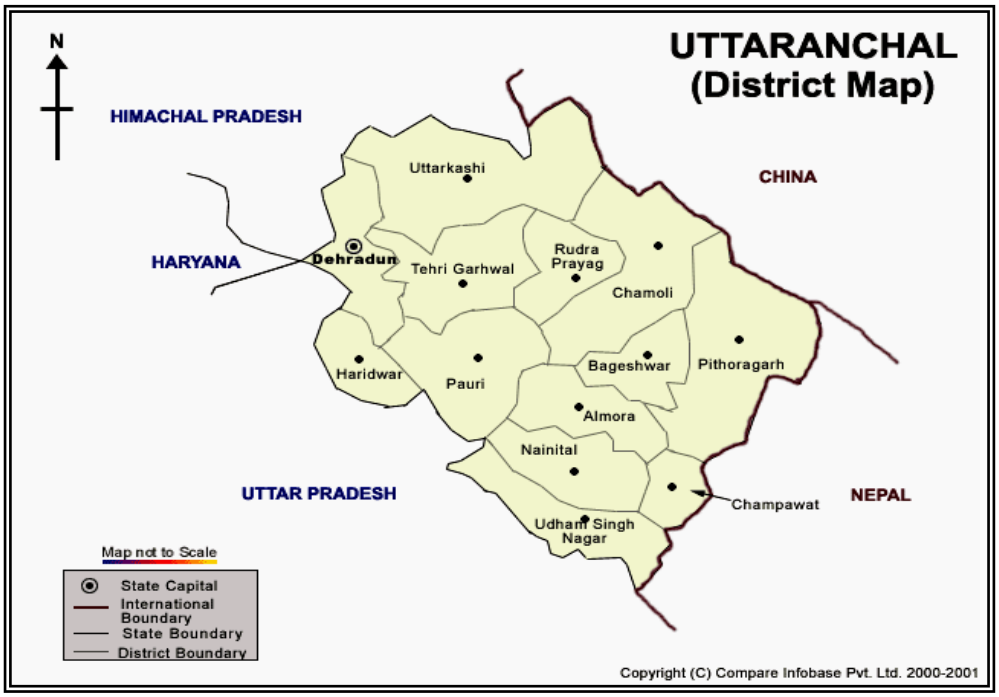


Figure 1.1: Map of Uttarakhand State

They were supported by sector institutions such as SWAJAL Project Management Unit, UJN and UJS along with those Non-Governmental Organizations (NGOs) with strong field presence and grassroots experience who were required to motivate and train the communities to take on their new roles. In fact, the design of the program was a culmination of efforts taken to elicit consensus amongst elected representatives, sector institutions, communities, NGOs and the World Bank team.

1.2 PURPOSE OF THE ASSIGNMENT

Over 8270 schemes have been implemented under the URWSSP by all the three agencies put together. Various unique practices have been utilized in order to ensure that the objective of providing a sustainable water service to the rural communities is achieved. Hence, in order to document these learnings and enable professionals and organizations working in the RWSS sector to avoid "reinventing the wheel" and learn towards improving the RWSS service delivery performance, the current assignment was formulated.

1.3 OBJECTIVE OF THE ASSIGNMENT

The objective of the assignment is to review, identify, collate, analyse, synthesize and document lessons learnt, experiences and best practices in the implementation of the Original URWSSP and Additional Financing projects.

1.4 SCOPE OF THE ASSIGNMENT

The Consultant will undertake consultations with all agencies and stakeholders to review, identify, collate, analyse, synthesize and document lessons learnt, experiences and best practices in the implementation of the Original URWSSP and Additional Financing projects. The Consultant shall also make visits to project villages where good practices were adopted. These lessons shall be distilled and synthesized to form part of the broader RWSS sector lessons learnt and best practices document to be made available through electronic formats and hard copy.

Towards meeting the purpose, objective and scope of the assignment, the SWSM in discussions with UJN and UJS identified 20 project schemes that have had substantial success in achieving the project objective, for a further study on the unique practices adopted. For analysing the reasons behind the successes achieved, one control scheme for each project scheme was selected and the data compared for determining the factors responsible for the success. The data was collected and analysed as per the methodology in Chapter 2. The rationale behind the selection of the project and control scheme is provided in Chapter 3.

2.0 METHODOLOGY

The study consultancy adopted an elaborate processes for the development of methodology to determine the best practices. It included the following activities:

i. Conduct Pilot Visit to Project Schemes;

ii. Discussion with Agencies to identify innovations in URWSSP

iii. Preparation of Check list and Questionnaire;

iv. Field Data Collection; and

v. Data Analysis and Report writing.

2.1 Conduct Pilot Visit to Project Schemes:

Upon signing of the Contract on May 30, 2015, the Consultant visited four project schemes located in the districts of Dehradun, Tehri Gharwal, Rudra Prayag and Haridwar. During the visit, the Consultant had discussions with the implementing agencies, conducted a reconnaissance of the project scheme, and held discussions with the Water and Sanitation Committees and the community members regarding the scheme planning, implementation and scheme performance.

2.2 Discussion with Agencies:

Upon completion of the Pilot Field Visits, an Inception Report was submitted and discussed with the senior officials of SWSM. Later, the Inception Report was presented at the Mission Workshop on July 9, 2015 in which participants included experts from World Bank, SWSM, UJN and UJS. The scope of the study was enhanced to include 20 control schemes in addition to the 20 project schemes so that a comparison can be obtained on the best practices achieved under the URWSSP. Further, five major innovations under the project were agreed upon at the Workshop. These innovations included; Implementing Sector-wide Approach (SWAp), Empowering Panchayat Raj Institutions (PRIs), Integrated Approach, Sustainability and Transparency & Accountability. The Consultant later identified the factors responsible for achieving the objective of each of the innovations and the details are provided in Chapter 4. Lastly, the 20 project schemes and the 20 control schemes were selected in discussion

with the agencies based on a set of selection criteria agreed upon with the agencies. The rationale for the selection and the list of project and control schemes are provided in Chapter 3.

2.3 Preparation of Check List and Questionnaire:

The data collection was done by using a set of checklist to cover all the issues surrounding the project and control schemes. In addition to the checklist, a list of questions were utilized for conducting the focused grouped discussions with the community and the local institutions. The Check List and the Questionnaire are provided in the Annexure.

2.4 Field Data Collection

Upon finalization of the selection of the project schemes and control schemes, the data collection to cover all the schemes was carried out in the period August and November 2015 by the Consultant's team consisting of Srinath Anekal and two researchers Mr. Suresh Khanduri and Mr. MM Doval.

2.5 Data Analysis and Report Writing

After completing all major data gathering activities, the data were collated for the final analysis process. The analysis process concluded with a written profile that is sufficiently documented for accuracy and persuasiveness of the strengths and weaknesses of the schemes, sector and the institutions involved. The Consultant presented the findings in the deliverables mentioned below:

- Inception Report;
- Interim Report;
- Draft Final Report;
- Final Report

In addition, presentations were delivered to the SWSM Review Committee and the World Bank Team at the completion of each of the deliverables and the comments made were addressed in the subsequent deliverables.

3.0 RATIONALE BEHIND SCHEME SELECTION

Under the URWSSP, 3851 drinking water schemes to cover 8641 habitations have been implemented by the three agencies put together viz., Swajal PMU, UJS and UJN. The SWSM is pampered by the sheer number of the schemes that can showcase good practices. Under this circumstance, the SWSM evolved a selection criteria to select the 20 project schemes. The selection criteria considered various aspects including but not limited to the scheme type, scheme age, technology used, geographical location and implementing agency.

Scheme Type

Under the URWSSP, various types of schemes have been implemented. These include; single-village scheme wherein the water is either sourced from a surface water source or a groundwater source. Also, while in a majority of the schemes, the source is located in the revenue village of the same Gram Panchayat, in certain other schemes, the SVS project scheme had to rely on water sources located in a different Gram Panchayat, as well. Additionally, under the URWSSP, over 37 multi-village schemes have been implemented. In a multi-village scheme, a single source is utilized as a sustainable water source for more than one-village. Hence, the study covers both single-village schemes and multi-village schemes in addition to covering surface source and groundwater sources.

Scheme Age

In Uttarakhand, the Bank has financed the implementation of rural water supply projects under both the pilot SWAJAL project between 1996 and 2003 and later under the URWSSP. Our endeavour was to select the projects that have been implemented under the URWSSP. Hence, majority of the project schemes that have been selected are the ones that have been commissioned under the URWSSP between Nov. 2006 and Dec. 2015. These project schemes have been implemented to meet the demand for a 20-year horizon. While this general criteria was utilized to determine the project schemes, exception was made in the selection of one project scheme for the study i.e., Medanpur Scheme in Rudra Prayag District upon the recommendation of the Project Manager. The Medanpur Scheme is an integrated water-linked development project implemented under the SWAJAL project.

Scheme Technology

Under the URWSSP, technology selection has played an important role in making the schemes sustainable. More importantly, the technologies have gone various iterations including one at the community-level so that an appropriate cost-effective user-friendly technologies are utilized to operate the schemes. As such, during the scheme selection emphasis was placed on covering the whole range of technologies that have been utilized under the URWSSP. These include the Single-Village Scheme surface-water source pumping and gravity schemes, SVS ground-water schemes, Multi-Village Scheme (MVS) surface-water source pumping and gravity schemes and MVS ground-water schemes.

Geographical Location

The schemes implemented under the URWSSP covers the entire area of the state. A majority of these schemes are located in the hilly areas while some of them are in very remote areas that are quite difficult to access, as well. Additionally, project schemes have been implemented in the plains covering the districts of Haridwar, Dehradun, Udhamsingh Nagar and parts of the district Nainital, Champatand and Pauri, as well. The project schemes that have been selected belong to 8 districts in the state viz., Almora, Chamoli, Dehradun, Haridwar, Nainital, Pithorgarh, Rudra Prayag and Tehri Garhwal.

Implementing Agency

Under the URWSSP, all the three agencies working in the rural water supply sector viz., PMU, UJN and UJS implemented the schemes. Hence, it was ensured that the project schemes provided a representative selection of the schemes implemented by all the three agencies.

The above five-criteria for selection of project schemes was shared with all the three agencies. However, more importantly, the SWSM relied on the opinion of the local Project Managers in various regions to short-list the 20 project schemes. The final short-list of project schemes and the profile of the schemes as per the selection criteria are provided in Table 3.1 overleaf.

TABLE 3.1: LIST OF SHORT-LISTED SCHEMES FOR STUDY

Sl. No.	Scheme Name	Scheme Type	Scheme Age	Scheme Technology	Geographical Location	Agency
1	Talar Bhena	MVS	4 years	Surfacewater – Gravity	Almora	UJN
2	Badiyura Thana Metrana	MVS	3 years	Surface Water Gravity	Almora	UJN
3	Thandapani Jhilasu	SVS	8 years	Surface Water Gravity	Chamoli	Swajal PMU
4	Nail Kuraw	SVS	5 years	Surface Water Gravity	Chamoli	Swajal PMU
5	Kuling	SVS	5 years	Surface Water Gravity	Chamoli	Swujal PMU
6	Nail Thapla	SVS	5 years	Surface Water Gravity	Chamoli	Swajal PMU
7	Athoorwala – II	SVS	3 years	Ground Water Pumping	Dehradun	Swajal PMU
8	Bansiwala	SVS	3 years	Ground Water Pumping	Dehradun	Swajal PMU
9	Pasta Pipalsar	SVS	3 years	Ground Water Pumping	Dehradun	Swajal PMU
10	Shahpur Shitlakhera	SVS	2 years	Groundwater – Pumping	Haridwar	Swajal PMU
11	Narayanpur Muliya	SVS	4 years	Groundwater – Pumping	Nainital	Swajal PMU
12	Aamhat	SVS	4 years	Groundwater – Pumping	Pithorgarh	Swajal PMU
13	Legamkanda	SVS	5 years	Surfacewater – Pumping	Pithorgarh	Swajal PMU
14	Jugapaani Rueena	SVS	4 years	Surfacewater – Pumping	Pithorgarh	Swajal PMU
15	Taljaman	SVS	3 years	Surfacewater – Gravity	Rudraprayag	Swajal PMU
16	Medanpur	SVS	7 years	Surfacewater – Gravity	Rudraprayag	Swajal PMU
17	Naini-Poundar	SVS	5 years	Surfacewater - Gravity	Rudraprayag	Swajal PMU

Sl. No.	Scheme Name	Scheme Type	Scheme Age	Scheme Technology	Geographical Location	Agency
18	Ranghadgaon	SVS	4 years	Surfacewater – Gravity	Tehri Garhwal	UJS
19	Bunksheel	MVS	6 years	Surfacewater –Gadhera	Tehri Garhwal	UJN
20	Sapera Basti	SVS	6 years	Surfacewater – Gadhera	Dehradun	UJS

Among the 20 project schemes selected for the study, 15 Nos. have been implemented by Swajal PMU, 3 Nos. by UJN and 2 Nos. by UJS as shown in Figure 3.1 below:

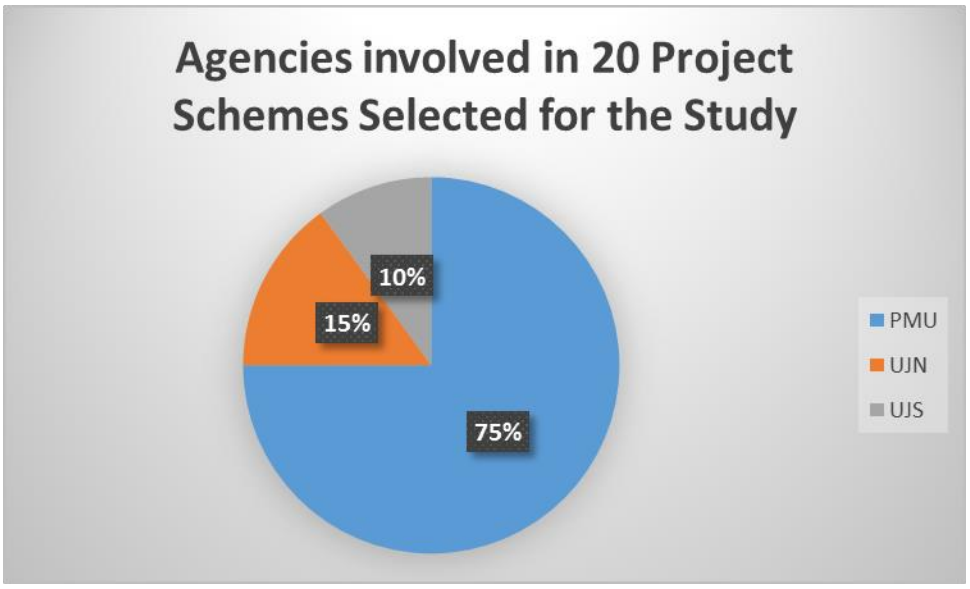


Figure 3.1: Agencies involved in 20 Project Schemes selected for the Study

The project schemes are in the age group of 2-8 years with the average age of the scheme being 4.45 years. Geographically, all the eight districts are represented in the study and has a fair distribution of project schemes in both hills and the plains. Among the scheme types, over 17 Single Village Schemes have been selected while 3 Multi-Village Schemes have been selected. The selection of 3 Nos. multi-village schemes is disproportionate to the fact that only 37 Multi-village schemes have been implemented under the URWSSP. However, considering the importance of multi-village schemes in the light of drinking-water scarcity in the region, it was considered necessary to showcase the best practices in these multi-village schemes Additionally, the project scheme selection is a representative of the various technologies utilized in the URWSSP. These are represented in Figure 3.2 overleaf:

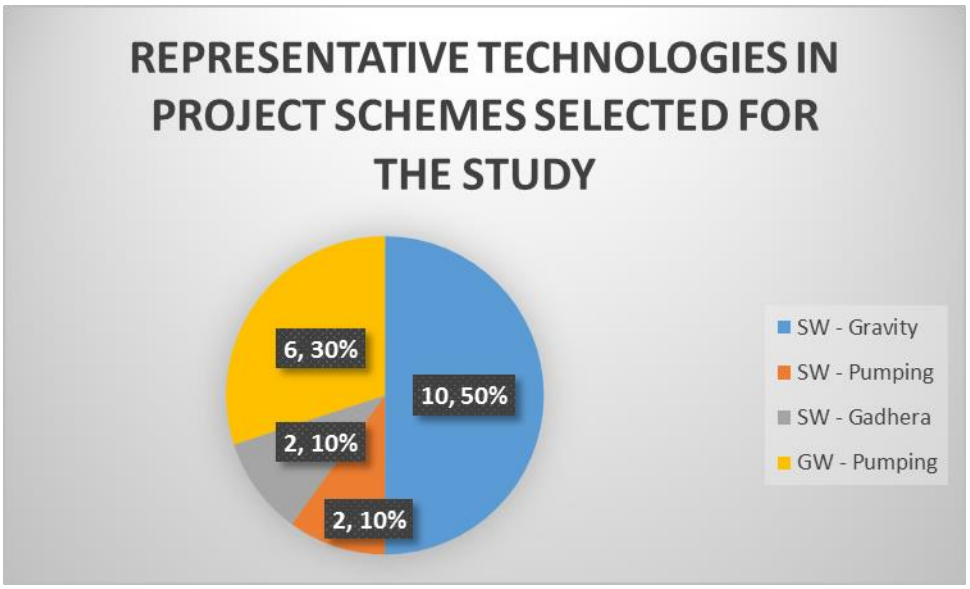


Figure 3.2: Representative Technologies in Project Schemes selected for the Study

Considering that the study involved documenting the best practices utilized to realize the objective of the URWSSP, it became imperative to compare the project scheme achievements with that of other RWSS schemes within the state that may have been implemented under a different funding regime. The control schemes were selected in discussions with the agencies concerned primarily UJS as UJS is the main agency responsible for the O&M of the schemes other than those that are managed by the communities themselves. One of the main criteria utilized to select the control scheme was to ensure that the control scheme is similar to the project scheme in major aspects especially in factors such as scheme technology and geographical location. The list of control schemes as against the short-listed schemes is provided in Table 3.2 below:

TABLE 3.2: LIST OF CONTROL SCHEMES AGAINST SHORT-LISTED SCHEMES

Sl. No.	Project Scheme Name	Control Scheme Name	Control Scheme Type	Control Scheme Age	Control Scheme Technology	Geographical Location
1	Talar Bhena	Pubhaon	MVS	3 years	Groundwater = Pumping	Almora
2	Badiyura Thana Metrana	Ranikhet – Tarikhet	MVS	30 years	Surfacewater – Gravity	Almora
3	Thandapani Jhilasu	Jhilihoti Mastgaon	SVS	7 years	Surfacewater – Gravity	Chamoli

Sl. No.	Project Scheme Name	Control Scheme Name	Control Scheme Type	Control Scheme Age	Control Scheme Technology	Geographical Location
4	Nail Kuraw	Jaisal	SVS	6 years	Surfacewater – Gravity	Chamoli
5	Kuling	Hatkalyani	SVS	17 years	Surfacewater – Gravity	Chamoli
6	Nail Thapla	Sirtoli	SVS	3 years	Surfacewater – Gravity	Chamoli
7	Athoorwala – II	Lacchiwala	MVS	3 years	Groundwater – Pumping	Dehradun
8	Bansiwala	Dhoolkot	SVS	6 years	Groundwater – Pumping	Dehradun
9	Pasta Pipalsar	Selaqui	SVS	3 years	Groundwater – Pumping	Dehradun
10	Shahpur Shitlakhera	Ranimajri	SVS	11 years	Groundwater – Pumping	Haridwar
11	Narayanpur Muliya	Dharampur Auliya	SVS	3 years	Groundwater – Pumping	Nainital
12	Aamhat	Ratwali	SVS	33 years	Surfacewater – Pumping	Pithorgarh
13	Legamkanda	Nagar Kanday	SVS	23 years	Surfacewater – Gravity	Pithorgarh
14	Jugapaani Rueena	Jakhmaso	SVS	3 years	Surfacewater – Gravity	Pithorgarh
15	Taljaman	Ransi	SVS	3 years	Surfacewater – Gravity	Rudraprayag
16	Medanpur	Devaldhar	SVS	17 years	Surfacewater – Gravity	Rudraprayag
17	Naini-Poundar	Onga	SVS	3 years	Surfacewater – Gravity	Rudraprayag
18	Ranghadgaon	Ranghadgaon	SVS	17 years	Surfacewater – Gravity	Tehri Garhwal
19	Bunksheel	Budkot	SVS	26 years	Surfacewater – Gravity	Tehri Garhwal
20	Sapera Basti	Laltapper	SVS	3 years	Groundwater – Pumping	Dehradun

4.0 INNOVATIONS IN URWSSP

As per Section 5 of the Terms of Reference, the Consultant was required to study each project scheme as per its implementation, results obtained, lessons learned and how the outcome has benefited the target population. These factors that have contributed to the project success have been grouped under five major innovations including the following:

- Implementing Sector Wide Approach;
- Empowering Panchayat Raj Institutions;
- Integrated Approach;
- Sustainability;
- Transparency and Accountability

4.1 IMPLEMENTING SECTOR WIDE APPROACH

Sector Wide Approach (SWAp) is an approach wherein all significant sector investments are channelled towards the same objective, follows a consistent strategy that is guided by a consolidated investment plan. The SWAp allows all partners in development i.e., international financial institutions, state and central governments, sector institutions, NGOs and other service providers to come together under a common platform to achieve the targets for the rural water supply and sanitation (RWSS) sector. The targets include but not limited to improving service coverage in an efficient and sustainable manner. The SWAp has increased coordination amongst various developmental partners while reducing the likelihood of overlapping and duplication of initiatives. It has enhanced the possibility of the government ensuring uniform practices and reduced the burden of dealing with a number of agencies applying different administrative practices – in particular in relation to financial management. More importantly, SWAp involved NGOs and other service providers in the process, but under modalities wherein the government could maintain access to information and ensure that the sector objective is achieved. SWAp was initiated to lead to more efficient use of limited funds available from financial institutions, from state and central governments, and from user contributions to water sector development maximising the overall contribution in achieving the targets for the sector. Various factors have influenced in successfully implementing SWAp for the RWSS sector in the state and these factors are listed in Figure 4.1 overleaf:

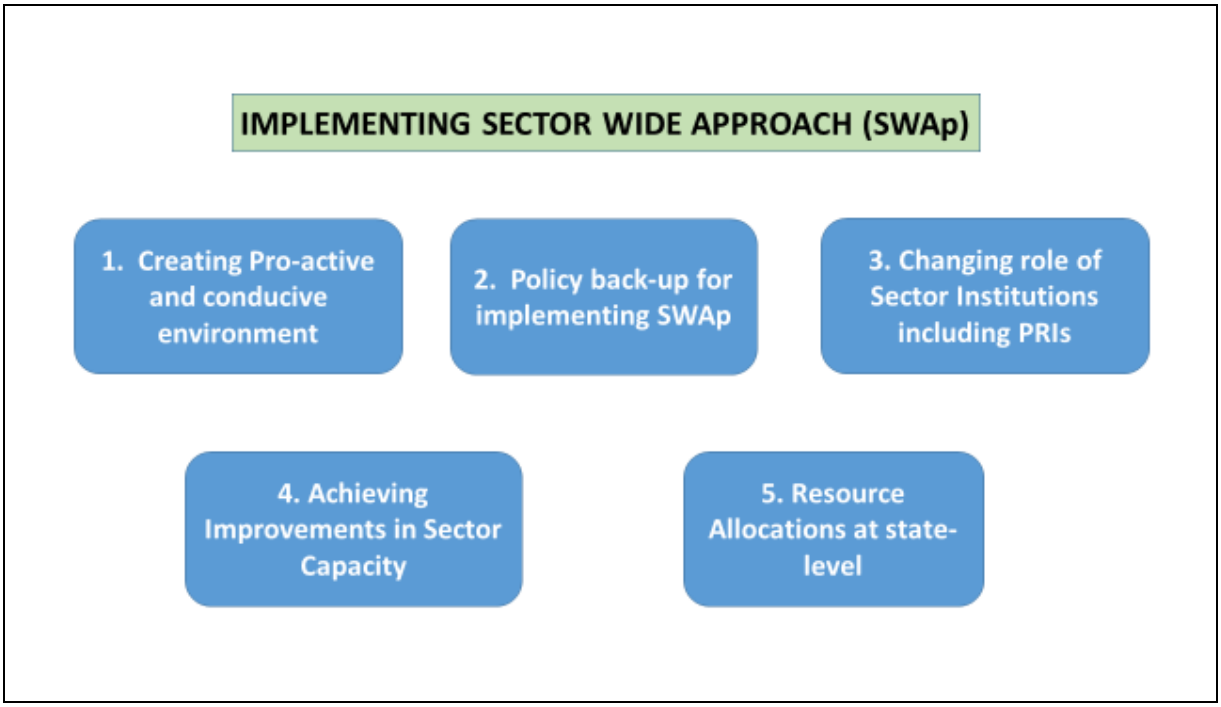


Figure 4.1: Factors influencing Implementing SWAp

4.2 EMPOWERING PANCHAYAT RAJ INSTITUTIONS

The Panchayat Raj Institutions (PRIs) are the lowest rung of administrative unit in the governance structure. As per the 73rd amendment to the Constitution the PRIs are vested with powers to provide all services, tax the community and even access funds directly for developmental activities. While the PRIs are constitutionally empowered, the PRIs lack the necessary skills and resources to realize the powers vested in them. However, water supply and sanitation service delivery naturally have clearly defined, exclusive stakeholders and the success or failure of service delivery directly impacts the lives of the community where the services are delivered. Hence, the URWSSP has implemented various measures to empower the PRIs to achieve greater fusion between the PRIs and the stakeholders and ensure sustainable water supply and sanitation service delivery. Hence, as per the URWSSP, the PRIs have been involved at all stages of the water supply and sanitation project. This includes the stages of conceptualization, planning, design, commissioning and finally the Operation & Maintenance (O&M) of the scheme. This has been done by combining a variety of factors that go into empowering the institution. The factors are listed in Figure 4.2 below:

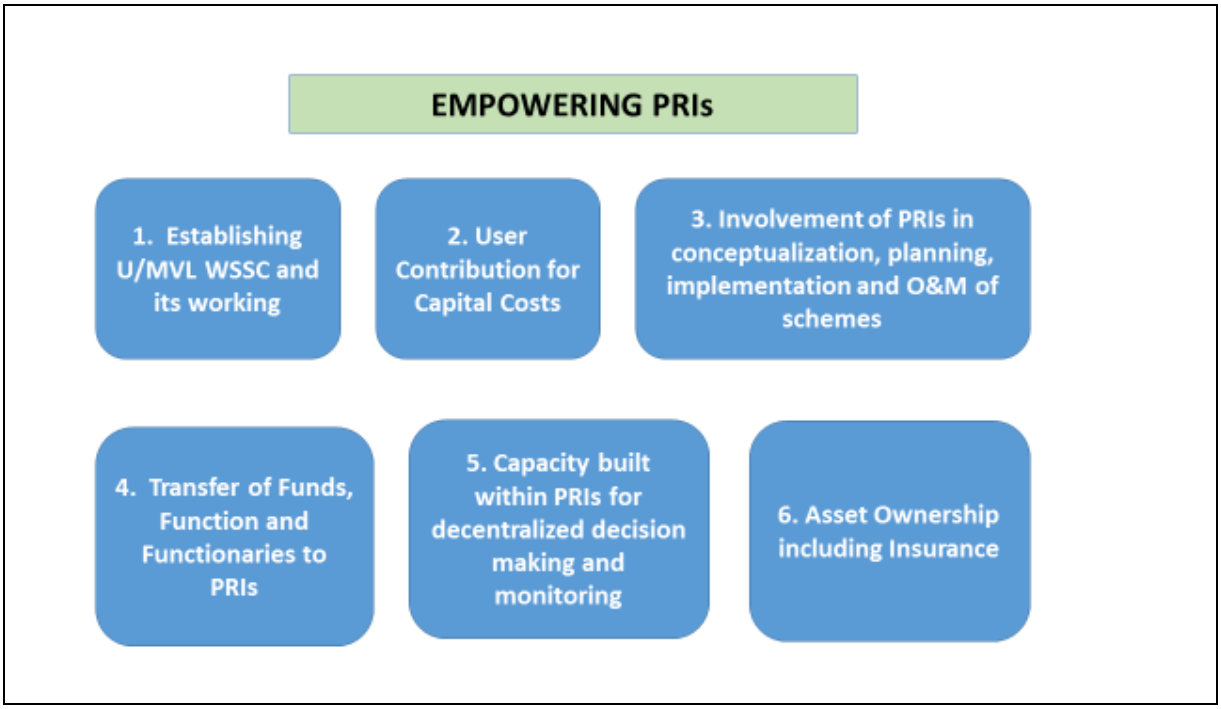


Figure 4.2: Factors influencing Empowering PRIs

In the URWSSP, all the funds in respect of the devolved functions have been transferred to the UWSSC formed at the start of the project. These funds are spent with the consent of the user community. Similarly, the functionaries with respect to that service shall be accountable to the Committee. Also, the UWSSC functions under the overall umbrella of the Gram Panchayat. Further, the URWSSP ensures that the PRIs are strengthened by the involvement of organizations with domain expertise or strong commitment to developmental objectives of the community. The six factors listed in Figure 4.2 above showcase the convergence brought out by empowering the PRIs and ensure water supply service delivery in a sustainable manner.

4.3 INTEGRATED APPROACH

The implementation of the pilot water supply project between 1996 and 2003 was based on the principles of community participation and decentralization of powers for implementing and operating drinking water supply schemes with the government playing the role of a facilitator. The outcome of the pilot project clearly revealed a positive effect on the ineffective service delivery that was a result of direct state -provision of services under early programmes. Additionally, the success of the Pilot Project revealed that the water supply,

sanitation and hygiene promotion have to go hand-in-hand to achieve the maximum potential benefits from improved water services. Further, under the URWSSP additional components involving source sustainability including catchment area management and promotion of water conservation practices were added. The challenge for the URWSSP was to integrate all these components while maintaining the customary rights and conflicting uses in the project region together through involvement of other stakeholders under appropriate institutional arrangements to provide the services. Such an integrated approach involved incorporating over 6 factors to successfully implement the project. These factors are listed in Figure 4.3 below:

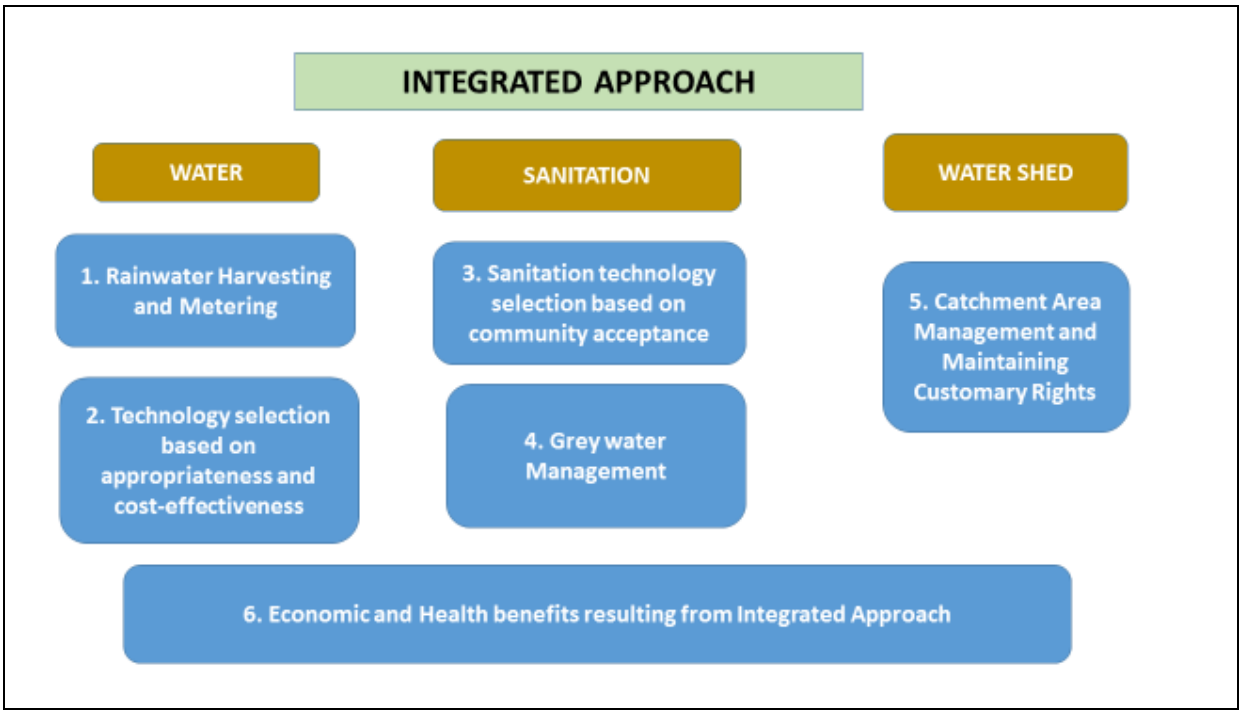


Figure 4.3: Factors influencing Integrated Approach

However, the challenge of the URWSSP involved in implementing the project under an integrated approach was on how to achieve this integration. The stakeholders include the "users": women and men in the villages and communities to be served, and the "doers": field staff of implementing and facilitating agencies; the various technical and management staff at district and state levels and other organisations. Under the URWSSP, procedures for involving communities and PRIs as "doers" in individual projects or sub-projects were established and the field staff and the communities themselves have gained enough experience and are confident of using the participatory processes for developmental activities.

Further, the involvement of the implementing agencies as "facilitators" were also established under the Project. The Consultant has studied the 6 factors listed in the Figure 4.3 above for all the 20 project schemes, against the backdrop of the 20 control schemes to showcase the integration brought out by building capacity at all levels during the implementation of the project.

4.4 SUSTAINABILITY

Large sums of money are invested in the implementation of rural water supply schemes in the state. However, implementation of water projects does not help if they fail to deliver the necessary services. In order to make the investment in water supplies more effective, failure rates of these systems should be reduced. Under the URWSSP, this is aimed to be accomplished by better integration of users and the implementing agencies involved in planning construction and management of water supply systems. This aspect has been detailed in the Integrated Approach utilized for the URWSSP.

In general, the RWSS projects become non-functional due to lack of funds for operation and maintenance, inadequate community mobilization and commitment, less community participation in decision making as well as lack of spare parts. Hence, the URWSSP focuses on the various facets of sustainability of the water supply schemes right from the inception stage. The sustainability of the schemes is impacted by various factors including but not limited to insufficient water facilities, poor physical structures, low reliability of the service and facility designs, distance and time needed to collect water and low awareness about their uses. These factors are correlated with four key sustainability aspects viz., Technical, Institutional, Financial and Social.

- **Technical** aspects of sustainability include an assessment of the source as well as adequacy of the scheme in terms of design, quality of construction, and managing operation and maintenance.
- **Institutional** features relate to the institutional and implementation arrangements including associated policies, capacity building/ support and monitoring and evaluation.

- **Financial** aspects cover preparation of budgets, fixation as well as collection of tariff, building corpus, dovetailing with other schemes/ activities and liaison with other funds.
- **Social** umbrella essentially entails intra and inter habitation equitability. It also reflects the number of household connections, regular tariff payments and community participation.

The factors influencing sustainability of the water and sanitation service delivery in the rural environment has been studied by the Consultant as per the factors provided in Figure 4.4 below.

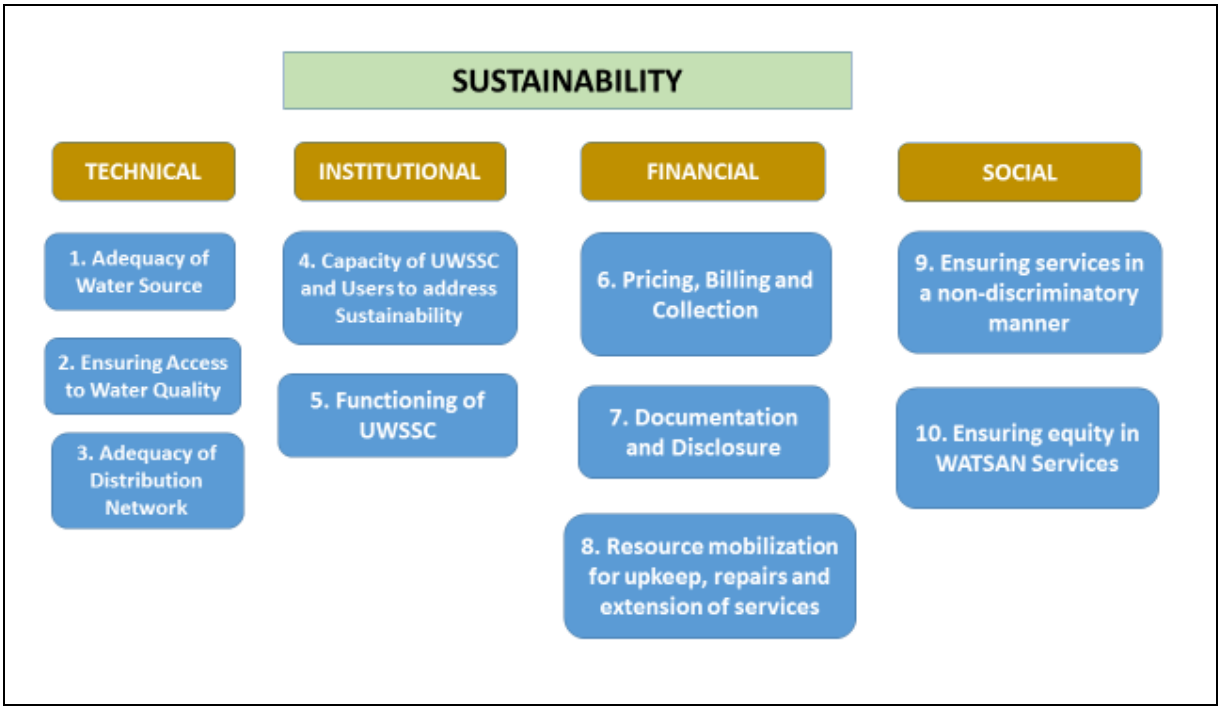


Figure 4.4: Factors influencing Sustainability

As shown above, the sustainability of RWSS schemes depends on factors controlled by the project like; training, technology, cost of the project and construction quality and factors that are not controlled by the project for example, communities' poverty level, access to technical assistance and spare parts. It is seen that sustainability rate of rural water supply systems increases as a result of communities' owning and managing their schemes, existence of management organization at the village level, protection of the water point, communities cost

recovery for operation and maintenance, technology type and availability of their spare parts and recognition of women. Building a partnership with the communities that should lead towards improving the people's problem solving capacities increased the probability of achieving sustainability. These factors were studied by the Consultant in the 20 project schemes and compared with the 20 control schemes.

4.5 TRANSPARENCY AND ACCOUNTABILITY

Transparency refers to the availability of information to the beneficiaries or users and clarity about applicable rules, regulations and decisions. These include sharing the Water User Committee records available for the verification by the community, making fund and fund utilization public at least once a year and selecting of beneficiaries under any special schemes in an open forum.

Accountability means that those who rule are answerable to those from whom they derive their authority through establishing standards or criteria for evaluating the performance of the people in authority. This include convening the meeting of the Water User Committees as per rules, ensuring participation of majority of the users including women and sharing the actions taken on grievances etc.

The URWSSP is closely connected with the policy of decentralisation and thus adding to the principle of managing water at the lowest possible level. The decentralisation process has resulted in increased political accountability given that investment decisions will be taken at the levels of PRIs. For the RWSS investments, the accountability will be secured through sharing the data with the community, having the dedicated accounting system through which the use of the entire funds shall be planned and implemented. Additionally, these accounting practices are being audited by a third-party so that the transparency is maintained.

The most important aspect of the transparency and accountability is the ability of the PRIs to serve the last person in the line. Hence, to ensure that all beneficiaries are provided similar level of services the practice of social audit is looked into.

Also, the technology that is most transformative in today's society is Information and Communication Technology (ICT). ICT does not impact physical objects directly; instead, it moves and processes information. ICTs enable decisions to be taken, assemble data, store information, and pass messages around efficiently. Because ICT's focus is on information, it has a different layer of significance in a village environment. ICTs produce content or information that has meaning, or at least an interpretation, and can inform all sorts of decisions. Therefore, ICTs have the potential to transform the system of governance. URWSSP has employed an extensive Sector Information System that has ensured transparency in the process and accountability at the PRI levels, as well.

Over 10 factors are part of this assessment on Transparency and Accountability and the same are listed in Figure 4.5 below:

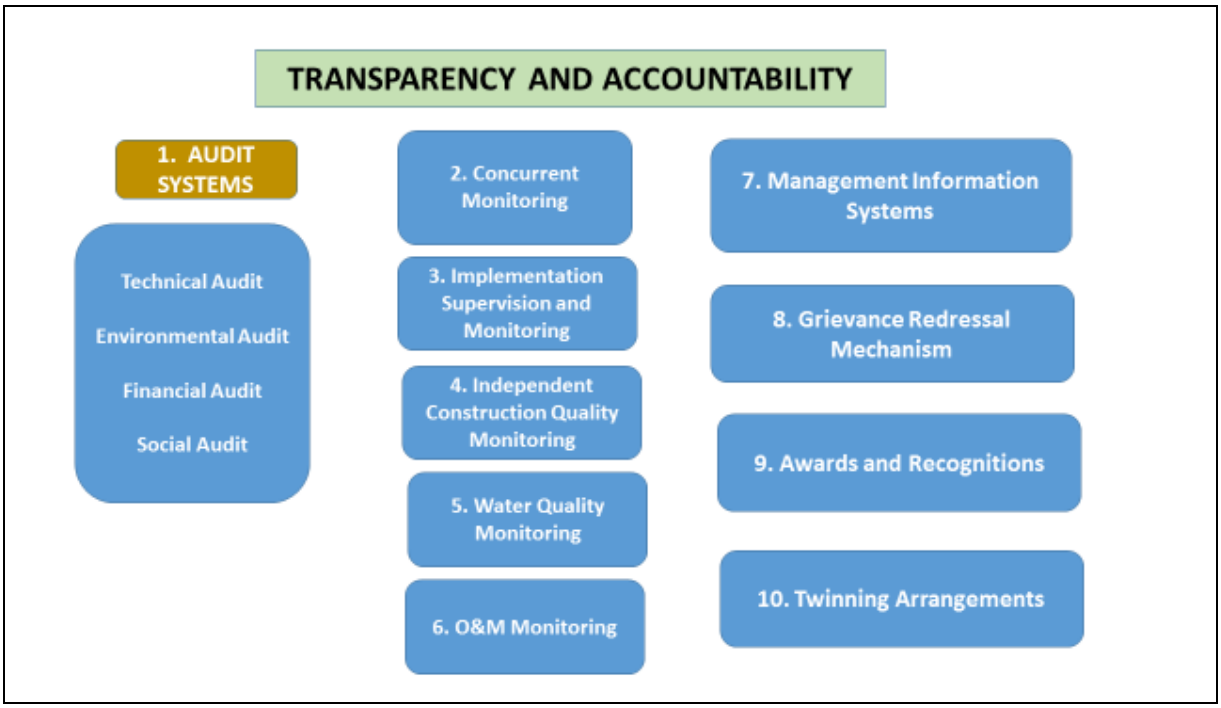


Figure 4.5: Factors influencing Transparency & Accountability

The success of decentralization efforts is reflected in maintaining an admirable transparency and accountability system. Hence, these factors were studied by the Consultant in the 20 project schemes and compared with the 20 control schemes.

5.0 BEST PRACTICES UNDER URWSSP

5.1 IMPLEMENTING SWAp

Implementation of SWAp involved a paradigm shift in the ongoing practices in the sector including changing the role of the agencies, service providers and the community. And, hence, it called for overcoming well-entrenched interests through creation of a conducive environment for its implementation. Additionally, policy support provided by government to implement SWAp has played a significant role in ensuring its success and which has also reflected in the way resources are allocated in the state for the sector. Further, the changing role of the sector institutions such as, Department of Water and Sanitation, Department of Rural Development, SWSM, Swajal PMU, UJN, UJS, State-Level Technical Institute at Indian Institute of Technology, Roorkee and Key Resource Centre and the Centre for Good Governance at the Uttarakhand Academy of Administration has played an important role in mainstreaming the SWAp. The implementation of SWAp has been documented through discussions with the various institutions responsible for RWSS service delivery in the state on the five (5) factors mentioned in the figure below and the details are provided in the subsequent paragraphs:

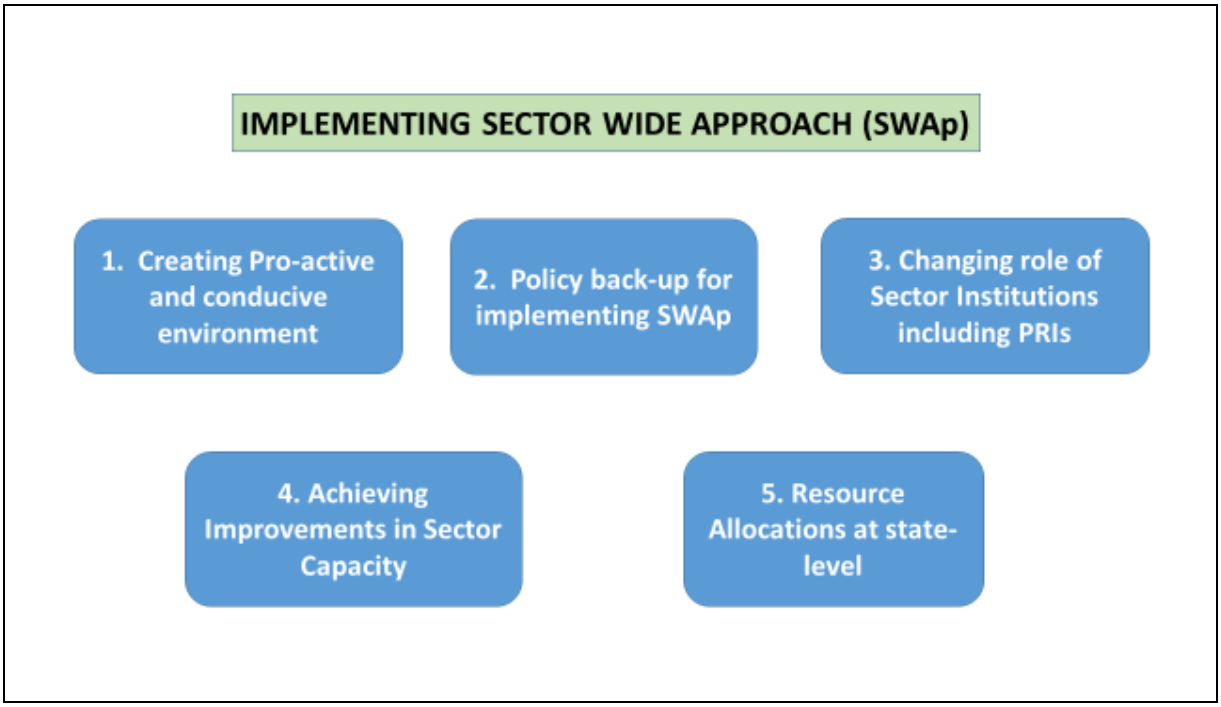


Figure 5.1.1: Factors influencing Implementing SWAp

Creating pro-active and conducive environment

The implementation of the URWSSP under the SWAp resulted in a paradigm shift in the way the RWSS sector operates in the state. However, the URWSSP had to overcome lot of challenges in initiating such a path-breaking exercise. These challenges include but not limited to addressing ways to obtain information on individual fund use especially when funds to the sector come from various sources such as WB, State and Central Government etc.; resistance to dilution the powers of the agencies in fund allocation and use; overcoming existing interests of the contractors and other service providers,. Based on all the factors above, there was initially significant opposition to the implementation of the URWSSP under the SWAp.

Box 1: The Key to Success - A Good Start

Project Management experts generally say "*Delivering a project isn't difficult. What's difficult is delivering a project without first taking the time to plan properly*"

Considering the significant opposition to the implementation of the URWSSP under SWAp, prior to the start of the project, a workshop was organized at the state level wherein participants included senior government officials, Gram Pradhans and other PRI representatives, representatives of sector development partners, the NGOs and civil society as well as political leaders. The key participant were the PRIs who were provided an overview of the various advantages in implementing the RWSS projects under SWAp, Finally, at the end of the workshop majority of the participants agreed on the benefits of SWAp and that the implementation of the URWSSP and other water sector projects in the state shall be taken up under SWAp.

What is striking about the event is not just the fact that practically all of the key decision-makers were present, but that discussions led to a decision that had the concurrence of key stakeholders including the then Political Leadership, PRIs, government officials and other developmental partners. The presence of all key decision makers in such a state-wide event ensured the availability and continuity of committed and suitably qualified staff who grasped the concept and championed the whole process. The workshop provided a high level of transparency and created a conducive environment to improving policies and implementation which was required for initiating an innovative approach such as SWAp.

Policy backup for implementing SWAp

The GoUK has showed its deep commitment to SWAp through a series of 16 key Government Orders (GOs). It covered various areas including but not limited to fund allocation and fund transfer, empowering agencies and PRIs in carrying out their roles water and sanitation service delivery and water conservation. The following table captures the key GOs:

Table 5.1.1: GOs issued by Government of Uttarakhand

No	GO Number	Subject
1	GO No 2425/29/04-2(22 pey) @2004 dated 31.05.2005	Institutional arrangements at district level for adoption of SWAp policies in GoI, GoUK and externally aided projects to be implemented in Rural Drinking Water and Sanitation (RDWS) Sector.
2	GO No 2426/ 29/04-2(22 pey)@2004 dated 31.05.2005	Policy arrangements at State level by adopting SWAp policies in RDWS Sector.
3	GO No 738/ 29/04-2(22 pey) 2004 dated 25.03.2006	SWAp policies in RDWS Sector.
4	GO No 739/ 29/04-2(22 pey)2004 dated 25.03.2006	Establishment of SWAp Cells in UJS and UJN for implementation of SWAp policies in RDWS Sector.
5	GO No 740/ 29/04-2(22 pey)2004 dated 25.03.2006	Establishment of Secretariat of SWSM under RDWS Programme
6	GO No 2425/29/04-2(22 pey)@2004 dated 31.05.2005	Institutional arrangements at district level for adoption of SWAp
7	GO No. 1660/xxix/(2)/2006-2 (22-1/2/2004 dated 26.07.2006	Adoption of SWAp polices by all Institutions for construction work/services/procurement in WB funded Sector Program.
8	GO No. 1763/29(2)/06-2(pey)/2004 dated 08.08.2006	Establishment of SWSM for WB funded Sector Program.
9	GO No. 1866/29(2)/06 dated 24.08.2006	Establishment of SWAp Cell in UJS and UPN for implementation of SWAp policies in RDWS Sector.
10	GO No. 1500/C-05/2006 dated 03.11.2006	Adopting the Sector Wide Approach for implementation

No	GO Number	Subject
		of GoI, GoUK and WB funded projects in RDWS Sector.
11	GO No. 2542/29-06-2(22 pey)/2004 dated 21.11.06	Formation of Apex Committee for State Water and Sanitation Mission by adopting SWAp policies.
12	GO No. 2420/29-6-2(22 pey)/2004½s dated 30.11.2006	Adoption of SWAp policies in World Bank assisted 'Rural Water and Sanitation Project'.
13	GO No 836/XXIX/08-2 (22pey)04/2008 dated 16.01.2008	Community contribution in capital cost of scheme under sector program.
14	GO No 153/ 29/02(22 pey)200-TC-II dated 24.01.2008	Clarifications in adoption of SWAp policies in RDWS Sector.
15	GO No 278/29 (2)/08 (22Pey0)/2004 dated 13.02.2008	Formation of Core Operational Committee for facilitating the implementation of SWAp.
16	GO 312/P S-13/dated 7.11.2013.	Transfer of all completed Multi-Village Water Supply Schemes from UJN to UJS.

A brief description of the Government of Uttarakhand (GoUK) policy on rural water supply and sanitation sector is as follows:

1. Under the Policy, GPs / GPWSCs would be responsible for planning, technology selection (type of scheme), procurement (bid invitation, award), construction and O&M management of all new Single Village (SV) water schemes and for all intra-village water supply works of Multi Village (MV) water supply schemes with capacity support from District Implementing Agencies / NGOs and / Private sector.

2. Self-selection of Villages based on transparent eligibility and selection criteria would be adopted in each district and the GPs will need to apply to DIA for endorsing the project principles to seek project support.

3. The District Annual plans for each year would be prepared by DIA through DWSM and approved by SWSM before the end of the previous fiscal year and included in the state budget. Thereafter, approvals of all detailed scheme reports and implementation phase proposals will be provided by DIAs, while GP/UWSSC and District Project Implementation Committee would approve tenders for SV and common infrastructure of MV schemes respectively.

4. For O&M of common infrastructure of all New MV schemes, DIA would deploy its own resources. For O&M of SV schemes, DIA would provide guidance to GPs/ UWSSC after Atmarpan of the schemes for overall responsibility including billing and collections.

5. O&M financing of Water Supply Schemes: For all *new* SV Schemes, users would finance the recurrent O&M costs (electricity bill, staff cost, chemical, minor repairs and routine maintenance). For all existing SV Schemes, full O&M cost recovery from user charges would be achieved in a phased manner. For all *new* MV schemes, GPs/MVSLC would finance O&M cost of intra-village water distribution system and bulk water charges as may be fixed by DIA. DIA would implement a phased program of installing bulk water meters at the entry to each village in all its existing MV Schemes. Through this process the DIA would then be able to introduce water audit, better assessment of water supplied to each village, and introduction of billing based on volumetric measurement of bulk water supply in existing MV Schemes.

6. The policy stipulated that RWSS investment funds would be transferred to the PRIs for implementation.

The key Government Order was the one issued to create a permanent institutional arrangement at village level in the State. Towards this, Panchayati Raj Department had issued G.O. No 622/P.G.A.S.Dett./92 (25)/2003 dated 29th November 2003 with a view to implement the spirit of the 73rd amendment of Constitution of India.

In continuation of this, Drinking Water Department, Government of Uttarakhand have issued GO No. 2121/Nineteen/04-2/2004 dated 17th August 2004 for devolution of administrative, executive and financial powers/responsibilities to Panchayati Raj Institutions under three-tier Panchayati Raj setup.

Further, another GO No. 2120/Nineteen/04-2 (22 Pey.)/2004 was issued dated 18th August 2004 relating to adoption of Sector Reforms principles in Water & Sanitation Sector in the State and have made provisions for formation of users based User Water and Sanitation Committee in the State of Uttarakhand.

Later, the Panchayati Raj Department, Government of Uttarakhand issued GO No. 308 / 86 (16) / 2005 dated 19th May, 2005 that allowed Gram Panchayats will setup separate User Water Supply and Sanitation Sub-Committees (UWSSC) within its area of jurisdiction depending on the number of drinking water schemes in the area. The UWSSC will be declared as sub-committee of Jal Prabandhan Committee of Gram Panchayat.

At the policy level, the emphasis has shifted towards O&M and sustainability of the schemes. In this regard, the Government of Uttarakhand (GoUK) has issued a Government Order detailing the State-wide O&M Policy which includes the roles and responsibilities of the UJS as the 'back-stopping agency for O&M services. The GoUK vide GO number 312/P S-13/dated November 7, 2013 has directed that all water supply schemes under operation and maintenance of UJN will be transferred to UJS with immediate effect

Changing role of sector institutions including PRIs

The innovations adopted in the URWSSP are a result of co-operative effort of all the stakeholders involved in the project, right from concept to commissioning and thereafter. The success of the various innovations being introduced as part of the URWSSP required each of the stakeholders to perform a variety of tasks. These include the following:

Table 5.1.2: Roles and Responsibilities of Stakeholders

Stakeholder	Roles and Responsibilities
Government	• Make a Policy on decentralization of all decision making powers; • As per the formulated policies and 73rd constitutional amendment prepare a clear roadmap for PRIs to function as main implementer of WATSAN and sector institutions as socio-technical facilitator; • Provide policy support to ensure sustainability of water and sanitation services provision; • Provision of adequate resources for decentralised functioning of State and District Level Water and Sanitation Mission.
Implementing Agencies (Swajal PMU, UJN and UJS)	• Involve the users in all phases of the project; • Hand-hold the users / user level organizations in all phases of the project under the leadership of PRIs; • Provide technical support to all the stakeholders both at regular intervals and on an as-needed basis;

Stakeholder	Roles and Responsibilities
	• Ensure sustainability of water and sanitation service provision by adopting appropriate scientific approaches and interventions.
Panchayat Raj Institutions (PRIs)	• Take ownership of the project; • Involve support agencies and technical consultants in all phases of the project; • Monitor Project Planning, Implementation and O&M; • Access required resources to ensure sustainable water and sanitation services to all users; • Seek guidance from Government, Sector Institutions other Implementing Agencies and NGOs as required. • Assist committees to ensure satisfactory water and sanitation services to all users.
Support Agencies (Non-Governmental Organizations)	• Work in close coordination with PRIs and DIAs to strengthen village level institutions; • Help PRIs to set up village / multi-village level committees that represents the diversity of the population and protects interests of all water users; • Build the capacity amongst the villagers and village-level committees; • Guide PRIs to collaborate with DIAs and other stakeholders to plan, implement, operate and maintain the project.
Support Agencies (State-Level)	• Two institutions, State Level Training Institute (SLTIs) at the Indian Institute of Technology, Roorkee and the Key Resource Centre at the Centre for Good Governance, Uttarakhand Academy of Administration are the key support agencies at the state-level; • The SLTI is involved in conducting training and capacity building on technical aspects of the scheme; • The Key Resource Centre is involved in conducting training and capacity building on maintaining environmental and social safe-guards in the schemes.
Village-level Committees	• Carryout Project Implementation and O&M as an extended arm of PRIs; • Organise community consultations and disclosures and committee meetings regularly as per charter; • Ensure prudent financial planning including accounting, billing and collection; • Ensure satisfactory water and sanitation services to all users as per the guidance of PRIs.
Users	• Realise the need for improved access to safe water and sanitation services;

Stakeholder	Roles and Responsibilities
	• Recognise the strength of decentralised demand-driven approach of the project; • Make user-contributions; • Pay tariffs regularly; • Adopt water & water source conservation practices. • Abide with the rules framed by committee and PRI for usage of WATSAN services.

Achieving improvement in sector capacity

Failures of RWSS projects have been generally attributed to a number of factors like system failure, lack of regular maintenance, lack of funds, manipulation of the systems, lack of accountability, control and legitimacy. The SWAp has ensured that the local sector capacity is improved. This is shown by the fact that over 313 NGOs and other service providers have been involved in various activities under the URWSSP. Each NGO had to provide 5 professionals for each scheme during the duration of the project. Hence, over 1565 professionals have developed the expertise to provide services in a decentralized approach. Also, the PRIs have developed the capacity to seek the services of these agencies so that the RWSS sector does not get affected in the state.

Box 2: The Grownups

Warren G. Bennis, American Scholar on Leadership, once said *"Leadership is the capacity to translate vision to reality".*

This has been aptly proved by the NGOs who were part of the URWSSP. The improved skill-sets of these NGOs to take up rural water supply and sanitation projects under a decentralized approach is indicated by the fact that a number of these NGOs have been recognized by various other funding agencies for implementation of projects. Some of the key examples are as follows:

1. The Himalayan Institute Hospital Trust has worked under the URWSSP as a Support Agency in a number of schemes. The Trust has now set-up their WATSAN Division and are implementing the rural CSR initiatives under Sri Ratan Tata Trust project titled "The Himmothan" and dovetails the project under SWAp.
2. Sri Bhuvneshwari Mahila Ashram, Anjnisain Village, District Tehri, has served initially in SWAJAL pilot project from 1997 to 2002 and under the URWSSP from 2006 to 2009 has been instrumental in augmenting a number of disaster-hit schemes in 2013 supported by the British High Commission.

3. Another strong feature of SWAp is the excellent relationship developed amongst the stakeholders. For example, in the village Narayanpur Muliya, District Nainital, the NGO, Muktinivesh Sahbhagi Vikas Evam Shiksha Samithi, has completed all its activities and has officially closed the contract. However, the SO oversees the operation of the scheme and assist the village community in maintaining scheme performance.
4. Institute for Development Support, Kandoliya Road, District Pauri has served as a Support Agency for UJS from 2006 to 2009 and have been instrumental in providing the technical support to solar pumping water supply scheme funded by World Vision of India. Additionally, technical support has been provided to DRDA in constructing the Roof-top Rain Water Harvesting System in the new Vikas Bhavan in the District.

The above examples showcases the fact that SWAp has been able to build sector capacity at all levels and this sector capacity is available for the various stakeholders to utilize for project planning and implementation in the WATSAN and related sectors as well. Further, it shows how all partners in development i.e., NGOs and international aid agencies, can come together under a common platform and ensure that WATSAN services are provided in a coordinated manner at all times including during emergencies.

Allocations at the state level

Based on the actual expenditures incurred under the SWAp, the World Bank share is significant at 64%. The GoI share is 18%, the GoUK share is 16%, and beneficiary contribution is 2%.

Box 3: Opinions on SWAp

We are living in an age wherein everyone is having an opinion on everything. But, it is always important to implement a successful program that allows goals of all stakeholders to be reached in a coordinated manner. Basically, a project should be seen to be complete when it starts working for you, rather than you working for it.

This very well applies to the URWSSP under SWAp as it has significantly improved coordination in most areas and has created a more organized RWSS sector in the state. In fact, there is a general agreement amongst all stakeholders that key policy issues and actions associated therein are carried out in a coordinated manner. The significant contribution of SWAp to the success of the URWSSP can be gauged by the positive reactions coming from all sections of the stakeholders.

The success in implementing SWAp can be seen by the fact that Dharampur Auliya in Nainital District implemented a community led scheme under block development fund. Ms. Navneet Kaur, UWSSC member at Dharampur Auliya says "…….*when positive things started happening in our neighbouring village (Narayanpur Muliya) through involvement of*

the villagers to plan, implement and run their own water supply scheme for the entire GP, we were astonished. Later, upon seeing its success, we implemented a community-led scheme through block development funds".

The change in attitude of the officers of the implementing agencies has been appreciated by the residents in all the project schemes. This is exemplified by Ms. Pushpa Segwali, UWSSC member at Badiyura Thana Metrana Multi Village Scheme in Almora District when he mentioned *".....now we see some change in the behaviour of UJN engineers also, as they are more in a counselling mode and we feel proud when they seek information from us on various aspects of drinking water supply and sanitation project implementation"*.

Another project beneficiary is highly impressed with the transparency aspects in implementing SWAp. Mr. Kishore Bhatt, Treasurer at Jugapani Project Scheme in Pitthorgarh District told, *"we have done it (constructed our water supply scheme and are running it too) and the amount of the money charged as tariff also remains in the village, its less too because it's a gravity scheme and we are happy that we are able to provide employment to the technician who is also from the village itself".*

Mr. Joginder Singh Bist, Coordinator, KRC-CGG, UAoA Nainital, lauds the change in the attitude of the engineers in the various implementing agencies in their approach to tackling the social and environmental issues. He says, *"I see a visible change in the attitude of the engineers, against the entry behaviour that we map in the beginning of the training, as a training agency on social and management. It is also satisfying that the engineers accept that people can conceive, plan, implement and monitor the water supply scheme. It give us a sense of achievement as we have put in a lots of efforts to convince the technical staff on matters concerning social and environmental management including taking classroom sessions, analysing case studies, showing the videos and documentary films and sometimes interacting with village committee members themselves."*

Mr. Baldev Singh Rawat, an Engineer at UJN in District Tehri Garhwal , referring to SWAp; says that "*It is a great approach to deliver the most basic necessities of any community and the approach gives us strength as well"*. On this, he says that *"……..previously we used to be the most vulnerable in most of the Block Development and District Committee meetings. But, now if any PRI member raises any grievance then other PRI member is readily available there to answer; as they are the real implementers and we have just provided the technical guidance".*

Mr. Ashwin Bhatt, an Engineer at UJS, District Tehri Garhwal , referring to SWAp; says that *"SWAp gives us the independence necessary to advice the community on the type of the material to be used, the quality of material to be used and procurement process to be adopted. And as a Technical Facilitator it is highly satisfying when people understand its importance. And, moreover, presently, we have a better reputation at the BDCs than we had before which is personally more satisfying".*

5.2 EMPOWERING PRIs

The 73rd Amendment of the Constitution of India came into force in 1993, which ensured conferment of powers and responsibilities to Panchayat Raj Institutions (PRI's) for local self-governance including but not limited to rural water supply and sanitation sector. In fact, the URWSSP ensured that the PRIs develop the necessary capacity to plan, implement and manage drinking water supply schemes. This is because the URWSSP concentrated on issues like placing GPs and communities in the central role, supported by higher levels of PRIs, the State government and the local non-governmental and private sector, for facilitating, planning, implementing, monitoring and providing a range of operation and Management (O&M) back-up services. A series of Government orders issued by the state government can be seen as states commitment towards decentralisation of powers and duties to the three tier Panchayati Raj System. As of now, RWSS sector is the one of few sectors that has been successfully decentralized with the full backing of the community and the sectoral agencies. To empower the PRIs much ground work is needed to understand the situation of the villages of Uttarakhand. Six Major factors identified after the community mobilization and they are-

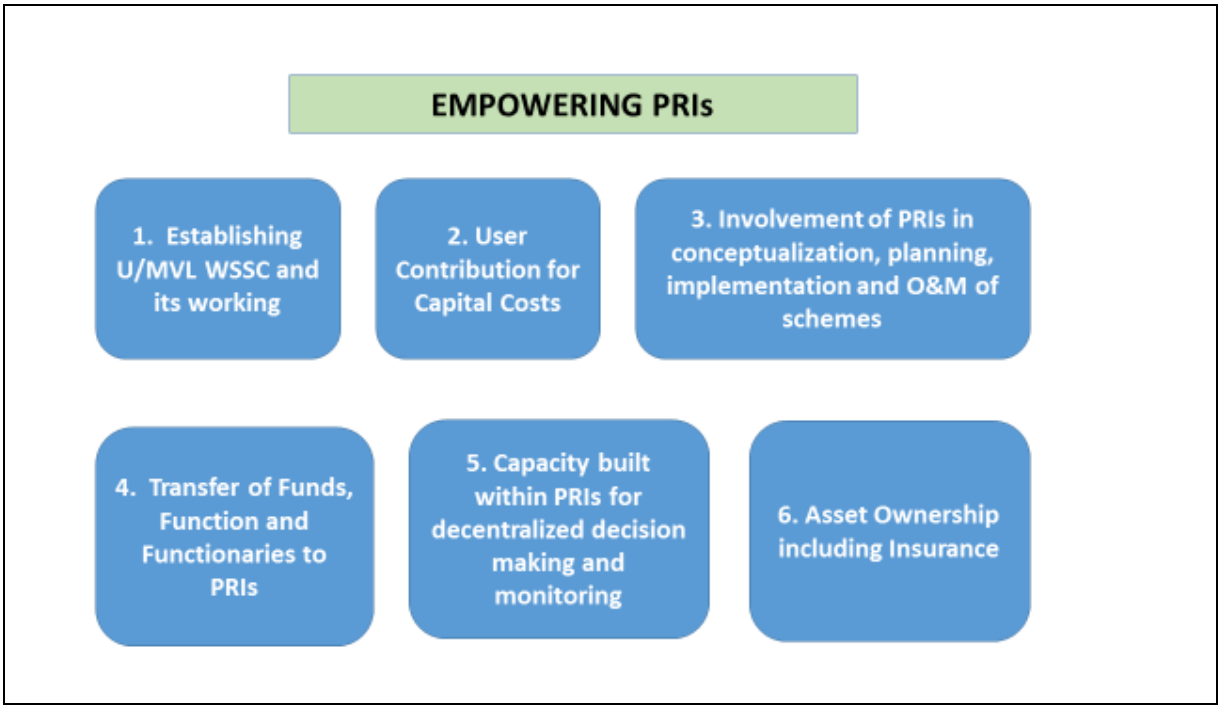


Figure 5.2.1: Factors influencing Empowering PRIs

The detailed comparative assessment of the achievement of the project and control schemes under the Empowering PRIs innovative practice is provided in the Table 5.2 overleaf:

TABLE 5.2.1: EMPOWERING PRIs - COMPARATIVE ASSSEMENT OF PROJECT AND CONTROL SCHEMES

FACTORS	PROJECT SCHEMES			CONTROL SCHEMES		
	Studied	**Achievement**	**Remarks**	**Studied**	**Achievement**	**Remarks**
ESTABLISHING UWSSC / MVSLC AND ITS WORKING						
Establishment of UWSSC	26	26	UWSSC has been established in all Project Scheme villages including the villages that are part of MVS. Each MVS covers 3 villages and hence the total number of UWSSC is 26	20	4	Dharampur Auliya in Nainital formed the UWSSC despite project funded by GoUK, and Rani Majri - a Sector Reform Project, Kamsal and Kandara in Rudra Prayag after transfer of scheme by UJS for O&M
Establishment of MVSLC	3	3	MVSLC has been formed in the three MVS	NA	NA	No MVS studied in Control Scheme
Working of UWSSC	26	26	UWSSC is a sub-committee of the PRI. And, as per mandatory requirements, GP meetings are held every quarter. And, the water supply issues are also discussed in these meetings and recorded. However, when there is specific need of water related issues, UWSSC separately calls the meeting, discussions held and decisions recorded.	20	4	Water issues are discussed at the GP meetings and addressed. Separate UWSSC meetings have not been held even in the 4 Nos. control schemes where they have been formed.
Working of MVSLC	3	0	MVSLC is inactive			
USER CONTRIBUTION TO CAPITAL COSTS	20	20		20	2	Dharampur Auliya and Rani Majhri
INVOLVEMENT OF PRIs						
Scheme Conceptutalization	20	20	Noteworthy Involvement in Naini-Poundar and Ranghadgaon in selection of source,	20	2	Dharampur Auliya and Rani Majhri
Scheme Planning	20	20	Noteworthy involvement in Shahpur Shitlakhera in optimising the cost for all residents by suggesting pipeline in	20	2	Dharampur Auliya and Rani Majhri

FACTORS	PROJECT SCHEMES			CONTROL SCHEMES		
	Studied	**Achievement**	**Remarks**	**Studied**	**Achievement**	**Remarks**
			the middle of the road			
Scheme Implementation	20	20	Noteworthy fact was that GP Engineer hired to assist the UWSSC in procuring local materials in Badiyura Thana Metrana	20	2	Dharampur Auliya and Rani Majhri
Scheme O&M	20	20	Noteworthy fact is that in Narayanpur Muliya and Shahpur Shitlakhera sharing Community Technician with nearby village for O&M of the scheme	20	4	Dharampur Auliya, Rani Majhir, Kamsal and Kandara
TRANSFER OF FUNDS, FUNCTIONS AND FUNCTIONAIRES TO PRIs	20	20		20	2	Dharampur Auliya, Rani Majhri
CAPACITY BUILDING FOR PRIs FOR DECENTRALISED DECISION MAKING AND MONITORING	20	20	In each scheme, 4 programs in planning phase, 10 programs in implementation phase and in all phases about 60-70% women participation. Also, 1 visit each (total 2 nos.) to similar schemes were conducted during the planning and implementation phases. And, hand-holding by DIA 3-4 months after Atmarpan (transfer of responsibilities) and regular visits thereafter.	20	1	Rani Majhri - a Sector Reform Project
ASSET OWNERSHIP INCLUDING INSURANCE						
Assets insured	20	20	Assets have been insured only for the implementation phase	20	0	
Insurance Claimed	20	0	None of the project scheme assets have claimed insurance	20	0	

Establishing User Water Supply and Sanitation Committee / Multi-Village Scheme Level Committee and its working

Under the URWSSP, the establishment of User Water Supply and Sanitation Committees (UWSSC) is considered essential in establishing, strengthening and sustaining water and sanitation infrastructure and services. The UWSSC are elected to manage the schemes on behalf of the whole community. The SO plays an important role in the formation of the UWSSC in terms election / selection of members, defining their roles, training and capacity building and hand-holding the community during the process. The UWSSC in the project schemes have enabled detailed micro-planning, monitoring and finding solutions to various problems confronting the conceptualisation of a WATSAN system as per the perspective of the community, its proper implementation and functioning of the installed water infrastructures. This includes issues such as developing plans, preparing budgets and procurement of goods and services by the user community. The formation of the UWSSC recognizes the fact that community infrastructure and community-based services are best done by a group of community leaders duly sensitised and trained who then are able to give necessary feedback to the entire community and suggest the mid-course corrections to the technical facilitators. In the single-village project schemes, the UWSSC are recognised as sub-committees of GP; therefore are answerable and accountable to both the GPs and to user community. In the multi-village schemes, apart from the individual village-level UWSSC, there exists a Multi-Village Scheme Level Committee (MVSLC) to oversee the working of the common infrastructure that supplies water to each of the individual partnering villages. The common infrastructure includes the infrastructure from the source to the individual water tank in each of the individual partnering villages.

Figure 5.2.2: UWSSC in the Naini-Poundar Project Scheme

The UWSSC has been formed in all the 20 project schemes. The UWSSC formation is being guided by the selected Support Organization. The SO enables the formation as per the guidelines and giving due importance for gender and vulnerable group representation. As shown in the graph overleaf, of the 234 UWSSC members in the 20 project schemes, 56% and 31% of the members are from women and vulnerable group, respectively. Additionally, in over 3 project schemes, women member heads the UWSSC, as well.

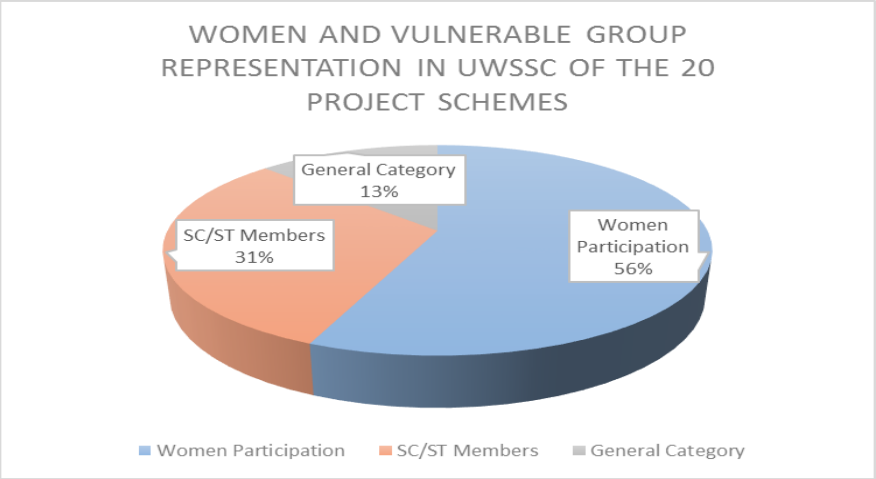


Figure 5.2.3: Women & Vulnerable Group Representation in Project Scheme UWSSC

The UWSSC in the project schemes is the heart of the URWSSP and its success lies in having members who are capable of addressing the issues involved such that the scheme operates in a sustainable manner. In general, it has been found that the project schemes address the issues through holding regular meetings to discuss the problems involved, arrive at a consensus on the solutions and implement these solutions in a time-bound manner along with documenting all the decisions for future reference and transfer of institutional learnings to the subsequent UWSSCs. The UWSSCs have kept written record of the deliberations in a Record Book which is signed by all the members of the UWSSC present in that particular meeting.

Under the URWSSP, the UWSSC has specifically prepared and submitted the project progress report to the GP and the communities, as well. The role of the Support Organizations in handholding the UWSSCs and institutionalizing the Monthly Progress reports for communicating to the respective DIA offices should be appreciated. Majority of the UWSSC members in the project schemes have shown trust, commitment and openness in carrying out their role.

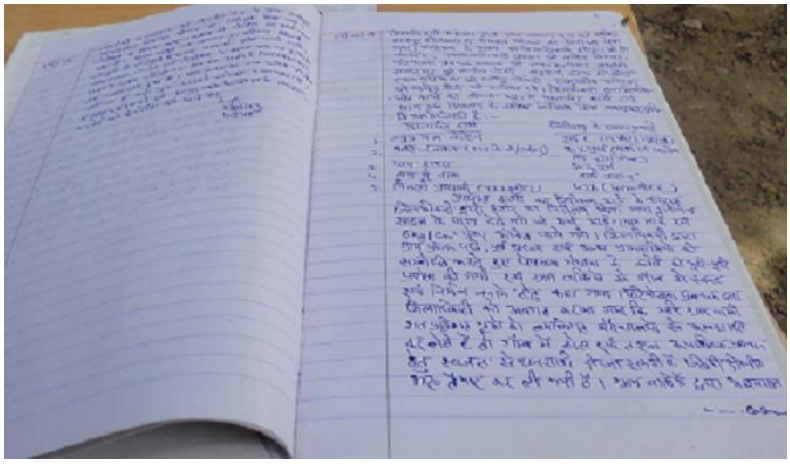


Figure 5.2.4: UWSSC deliberations recorded in project scheme

Box 4: Imitation is the best form of flattery…or….is it?

One control scheme, Dharampur Auliya in Nainital District was impressed by the success of the decentralized approaches taken in the adjoining village of Narayanpur Muliya Project Scheme and have tried to replicate the process. While the Dharampur Auliya control scheme have been able to successfully implement the project, the performance of the UWSSC in the Dharampur Auliya Control Scheme is not at the same level as the other project schemes. One of the reasons cited by the villagers is in the selection of the UWSSC members and their role in the process. The lack of a Support Organization (SO) to guide the UWSSC formation has led some of the community members feel isolated in the process resulting in the dissatisfaction of the working of the some of the committee members. Hence, while the initiative of Dharampur Auliya in adopting a decentralized approach to implementing the water supply project should be appreciated, the importance of capacity building and hand-holding by a SO should not be overlooked. The members of the UWSSC do need the necessary support throughout the process in order to be successful.

At the project schemes, the situation with respect to UWSSC formation and its working have been very much appreciated. The present Gram Pradhan of Aamhat and the President of the UWSSC Mrs. Kavita Devi, expressed her utmost satisfaction with the concept of the UWSSC and its role in the RWSS schemes and says *"…….now, we get a sense of satisfaction that the Government is recognizing our skill levels and knowledge to conceptualise, plan and implement an infrastructure project. Previously, there was a sense of superiority amongst the government officers but with the UWSSC formation, both of us have realised that there is a specific role for each of us. Now, we seek their support when we need it, while the officers are always willing to help and share their knowledge*".

The openness of the UWSSC committee members can be seen from the fact that in the Naini-Poundar Project Scheme, the UWSSC members accepted the application of one of the community member for a household connection three years after the commissioning of the project despite the member objecting to the project vehemently right from the beginning and later realising the excellent benefits the scheme is bringing to the users.

Mrs. Usha Maheshwari, a woman member of the UWSSC at Pasta Pipalsar conveyed -*"I appreciate the women of my area who came forward with taking a decision of their own water supply and sanitation system. Though the place is men centric but the rising demand and walking to far distances to fetch portable water made us to realise to come up with our own water supply system.."*

Mr. Sitaram, Executive Engineer at UJN says that *"……..prior to the concept of UWSSC we would always be on the defensive when we meet with the villagers who had access to poor services as we would not have access to the information that caused the poor level of service. Now, since majority of the issues are discussed regularly at the village-level UWSSC meetings and documented thoroughly we have access to the entire history of the problem and are able to suggest remedial measures in consultation with the villagers themselves. We get a sense of satisfaction at the outcome we can achieve in these project schemes".*

User Contribution to Capital Costs

During the planning stage of the URWSSP, the different types of water sources, its associated costs in implementing rural water supply and sanitation projects were identified, levels of recurrent revenues were determined and the revenue sources recognized in total consultative manner with in the village. It was noted that the initial capital investment is the most obvious cost perceived and understood by rural households. However, earlier projects had demonstrated to the rural households in Uttarakhand, that the Government or other funding agencies would bear the entire capital expenditure. But, this approach changed with the decentralized process adopted in the URWSSP as the community were required to contribute to capital costs. Under the URWSSP, the community members in all project schemes were required to contribute to capital expenditure and / or make labour contribution for the construction of the scheme. The nature of an often highly dispersed population with low access to cash in rural areas of Uttarakhand made it necessary to seek user contribution to

capital costs as a tool to develop the sense of ownership to the user community. All the project schemes have had user contribution to the capital costs. The villagers started providing the minimal amount for the project scheme so as to obtain the ownership rights and get a sense of belongingness to the project. A few families in some villagers that could not afford the cash contribution came up with providing with the construction materials such as stones/coarse sand, grit for concrete etc. In a few villagers some families shared the responsibility to cook meals for the construction workers as a contribution. However, the control schemes were entirely implemented on allotted Government funds.

Box 5: Taking matter into own hands and winning

Jugapani village of district Pithorgarh has a very small number of households i.e., 82 .The village habitation falls in an armed force area and they were depending on the water sources of army areas provided by the government. As the demand rose in the village, the army areas could not provide sufficient water to the villagers. The villagers had to depend on the Nalas and small streams which were contaminated. The rising demand for drinking water in the Jugapani village habitation brought the villagers to come up with their own water supply systems. The village set a target of Rs.60 per head for general communities and Rs. 30 per head to the SC/ST communities. Once the fund was collected and deposited in the capital cost account of banks, the subsequent phases of the project started. Mr. Jyoti Arya, one of the residents in Jugapani village has been highly impressed with the concept of user contribution to capital costs. He says *"…..it gives us a sense of ownership to the project and what impressed us the most was the Government's response to our contribution. All aspects of the water supply project started to move very fast once the community fund was collected."* Another resident, Mrs. Hema Devi was more forthcoming on the maintenance front as she felt that the villagers now take all possible measures to prevent the dumping of solid or other waste materials at the source catchment area and ensures that the water provided for drinking water is of very good quality.

In another village, Legamkhanda in Pitthorgarh District, the allotment of Government funds resulted in initiating a planning for connecting the village to the district road about 3 km away. The allotted funds were not sufficient for the project and at one of the GP meetings, the Gram Pradhan explained the situation to the villagers. The villagers immediately decided to contribute a share of the labour cost for implementing the project. Later, the road project was implemented under a user contribution mechanism for the first time in the District. Mr. Devendra Singh, President, Legamkhanda UWSSC says that *"….the experience of implementing the water supply project under the user-contribution mechanism opened our eyes on various possibilities for providing infrastructure to the village"*. Today, the village is home to commercial milk production that has resulted in an additional income of Rs. 2,000 per month per family to the 15 families (out of the total 45 households) that have started the diary venture.

Involvement of PRIs in conceptualization, planning, implementation and O&M of the schemes

The UWSSCs are responsible for planning, constructing and operating and maintaining water and sanitation facilities, with capacity building and capacity support from the SO and DIAs viz., Swajal PMU, UJN and UJS. The UWSSC composition also reflects the inclusiveness and equity aspects, with more than one-third (37%) women members. The Project has efficiently and effectively covered even the remotest habitations in the state.

At the planning stage, a Support Organization (SO) was hired to establish door-to-door contact with the households and assess their requirements and address their concerns on the water supply project. The complete user-participation was ensured by the SO and the users were involved right from source identification to alignment planning and the decision on service levels.

Box 6: Enhancing Project Impact through Participation

Active participation has always been the key for continued project success. This is more so the case in small rural communities where a few negative voices could undermine the project. In such a situation, the SO has an important role to play to ensure that every opinion is heard, every apprehension addressed and every community member comes on board to implement the project. In fact, active participation of the community members has ensured successful implementation of each of the project schemes.

Figure 5.2.5: Participation by community members in one of the project schemes

In Ranghadgaon and Naini-Poundar Village in Tehri Garhwal and Rudraprayag Districts respectively, the village residents shared their knowledge on the most sustainable surface water sources in the area and the final selection was done after a detailed study on those identified sources. Hence, the residents of these villages helped the project authorities identify the most sustainable water sources.

Figure 5.2.6: Hills where Ranghadgaon Source is located (about 10km from Village)

In Sapera Basti Single Village Scheme and Athoorwala Multi-Village Scheme in Dehradun District, the involvement of the community in the planning stage to identify the borewell source location ensured that no private land owner near the borewell source would dig up wells for other consumptive uses and thereby result in drying up of the borewell source. Also, in Shahpur Shitlakhera Village, the residents came up with the idea of having the distribution line along the centre-line of the road instead of traditional planning methods of aligning the water-supply line along one side of the road and the sewer line on the other side. The centre-line alignment ensured that the seepage from the open drains that are on either side of the roads would not affect the water supply line. It also resulted in each of the households on either side of the road spending the same amount of money for their individual connections from the distribution line.

Figure 5.2.7: Community Meetings at Shahpur Shitlakhera, Haridwar District

During the project implementation stage, the community-led UWSSCs utilised community contracting methods to recruit the services of a Contractor for constructing water supply schemes. This has enabled in maintaining economy, efficiency, equal opportunity and transparency of the process. Procurement arrangements have been in accordance with the Bank's procurement guidelines, making the process more effective and efficient. A Procurement Plan prepared provided details of the local and non-local material and other essential activities to be carried out to address the actual needs for the project implementation. It comprised estimated costs, time frame for the activity, fixing for prior / post review considering the value of the scheme and the threshold level.

To ensure the consistency in procurement and for mobilization of works, project prepared a *Procurement Manual*. The implementing entities have followed the procedures laid in the procurement manual for its procurement activity. Adequate training programmes were organized to all technical and non-technical and social staff of Districts, including President/Treasurer of UWSSCs, SOs and other GPs members in case of Group Village Schemes. During trainings, emphasis was on contract management and contract closure to avoid legal complications in future. Trained staff at the District levels has done the hand-holding to GPs and UWSSCs in all procurement issues. Robust procurement information system was established within the project MIS to have effective, efficient and transparent procurement systems. The records were maintained at both District and GP level. The procurement methods followed were as per WB guidelines specified for works, goods and services.

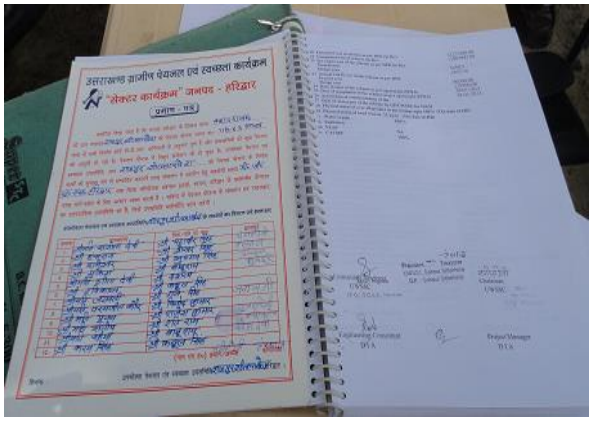


Figure 5.2.8: Procurement related documents maintained by UWSSC of Shahpur-Shitlakhera Project Scheme

The URWSSP set a new horizon for the participation of the community and the sector professionals as they are engaged in many development and welfare activities at the grassroots level and upwards. Based on the good experience of community and private sector participation in the Pilot Project, the opportunity for community and private sector participation from state level office to GP level have been institutionalized under the URWSSP. During the project, the services of individuals (subject matter specialists), NGOs, SOs and Chartered Accountants were procured on consultancy basis at State level for handholding and monitoring at District and GP level as the case may be for assisting project implementation including quality monitoring. In addition to SO, provision has also been made for SOs to have partnership with other NGOs in the specific areas of community development. The participation of both the community and private sector in RWSS schemes has resulted in the owning the assets by the bottom line PRI and the user's community. This, in turn is making way for long term sustainability of the schemes and improved health and life style.

More importantly, the response to the project implementation process has been overwhelming from all the project schemes. In fact, all the community-led organizations that were involved in project implementation has developed excellent capacity for vendor selection and contract management.

A review of the Control Schemes shows that poor operation and maintenance (O&M) has been the main cause of failure of water supply systems. The involvement of state-level agencies in O&M exacerbates the problem because of the resultant slow-response times of these agencies. Dissecting the reasons for this has revealed diverse root causes viz., lack of planning for O&M while designing a water supply system, use of sub-standard material, no source protection, untrained operators, no way to determine or collect user charges, a disconnect between the engineers of the concerned agency and Gram Panchayats and little or no community involvement.

The URWSSP dwelled into these reasons and incorporated Community-led O&M as part of the project. Towards this, the URWSSP ensured that at the end of the project implementation the scheme is ceremonially transferred (exit or Aatmarpan Samaroh) to the UWSSC for

O&M. Moreover, the URWSSP also looked into providing the services of the SO to conduct capacity building and training to the personnel involved in O&M. Further, during the period of transfer of scheme O&M to the community the agency has created a festival-like atmosphere in the village which would not only instil pride and ownership but also a sense of responsibility to the community representatives to provide sustainable water services.

The O&M itself is carried out by utilising the services of a trained Community Technician who is answerable to the UWSSC. The billing and collection of tariff is carried out by the UWSSC. In certain cases, the services of the Community Technician is utilised for billing and collection, as well. The DIAs and the SO undertake periodic visits to review the O&M practices and provide requisite capacity building, as well.

Figure 5.2.9: Atmarpan at the Naini-Poundar Project Scheme

Box 7: Sustainable O&M – The key to achieving sustainability

In Naini-Poundar and Medanpur Scheme in Rudraprayag District, the active participation of the UWSSC in O&M has resulted social accountability among all and the proactive role of the community that has eventually ensured the smooth functioning of the water supply scheme. More importantly, cost recovery for O&M and replacement costs has also led to the financial viability and sustainability of the scheme.

In Kuling Scheme in Chamoli District, the community-led O&M has improved the overall functioning of the scheme and the residents are highly appreciative of the fact that the response time in case of breakdown has reduced significantly. The improvement has been attributed to the community's efforts to procure the required spare and tools have a locally available trained human resources.

In Shahpur Shitlakhera scheme in Haridwar District, the use of modern accounting practices including having a separate account to deposit the collected water user fees has resulted in surplus cash available for any emergency repairs and maintenance. The Community Technician has also been trained to supply with groundwater recharge. Towards this, the O&M staff have also been taken on exposure visits so as to enable them to develop the confidence necessary to operate the system. Further, the GP is having provisions for Support Agency to assist in capacity building and training, sensitisation and carrying the project implementation plan forward by providing handholding support to the community.

The experience of each of the schemes shows that the role of Government needs to shift from service provider to that of a facilitator. Much of the ground-breaking work on community management of water supply has already started rolling under the URWSSP, with due consideration to the importance of improved and safe water supply. Now, the situation would require the Government to provide financial and policy support to the communities and community level institutions for achieving the desired levels of services on a sustainable manner.

BOX 8: FROM STRIFE-STRICKEN TO A MODEL VILLAGE THROUGH WATER

Narayanpur Muliya Project Scheme, Nainital District

The villagers of Narayanpur Muliya in Nainital District were dependent on the nearby multi-village scheme or the irrigation channel that passed through the village for their water needs. Being a tail-end village of the multi-village scheme, the water supply would be on alternate days and inadequate to meet their daily requirements. Additionally, the quality of water from the alternate source i.e., water from the irrigation channel was not good either. Hence, the community decided to contribute a portion of the capital costs and embarked on the project.

However, one of major drawbacks was that the Narayanpur Muliya Village was a strife-ridden community of 174 households that had faced a number of conflicts amongst themselves. Hence, the villagers were hesitant to take the initiative of implementing the scheme on their own and even requested the District Authorities to carry out the project. However, after sustained efforts of the Support Organization, Muktinivesh Sehbhagi Vikas Evam Siksha Samiti, the community decided to form a UWSSC under the Chairperson Mrs. Nirmala Rawat and take up the planning and implementation of the project. The UWSSC has a good representation of women (4 Nos.) and vulnerable groups (3 members from SC/ST community). Incidentally, Mrs. Nirmala Rawat had the experience of running a Women Self Help Group in the village and hence had the necessary skill levels to bring together the community and take up the project.

Once the project started, there was overwhelming participation by the community at all stages. For example, over 134 households attended the meeting that finalized the location of

the borewell. The UWSSC responded with equal enthusiasm during the implementation phase by forming sub-committees for every major activity such as digging of borewells, construction of overhead tank and pump house, installation of pumping machinery and procurement of materials. The transparency that has been adopted in the process enabled the UWSSC to gain confidence of the entire community. Mrs. Nirmala Rawat, Chairperson of the UWSSC has words of praise for the Support Organization who she says *"....ensured that every member of the community is informed on the progress of the project and utilization of the funds".* In addition to the water supply, the GP and the UWSSC ensured that every household has a latrine. The dual achievement of 100% water and sanitation coverage enabled the village to win the Nirmal Gram Puraskar Award in 2011-12.

Continuing their innovative practice to take everyone along, the UWSSC has formed an O&M Sub-Committee and has ensured supply of good quality water for all the households for the past three years. At present, the UWSSC has surplus of over Rs. 75,000/= that enables the community to carryout normal repairs and maintenance without being dependent of funds from any other source. Additionally, the UWSSC has also started to work with neighbouring villages and sharing the Community Technician for carrying out repair and maintenance works. Unknowingly, the community has succeeded in transforming the village into a harmonious, united and just community with adequate water and sanitation facilities that is attracting migration from nearby areas, as well. In fact, the Naryanpur Muliya Village has become a Model Village for the region and a number of adjoining villages have been inspired by its success and implementing water supply projects in their respective villages using procedures similar to those that have been adopted by Narayanpur Muliya even though the funds are from GoUK. The shining example is Dharampur Auliya, a village which is situated nearby and is an excellent illustration of SWAp working at the grassroots level.

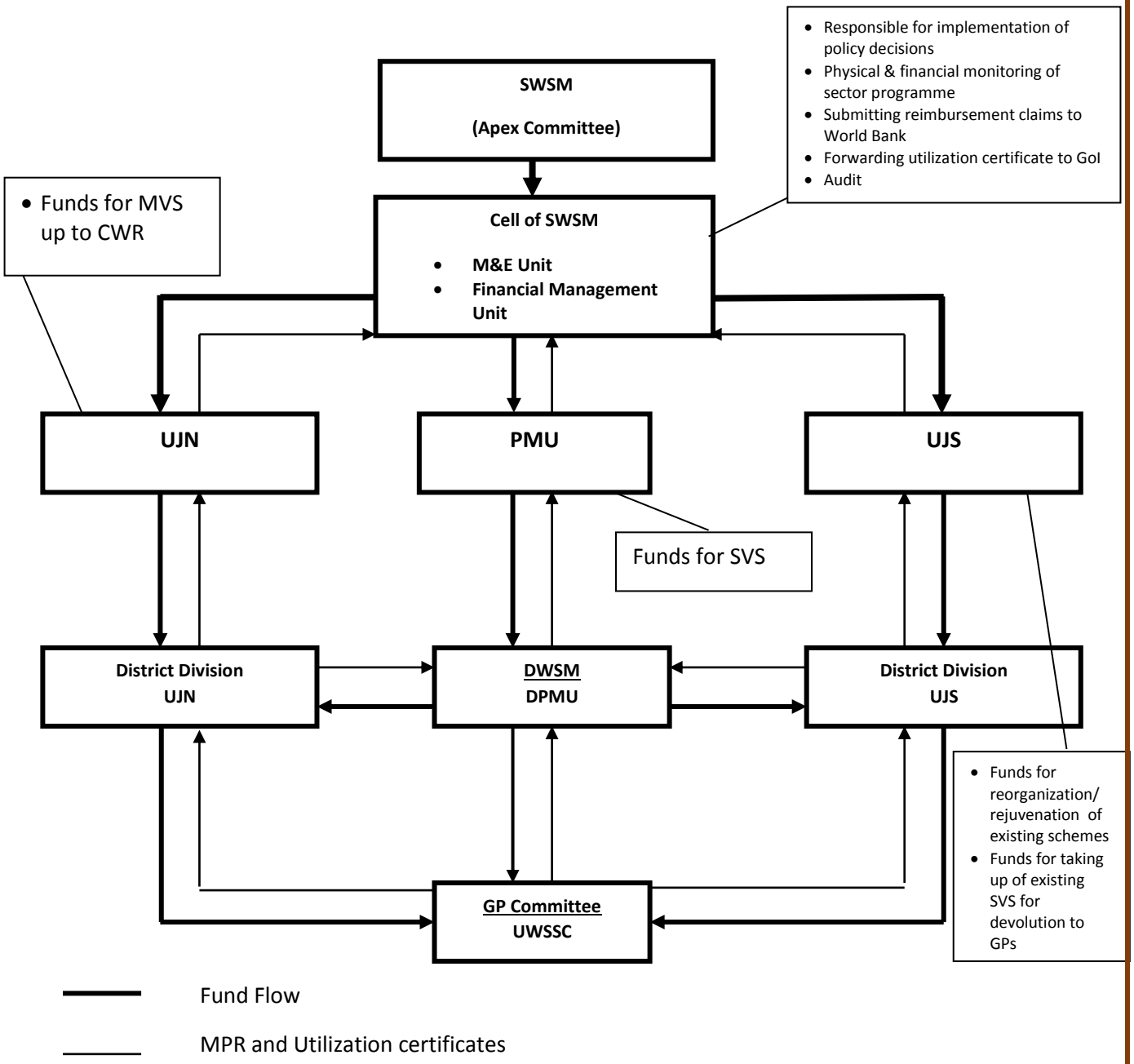
Transfer of Funds, Functions and Functionaries to PRIs

The funds to the RWSS sector from various sources viz., World Bank, State and Central Government are tracked at the SWSM cell. The functions of each of the agencies are well-defined and the compliance principles agreed upon prior to the transfer of the funds to the concerned agencies.

The District Water and Sanitation Committee (DWSC), comprising the representatives of the DIAs and the PRIs, authorises the selection of the NGOs for Support Agency and other service provides for each of the schemes. The DWSCs take the decision on behalf of the PRIs themselves. The PRIs are responsible for managing the funds for project construction and O&M. The funds are released in tranches by the State Government after ensuring the compliance of the principles agreed upon. Additionally, the DWSC deploys a Community

Accountant for hand-holding of the UWSSC Treasurer and Procurement Committee in upkeep and management of finances and accounting procedures.

Under the URWSSP, the transfer of funds received for implementing the SWAp were carried out as per the following structure below:



The DPMU project managers of the particular target villages nominate professionals for updating the web-based systems on fund transfer and functionalities. This MIS based system

will document the fund details on each month basis for all the villages. Regular monitoring in terms of feasibility studies were conducted by DPMU by involving the target groups. Formal and informal meeting were carried out to identify the present status and feasibility of the RWSS in the area.

In the case with DPMU of Pithoragarh, regular review of the O&M process have been carried out. At the same time, people's cooperation is playing a huge role for the project sustainability. The individual UWSSC also started working independently on pricing, billing collection, documentation and disclosure. A maintenance worker also been appointed to look after the O& M. The register on money deposits and transfer of funds and related issues were documented regularly. From the prefeasibility stage to the project completion of the GP the target communities actively participated and came up with the feasibility and suggestions. Now the village achieved with no open defecation status and 100% individual toilets.

Narayannagar Muliya village of Ramnagar block of District Nainital is one of the model villages in which the UWSSC works actively to promote sustainable O&M. Regular meetings of UWSSC have been conducted and during the meetings the issues related to water supply are discussed in terms of working, proper supply and utilization. The funds collected in the account of UWSSC are disclosed before everyone in the meetings to provide transparency. The village has already started sharing their resources in terms of providing services of the plumber to the adjoining villages, helping the other villages in tariff collection and maintenance of UWSSC accounts.

Capacity built within PRIs for decentralized decision making and monitoring

The Swajal PMU has published 1.54 million booklets/posters/leaflets and brochures. The project has produced 22 documentary films on the RWSS sector. These have been telecasted 53 times on Doordarshan and other local channels. With 1464 IEC Fairs and related activities, the project has directly benefitted 1,27,810 participants, through 736 awareness camps and 939 cross visits for 9269 rural participants. Two documentary films produced by the project on good practices on accountability have been repeatedly telecasted by local channels. Besides these, short documentary films have been produced on themes such as 'water', 'sanitation', 'water quality', 'best practices on water and sanitation'. An advertisement film on 'sanitation' also has been produced. The project developed and aired

123 Radio/TV Spots on various themes to raise awareness among the key stakeholders. Over 41 lakh SMS (messages) on the project objectives have been disseminated. All these tools have used Hindi and local dialects. Beside these, 31000 Swajal Magazines and 12500 diaries for PRIs and 8000 diaries for Mahila Mangal Dals have been produced and distributed. Letters from Hon'ble Chief Minister and Hon'ble Minister, Drinking Water & Sanitation, GoUK were sent through business mail service to all rural families without toilet facility, so that they get motivated to construct their own IHHL. The mission reiterated that capacity building and IEC programs need to continue for the district agencies, GPs, UWSSCs, Anganwadi workers, communities, etc., for ensuring sustainability of the schemes.

Figure 5.2.10: Tools for IEC Campaigns

In addition to the IEC campaigns, capacity building has been a key component of the project, with 7956 training programs benefitting 205,652 participants as the cumulative achievement. Key stakeholders of the project from the apex-policy level to the grassroots level have been covered under the training programs, with the Swajal PMU training the master trainers at the intermediary level and they in turn train the grassroots functionaries. Support Organizations (SOs) have played a key role in building capacity of the PRIs. A large pool of resource persons have been trained as Master Trainers during the course of the project. In addition, 6920 Refresher Trainings on water quality have been imparted to the project functionaries and key stakeholders. The pool of resource persons are spread across GPs, NGOs and communities, contributing to building human resources at State, district, and village levels,

developing a pool of technicians as resource persons, and supporting the Uttarakhand Academy of Administration as a Key Resource Centre of the Ministry.

These sessions were focused on the development and implementation of decentralized service delivery responsibilities to the PRIs. The programmes included by not limited to the community mobilization and awareness generation, women's empowerment, hygiene and sanitation promotion, community-based planning, construction, oversight and operation, O&M, and monitoring and evaluation.

Figure 5.2.11: Capacity building programme underway in one of the Project Schemes

As a result of such capacity building programmes, regular monitoring has been carried out by the PRIs including monitoring and documenting O&M of water supply and sanitation infrastructure. The field visits to other water supply schemes enabled the PRIs to develop a sense of togetherness amongst the communities and also have a first-hand look at RWSS systems that are being run on a sustainable basis by the communities themselves.

Mr. Vishal Ran, Gram Pradhan at the Taler-Bhena Multi Village Scheme, had this to say on the capacity building efforts *"The workshops and field visits was a great way to know that we are not alone in facing the problems in managing RWSS systems. It helped us gain confidence in the process we are adopting and also enabled us to seek support from other PRIs when the problems were beyond our control".*

Another one, Ms. Manju Chamoli at Athoorwala Project Scheme. was more forthcoming in saying that such capacity building workshops and field visits should be more frequent as it will enable the PRIs to determine solutions especially when the RWSS system gets older and more problems keep surfacing.

Asset ownership including Insurance

Following the legislative lack of clarity and the mix of investment source for rural water supply systems, asset ownership issues has become complicated. This is an important matter when rural consumers provide a share of the capital costs as in the case of the project schemes implemented under the URWSSP. Despite the investment, the institutional arrangements leave the rural consumer outside the system. However, studies have shown that only when users become real owners and managers of the facilities can sustainability be achieved. Hence, the URWSSP tool a positive step towards resolving the ownership issue and enable the users seek funds for the assets and take up repair work.

Towards this, the assets of the project schemes are in the name of the GPs so that the GPs could seek funds for the repairs and maintenance of the water supply and sanitation infrastructure. Another innovative practice introduced under the URWSSP is to insure the water supply assets. The insurance enables the GPs seek insurance money in the event damage occurs to the water supply infrastructure at the time of natural disasters. While none of the 20 project schemes studied had the insurance coverage, a number of project schemes implemented under the URWSSP have insured their project assets and so far have claimed upto Rs. 71.52 lakhs in insurance money, as well.

Asset ownership has had an important effect on the security of the water supply and sanitation infrastructure. If there was manipulation of water systems like theft of water facilities and equipment, villagers thought that those thieves were manipulating government properties and not theirs. Asset ownership promotes villagers, who are the main beneficiaries, to feel that the water project belongs to them and anyone who manipulates the water systems treated as against the community interests and not the government and/or donors.

5.3 INTEGRATED APPROACH

Traditionally, the rural water supply projects in the state has focused on improving coverage rather than providing water supply services. The URWSSP changed all that through institutionalizing an integrated approach that brought into focus issues such as sanitation, source sustainability, water conservation and technology selection into the domain of community consultation. In certain project schemes, the UWSSC focused on grey water management and meeting the drinking water needs of the population while maintaining customary rights. Additionally, the URWSSP looked into creating local-level employment opportunities, mainstreaming representation of vulnerable groups in decision making and ensuring economic and health benefits to the local community. Six factors were studied and these are provided in the following figure:

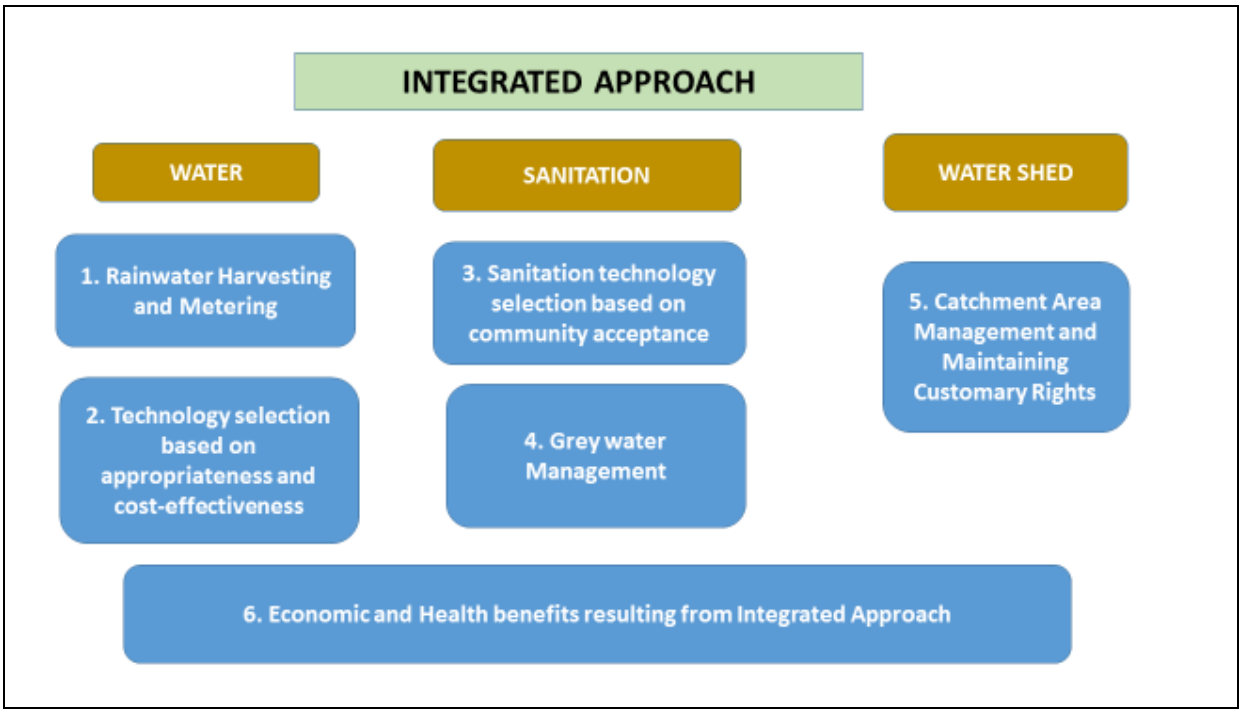


Figure 5.3.1: Factors influencing Integrated Approach

The comparison of the project schemes and control schemes on each of the factors on Integrated Approach is provided in the Table 5.3.1 overleaf:

TABLE 5.3.1: INTEGRATED APPROACH - COMPARATIVE ASSSEMENT OF PROJECT AND CONTROL SCHEMES

No.	Factor	PROJECT SCHEMES			CONTROL SCHEMES		
		Studied	Achieved	Remarks	Studied	Achieved	Remarks
1	RAIN-WATER HARVESTING	20	2	Shahpur-Shitlakhera, Nail Kuraw	20	0	
2	TECHNOLOGY SELECTION BASED ON APPROPRIATENESS AND COST-EFFECTIVENESS	20	20	The average per-capita cost of SVS schemes executed under SWAp is Rs. 4,854 and MVS is Rs. 7,972. Also, the percapita cost in the SVS schemes covered under the study is also below Rs. 5,000.	20	2	Dharampur Auliya and Rani Majhri. The average per capita cost of the control schemes is more than Rs. 6,000.
3	SANITATION TECHNOLOGY BASED ON COMMUNITY ACCEPTANCE	20	20	As of now, only four project schemes have won the NGP Award. These are: Naini-Poundar, Athoorwala, Kuling and Narayanpur Muliya	20	20	No control scheme has achieved ODF status
4	GREY WATER MANAGEMENT	20	12	In 12 schemes - Nail Kuraw, Nail Thapla, Kuling, Narayanpur Muliya, Aamhat, Legamkhanda, Jugapani Ruenna, Taljaman, Medanpur, Naini-Poundar, Ranghadgaon, Bunksheel Grey water management is prevalent. In some for vegetables are grown for own use and in others the excess produce is sold. In 8 schemes grey water management not happening - Athoorwala, Pastapipalsar, Bansiwala, Sapera Basti, Taler Bhena, Badiyura Thana Metrana, Thandapani Jhilasu, Shahpur Shitlakhera	20	0	
5.A	MAINTAINING CUSTOMARY RIGHTS AND CONFLICTING USES	20	4	Legam Khanda, Jugapaani, Badiyura Thana Metrana, Naini-Poundar - NOC Obtained	20	4	Naghar Kandar, Jakhmaso, Devaldhar, Jaisal - NOC Obtained

No.	Factor	PROJECT SCHEMES			CONTROL SCHEMES		
		Studied	Achieved	Remarks	Studied	Achieved	Remarks
5.B	CATCHMENT AREA MANAGEMENT	20	14	Naini-Poundar, Medanpur, Jugapaani Rueena, Ranghadgaon, Bunksheel, Aamhat, Narayanpur Muliya, Kuling, Nail-Thapla, Nail Kuraw, Thandapaani Jhilasu, Badiyura Thana Metrana, Talar Bhena, Taljaman. In remaining schemes CACMP works were not required as per information provided by DIAs. Under the URWSSP, CACMP works were carried out in 2447 schemes by all the DIAs.	20	0	
6	ECONOMIC AND HEALTH BENEFITS RESULTING FROM INTEGRATED APPROACH						
	ECONOMIC BENEFITS	20	8		20	0	
	Increased income from agricultural activities		3	Naini-Poundar, Aamhat, Medanpur, The average income generation from the increased income from agricultural activities after the execution of scheme is Rs. 5-20,000 per annum per family as per information provided by the beneficiaries.			
	Increased income from animal husbandry		4	Naini-Poundar, Atthoorwala, Taljaman, Legamkhanda. The average income generation from increased income from animal husbandry after the execution of scheme is Rs. 20-25,000 per annum per family as per information provided by the beneficiaries.			

No.	Factor	PROJECT SCHEMES			CONTROL SCHEMES		
		Studied	Achieved	Remarks	Studied	Achieved	Remarks
	Increased income from tourism		1	Kuling. The average income generation from increased income from tourism after the execution of scheme is Rs. 50 - 100,000 per annum per family as per information provided by the beneficiaries.			
	HEALTH BENEFITS	20	20		20	20	
	Excellent – Those villages that have achieved 100% ODF in addition to reliable treated water supply. Also, during the visit it was found that the villages are clean, the latrines are being used by every household member and the community understand the importance of hygiene.		6	Naini-Poundar, Kuling and Narayanpur Muliya, Shahpur Shitlakhera, Medanpur, Jugaapaani Ruenna. In these villages,		0	
	Good – Those villages that have reliable water supply but substantially moved towards 100% ODF. Also, in these villages sanitation coverage is more than 85% and every member of the household in these ODF households are using latrine.		11	Thandapaani Jhilasu, Nail Kuraw, Nail Thapla, Athoorwala, Bansiwala, Pasta Pipalsar, Aamhat, Legamkhanda, Taljaman, Ranghadgaon, Sapera Basti		12	
	Fair – Those villages that have reliable water supply but are in the initial stages of incorporating sanitation. Sanitation coverage is below 85%.		3	Taler Behna, Badiyura Thana Metrana, Bunksheel		8	

One of the main objective of the URWSSP is to ensure that the development and management of water resources that fully take into account the need for environmental conservation with an adequate water supply, both in quantity and quality, to environmental sustainability.

Figure 5.3.2: Integrated Approach at Ranghadgaon Project Scheme, Tehri Garhwal District

Rainwater Harvesting and Metering

Promoting water conservation has been one of the main objectives of the URWSSP. Towards this, a couple of key techniques that are promoted include Rainwater Harvesting and Metering of the supplies.

Rainwater harvesting is one of the most common techniques adopted to promote water conservation. It is a simple, low-cost technique that requires minimum specific expertise or knowledge and offers many benefits. Rainwater is collected on the roof and transported with gutters to a storage reservoir, where it provides water at the point of consumption or can be used for recharging a well or the aquifer. In the project schemes where they are adopted, viz., Shahpur Shitlakhera in Hardiwar District and Nail Kuraw in Chamoli District, rainwater harvesting is supplementing regular water supply services. However, at this time, the villagers are utilising the harvested rainwater for non-potable purposes.

Figure 5.3.3: IEC Campaign poster for Rain Water Harvesting

Box 9: Ensuring Water Availability through Rain Water Harvesting

Shahpur Shitlakhera in Haridwar District and Nail Kuraw in Chamoli District got into the Swajal Project for different reasons; one because of lack of quality water and the other because of the need to trek long distance for collecting water for their daily needs. At Shahpur Shitlakhera, a ground-water based scheme was implemented and individual household connections were provided to every household in the village. In Nail Kuraw a surface-water based scheme was implemented and both private household connections and standposts were provided for the community to collect water. The communities have been happy with the service delivery and have started to look at making their village open-defecation free soon, with both individual household and community latrines.

Taking cue from the fact that the UWSSC at Shahpur Shitlakhera decided to utilise the open well within the premises of the Gram Panchayat office and the Pump House to collect the rain water from the site and replenish the aquifer, the community explored the possibilities of installing similar system in their individual households. Sensing the demand from the villagers, the UWSSC hired a local Support Organization to educate the community about the working principle of rainwater harvesting systems, designs that could be utilised and its construction. The first household level rainwater harvesting system was installed by the GP President to utilise the harvested water for kitchen garden and other household purposes. The rest of the community realised the advantage of this system i.e., lower scheme water consumption and increased economic benefits. Now, every household in the village has installed a rainwater harvesting system. The harvested water is pumped to an overhead tank as well and utilized for flushing the toilets, washing clothes and for kitchen garden. The Scheme Operator, Mr. Rishi Raj Singh has lauded the villagers for their initiative. He says *"because of the availability of the rainwater harvesting system in every household the demand for scheme water is at a manageable level. It has enabled me to limit the supply and ensure availability of groundwater even during the summer months."*

In Nail Kuraw, the households have started to implement rainwater harvesting system in order to help them tide over seasonal fluctuations in water availability. The rainwater harvesting system is designed to meet all the water demands during the rainy season except

drinking water and certain consumptive uses like kitchen garden and clothes washing during the relatively dry seasons. The scheme supplied water is utilised as a drinking water source during all the seasons.

One resident of Nail Kuraw Mrs. Gyan Devi, says that "we harvest rainwater in different tanks. At present, "*we are harvesting in three tanks of 10,000 ltr capacity each. One of the tanks is utilised exclusively for drip irrigation purpose for growing vegetables and other commercial crops. This RWH facility give us the additional income that enables us to have a decent standard of living."*

Metering the water supplies is proposed to be done at two stages; one at the bulk level for the multi-village schemes and one at the consumer end in all the project schemes including the multi-village schemes. However, metering per se' has not been common in the URWSSP in any of the project schemes. It is being adopted by certain villages either because of high-tariff or constant fluctuation in the supply levels caused by resource constraints.

BOX 10: EVERY DROP COUNTS AT SAPERA BASTI

Sapera Basti, a sleepy village amidst the growing urbanisation around it is located near the Defence Electronic Application Laboratory in Dehradun district. This village faced drinking water problems year round because of it was located at the tail-end of a multi-village scheme run by UJS. The increasing population to all the up-stream villages of the MVS made the situation worse for Sapera Basti. Hence, in 2009 the GP decided to form a UWSSC and contributed Rs. 97,200/= towards initiation of the implementation of an exclusive water supply project for the village. After wading through a number of choices including upgradation of the existing MVS, the community decided to opt for a groundwater-based pumping scheme, despite high O&M costs. The project was implemented through community contracting and commissioned in the year 2012 under a high tariff structure.

Water conservation and sustainability of the water supply is no longer the buzzword of the "powers-that-be" but it has penetrated into the households in Sapera Basti. In fact, when the question of why every house must pay a fixed water tariff when consumption patterns differ, the villagers decided to go in for metering of the supply. Additionally, in order promote water conservation, a high-tariff structure was adopted. Under this tariff structure, a metered household pays Rs. 100 per month for utilising 60kl of water month and Rs. 2/kl for every kl thereafter. Comparatively, a non-metered household pays Rs. 450 per month. Considering the wide difference in tariff structure, a majority of the Sapera Basti households are opting for metered connection. Once meters are installed, the household resolves against wasting even a drop of water. This has left a rippling effect – no filth and unhygienic atmosphere.

"*We suffered a lot without proper drinking water earlier. One member in every family stayed home, without going out to work just to bring water. Sometimes, we had to beg the neighbouring villages to make available our rightful quantity of water from the MVS scheme of which we were a part of"* says Mr. BB Joshi, Panchayat Secretary. The project has a spin-off effect on the sanitation aspects as well. Today 85% of the households in Sapera Basti have toilet facilities that are being used regularly by all the households. One of the

residents, Mrs. Meena a Self-Help Group member says *"The availability of the water helped us install the toilets and now we are leading our life with dignity"*.

Figure 5.3.4: Water Meter at the Sapera Basti Project Scheme

Technology Selection based on appropriateness and cost effectiveness

Under the URWSSP, the demand for new water and sanitation project was a result of inoperative existing rural water supply systems. During the implementation of the water supply projects by the agencies, often, critical aspects of O&M development were neglected and hence an alarmingly high number of in-operative and sub-standard systems. Hence, a major concern for implementing URWSSP was to select technologies that users are willing to accept and those that would also ensure good public health and sustainable environmental conditions. Moreover, one of the main objective of the URWSSP was to ensure that the O&M is carried out by the communities themselves which meant selecting technologies that the communities would be comfortable utilising.

In fact, during the capacity building phases of the URWSSP, the DIA and the communities came to understand that the water-supply and sanitation projects should not be viewed as an end in themselves, but as the initiators of benefits that continue long after the projects have been handed over to the community. To ensure that long-term benefits do, in fact accrue, it was agreed upon that the projects must be sustainable, which means appropriate technologies must be selected, and O&M should be integrated into project development from the beginning. Hence, "sustainable technology at community level", has been promoted in the

URWSSP. The DIA and the community have come to agree upon that the selection of a particular technology can have far-reaching consequences for the sustainability of the services. The agencies earlier emphasised on technical criteria and initial investments for choosing technologies. While these aspects are still important, the roles of financial, institutional, social, environmental and O&M factors have also been considered relevant for ensuring the sustainability of services. And, in all the 20 project schemes that the Consultant has assessed under the project, community acceptance has played a key role in technology selection, while the agencies have assisted the community in planning, designing and implementing the same. The representative technologies in the project schemes selected for the study include Surface Water (Gravity, Pumping and Gadhera) and Groundwater (Pumping).

Figure 5.3.5: Representative Technologies in Project Schemes

(Groundwater Pumping Technology at Shahpur Shitlakhera Project Scheme (Left) and Surface Water Pumping Technology at Ranghadgaon Project Scheme, Tehri Garhwal (Right))

The type and level of service were selected according to the natural conditions of the area and according to the beneficiaries' capacity to pay, manage and maintain the service. The average per capita costs of Swajal PMU and UJS schemes are around Rs 4,854 per capita, whereas the average scheme costs of UJN are Rs 7,972 per capita. Schemes implemented by Swajal PMU and UJS continue to be cost effective and operationally efficient with declining trends in per capita costs. However, UJN is implementing MVSs in difficult and challenging environment. Out of the 37 MVSs, 26 schemes (71%) are gravity schemes, 10 (26%) are pumping schemes with tube-wells and 1(3%) scheme is pumping scheme with surface source.

Sanitation technology based on community acceptance

Under various programs of the Government, the project schemes had achieved sanitation coverage to the extent of 10-40%. The usage was considerably less. At the start of each project, upon selection of the SO, discussions were held with the community regarding the lack of penetration of the toilet coverage. These discussions generally led to the fact that the sludge removal should be addressed for any technology that is selected. Hence, at the beginning of every project scheme, the concept of double-pit latrines was presented to the community. The advantages of the double-pit latrine was the fact that the household would get sufficient time to let the sludge get decomposed and dispose it in a safe manner at sites earmarked for the purpose. The cost of construction of a two-pit latrines was in the range of Rs. 12-15,000 which was acceptable to majority of the households in the project schemes. And, one after the other, the households have started to not only install the latrines but also use them regularly. In fact, as one of the residents mentioned, the availability of water has enabled the project scheme villages to introduce household-level sanitary latrines. Five of the 20 project schemes have won the Nirmal Gram Puraskar (Clean Village Award) from the Government of India while three villages of the remaining 15 project schemes have been nominated for this year's award. The two-pit system ensures continuous use of the latrines and avoid slippage of the Open Defecation Free (ODF) households. Additionally, the villages have introduced separate latrines to boys and girls in schools that has led to increase in attendance of girl students in the schools in the project schemes.

Figure 5.3.6: Sanitation Campaign and Two-Pit Latrine Conceptual Design

Figure 5.3.7: Individual and Community Sanitary Latrines

Greywater Management

Grey water management, i.e. managing the kitchen and reuse water from the clothes and vessel washing has been used for livestock raising and kitchen garden in a number of project schemes. In addition, secondary sources of water is being utilised for other agricultural activities. The villages says that they have been able to indulge in these activities only because of the availability of good quality water right at their doorstep as it has provided them the time necessary to focus on the economic opportunities. The average economic benefits derived from grey water management is in the range of Rs. 6 – 30,000 per family per annum in majority of the project schemes. In addition to economic benefits derived from livestock rearing, households also derive non-economic benefits through enhanced food security provided by kitchen gardens (mustard leaves, beans and cabbage).

Figure 5.3.8: Water Collection before and after the Project Scheme at Naini-Poundar

Figure 5.3.9: Agricultural activities from grey water management

BOX 11: PATHWAY TO SUCCESS – GREY WATER MANAGEMENT

Mahatma Gandhi once said "means are as important as the goal itself". The URWSSP project in Uttarakhand is another glowing example. The project has not only provided drinking water to the villagers but also enabled the villagers to achieve ODF status and more importantly brought in the latent potential of the villagers that ensures sustainability of the project in the years to come. It has changed their perspective of life and are forward looking in terms of achieving social and personal goals.

The key factors that ensured success was the process adopted by the URWSSP that required making a demand for the project, providing user contributions and participation in planning, implementation and O&M which led to empowerment of the villagers. The communities were driven to a decisive role in the choice of drinking water scheme they wanted, planning, design and execution. The community managed the finances, operation and maintenance of the scheme, as well.

These arrangements instilled a sense of ownership of drinking water assets to the villagers. Mrs. Nirmala Devi, President of UWSSC at Narayanpur Muliya Scheme said *"it is not that the drinking water scheme is new to our village but with earlier schemes there was no owner, hence there was no accountability when it came maintaining the scheme. The Swajal Project*

has changed it all and now we understand what it takes to bring water to every doorstep. Hence, we are proud to maintain the scheme".

The drinking water supply scheme in each of the project schemes was an outcome of users' collective wisdom, time and energy. While expert advice from the SO and the DIA were available as and when necessary, the bulk of the decisions were taken by the villagers' themselves. This process gave the villagers the confidence to take new initiatives. One of these included the Grey Water Management. Shining examples for incorporating Grey Water Management are provided in Table overleaf.

Greywater is the wastewater generated in the bathroom, from clothes washing and kitchen, and is therefore the components of wastewater which have not originated from the toilet. The characteristics of the greywater do not pose a problem in using it for kitchen garden especially for growing vegetables that are not consumed raw. Research also supports this practise since greywater decomposes faster in soils after infiltration and does not travel to pollute nearby drinking water nearly as much as do combined wastewater or blackwater discharge. Furthermore, the nitrogen found in greywater is around half the organic nitrogen (i.e. tied to organic matter) and can be filtered out and used by plants.

In 8 of the 20 project schemes there were studied by the Consultant, the use of grey water for kitchen garden has been incorporated in varying degrees. In certain cases, this has been combined with supplementary sources of water as well to grow vegetables and other crops and has resulted in increased income to the villagers. These schemes include Badiyura Thana Metrana in Almora District, Kuling, Nail Thapli and Thandpani Jhilasu in Chamoli District, Narayanpur Muliya in Nainital District, Aamhat in Pithorgarh District and Medanpur and Naini-Poundar in Rudraprayag District. The households have received varied benefits from these initiatives including meeting the vegetable requirements for part of their consumption and in majority of the cases earning between Rs. 5,000 to 20,000 per annum per family by selling the excess produce.

Mrs. Hema Devi, UWSSC Member of the Badiyura Thana Metrana Project Scheme in Almora District says that *".,.we had the knowledge to cultivate plants. However, because of the scarcity of water, none of us had the time to indulge in these activities as over 3-4 hours every day was spent in fetching water for our use. Now, that the water is provided at our doorstep, we have enough time to carryout agriculture and grow vegetables and other crops which we generally consume ourselves. During certain times, we do sell it in the nearby markets."*

Mrs. Vijaya Devi, UWSSC President of Naini-Poundar Project Scheme says that *".,.earlier we used to spend about Rs. 50 every day for purchase of vegetables. Now, for over 20 days in a month, we utilize the vegetables that we grow in our kitchen garden and save money".*

Catchment Management Plan

A number of the project schemes that the Consultant studied were located in the hilly regions of the state. And, in these regions there were numerous and complex issues and challenges in terms of water management.

Firstly, the region has a steep topography, with poorly structured soils prone to high erosion. Also, severe deforestation has occurred over centuries to provide wood for fuel and livestock fodder for the communities. The communities in all the project schemes were facing problems because the drinking water source became dry. And, this is quite common in the hills of Uttarakhand as spring sources can come and go over the course of a season or disappear altogether for no apparent reason after many good productive years. Hence, early on in the project planning, it was decided that that careful management of the watershed should be an important element of the URWSSP. In fact, the inclusion of catchment management as one of the elements of activity paved the way for the communities to get involved in the project activity.

The Catchment Management Plan in all the schemes is planned and developed in consultations with the local community. A major objective of catchment management plan is to ensure source sustainability through protection of natural resources such as soil, water and vegetation from degradation. The plan has been carried out at the local grass roots level. Technologies such as contour trenching, infiltration trenches, spring protections, check dams, rain tanks and attenuation tanks have been employed to control and store stormwater as close to source as possible. Once the source is sealed, the water is directed to tanks located near the village for domestic supply after suitable treatment. The results have been successful and primarily because the local community has taken ownership. Soil erosion is reduced, water is held within the upper catchment, check dams and contour trenches encourage recharge to sustain local springs and stream base flow. The spin-off benefit arising from the implementation of the catchment management plan is the improvement in water quality and water yield from the catchment.

Figure 5.3.10: Catchment Management Plan in Project Schemes

The breakup of the various types of Catchment Management Plan implemented under the URWSSP is provided in the Table overleaf:

Table 5.3.2: Details of Catchment Management Plan implemented under URWSSP

Particulars	PMU	UJS	UJN	Total
Total W/S Scheme	1,431	1,477	928	3,836
Schemes with CACMP	681	1,034	544	2,447
Plantation (Nos.)	209,790	168,356	123,917	677,033
Recharge Pit (Nos.)	1,338	2,614	5,434	10,092
Contour Trench (RM)	8,385	6,414	5,834	26,847
Chal Khal (Nos.)	206	445	2,688	4,259
Grass Patches (Nos.)	103	155	200	458
Check Dam (Nos.)	1,700	1,198	1,450	6,099
Percolation Pond (Nos.)	101	211	190	739
Coolie Walling (Cu.m.)	8,505	2,200	3,421	16,752

As part of the Catchment Management activities, the project schemes had to look into protecting the customary rights and conflicting uses of the water sources. In this regard, right at the planning stage, while evaluating the sustainable sources of water for any particular scheme, the location of the stream and its existing uses were looked into. And, if the source is located outside the legal boundary of the GP where the project scheme was implemented, the UWSSC sought the permission of the Source GP prior to finalising the design of the project. In fact, four of the twenty project schemes had to seek permission from the adjoining GPs for utilisation of their water source.

BOX 12: CATCHMENT MANAGEMENT – A WAY TO SECURE WATER

In Naini-Poundar Scheme and Medanpur Scheme in Rudra Prayag District, the catchment management plan is being implemented and monitored by the UWSSC. As a result, the source has not gone dry even during the summer seasons over the last three years. In Ranghadgaon Single Village Scheme in Tehri Garhwal District, the catchment management plan has resulted in having a sustainable water source since project inception. In Jugalpaani Scheme in Pitthorgarh District, the communities have entered into an MoU with the Forest Department, Government of Uttarakhand and makes regular fees to the Department to ensure that the CAT is implemented. Similarly, in Legamkhanda Scheme in Pitthorgarh District the community has stopped animal grazing within the catchment area as well to prevent soil erosion.

The communities in the project schemes, while appreciating the incorporation of the catchment management plan as part of the URWSSP, say that in the future the plan must be closely tied to other activities such as agricultural development and the improvement or provision of critically needed infrastructure such as transportation improvement, as well. Further, suggestions have been made to evolve a strategy for reducing livestock numbers by improving the milk production of fewer but superior animals.

Economic and Health Benefits

Rural communities in the hilly regions of the Uttarakhand state are dependent largely on natural sources for not only drinking water but also for all their economic activities. However, because of the scarcity of drinking water, and the time taken to fetch drinking water the villagers rarely get the time to indulge in other economic activities. Further, the quality of water from some of these sources are not conducive for drinking water and hence the residents face health issues as well. But, the URWSSP changed all that. With the drinking water available in a tap at / or near the households the 3-4 hours that each household used to consume for drinking water was saved. Hence, the villagers got sufficient time to carry out other activities of interest and some of these even resulted in economic benefits to the households. In a majority of the villages, the households carryout activities such as kitchen gardening for growing vegetables, medicinal plants, fodder for animals etc. After utilising the produce for self-consumption, the excess have been sold in the market place to realize additional income for the families. In Naini-Poundar, the available additional time has been utilised by the villagers to not only grow vegetables but also animal husbandry activities which is reflected by the fact that the cattle numbers has increased from15 to 100 in

the last three years. In Leghamkanda, the households have started dairy farms and have increased their income by Rs. 20-25,000 per annum per family by selling the milk produce to the nearby dairies. Most importantly, is the outcome at the Kuling Project Scheme in Chamoli District (see box for details) wherein the availability of water and sanitation facilities has resulted in increased tourism activities providing enhanced income to the villagers.

Apart from the economic benefits the project scheme has provided to the villagers, there has tremendous improvement in the general health of the villagers. The community acknowledges a significant decrease in the incidences of water borne diseases which is also reflected in increased attendance of the children at schools and improved productivity of the adults. The residents of the Shahpur Shitlakhera village in Haridwar District proudly state the fact that two private health clinics that were operating near the village have been closed for the last two years after the water supply scheme was implemented.

Figure 5.3.11: Benefits of Water Service Delivery in a Project Scheme

BOX 13: A TAP, A TOILET AND ….WOW HOME STAYS!

What has a tap and toilet got to do with home stays? Well, the Kuling community in Chamoli District found out the hard way. Until the URWSSP implemented the water supply project under SWAp, the village was dependent on a surface water source that was 1km. away from the village and to top it, the source was drying up. In 2010, the Village Pradhan approached the District Authorities for implementing a water supply scheme using a sustainable water source located approximately 1.5km away from the village. The gravity-based surface water scheme using the Donala / Udiyara Gadhera source was started in 2011 and completed 18 months later. The Support Organization (SO), Jai Nanda Welfare Society constituted the UWSSC and conducted capacity building activities to enable the villagers to take up Planning, Implementation and O&M of the scheme. The SO credits a citizen of German origin Ms. Elizabeth Kornald who has made Kuling her home for the last 16 years for taking the lead in convincing the villagers about the utility of the scheme.

Right from the beginning of the project, the UWSSC adopted an inclusive approach as reflected by the fact that they provided for flexibility in the way the user contribution was paid by the community. The UWSSC allowed 13 households belonging to the SC community to provide contribution in the form of labour instead of cash as part of the user-contribution. Once the water supply scheme was in place, things started moving in a positive direction in the village on all fronts. First, the villagers constructed latrines in each of the households making it one of the first Open-Defecation-Free (ODF) villages in the District. Later, the villagers started to focus on the solid waste disposal and presently place one dust bin in front of every household which is collected and disposed of at an exclusive garbage pit constructed about 1.5 km away from the village. The improvement in the water supply and sanitation infrastructure in the village led to a new type of economic activity for the community viz., home stays.

Since time immemorial, the village has been linked to religious tourism as it is on the Nanda Devi Yatra route which is one of the largest pilgrimage in the world. The men-folk in the village work in the tourism sector and help the tourists in their quest to complete the pilgrimage including acting as tourist guides and provides mules for travel. Considering the excellent water and sanitation service delivery in the village, some tourists began to stay in the homes of the villagers for a fee. Now, over 30% of the households in the village offer home-stay facilities and enable the tourists to carryout the pilgrimage in a memorable manner. One of the tourists from Mumbai noted that *"I had made this pilgrimage about 10 years ago. However, this time it was different and had an experience I would not forget because of the hospitality I received from the villagers during my home-stay. I would definitely recommend to my friends back home about this."* The home-stays is resulting in an additional annual income between Rs. 50,000 to Rs. 1.0 Lakh per household.

The extra time the women-folk get because of the easy availability of piped water supply has prompted them to involve themselves in other economic activities like growing medicinal plants and having kitchen garden to grow vegetables for four months in a year using the grey-water from the kitchen. Additionally, the women folk do take care of the home-stay tourists, as well.

Ms. Yashoda Devi, President of the UWSSC takes personal interest in maintaining the scheme as well as the accounts. A Community Technician has been appointed for a monthly payment of Rs. 500 and he not only maintains the scheme in working condition but also collects the tariff from each household without fail. Ms. Yashoda Devi says, "*We have been benefited a lot from this scheme and our economic and health condition has improved since it started. We will not let this scheme fail. Also, we are happy that our neighbouring villagers such as Wank, Mundoli, Banodi, Dhuradhar and others have also started grey water management and increasing their income levels".*

5.4 SUSTAINABILTY

Sustainability of the project schemes is about whether or not water and sanitation services and good hygiene practices continue to work over time. Based on field experience, a service is sustainable when:

- It functions properly and is used;
- It provides the services for which it is planned, including delivering the required quantity and quality of water, providing easy access to the service, service continuity and reliability; health and economic benefits, and adequate sanitation access;
- It functions over a prolonged period of time with no harmful effects on the environment and according to the designed life-cycle of the equipment;
- The management of the service involves the community (or the community itself manages the system); adopts a perspective that is sensitive to gender issues; establishes partnerships with local authorities;
- Its operation, maintenance, rehabilitation, replacement and administrative costs are covered at local level through user fees, but feasible, external support, as well.

These factors are grouped on among others, technical, institutional, financial and social considerations. And, these factors are shown in Figure 5.4.1 overleaf:

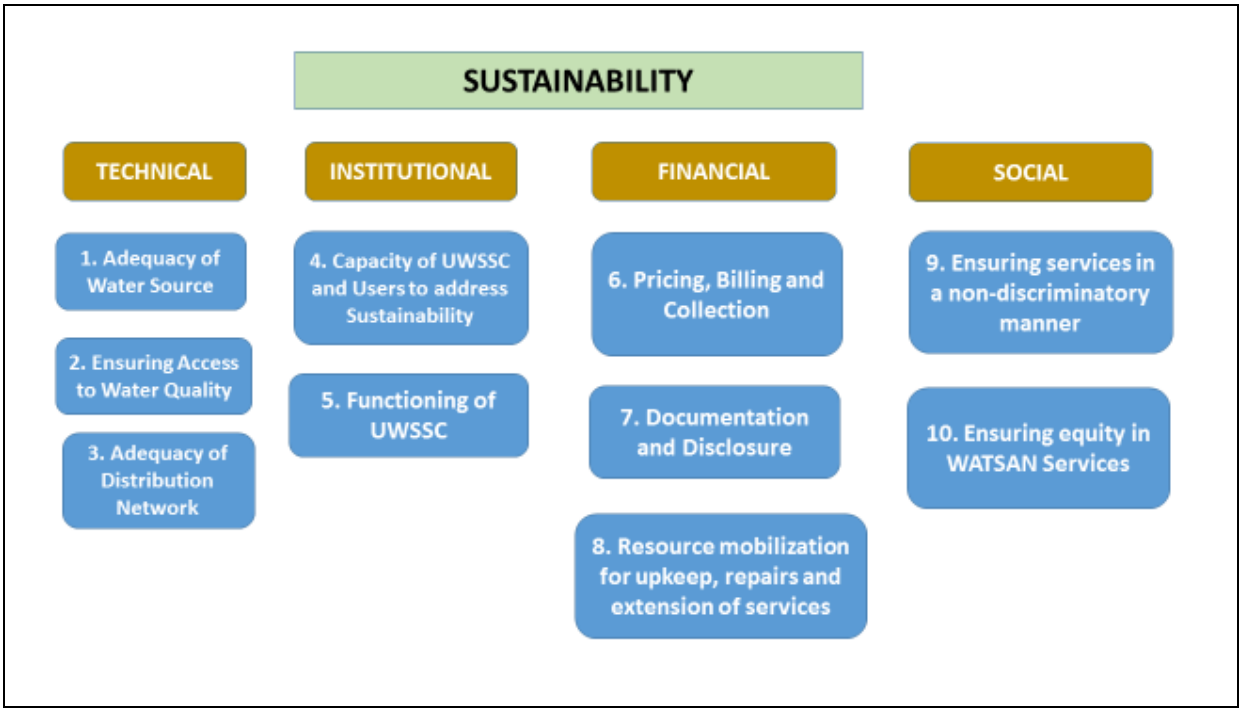


Figure 5.4.1: Factors influencing Sustainability

Sustainability of the project schemes is about whether or not water and sanitation services and good hygiene practices continue to work over time. The sustainability of URWSSP project schemes is pegged on among others, technical, institutional, financial and social considerations.

Technical Sustainability: Under technical sustainability, it is ensured that the schemes are operational and benefits all the users. This means that the facilities are (now and in the near future) technically in a good condition to deliver designed quantity and quality of water at the desired pressure at the consumer end of all the intended beneficiaries, so that they can benefit from a better services and better health.

Institutional Sustainability: Under Institutional Sustainability, it is ensured that local institutions i.e., UWSSC are formed and are functional to the extent of making certain that the scheme is planned and designed as per community needs, implemented as per approved designs and carries out sustainable O&M. This means that UWSSC has the capacity to make sure that most of the spare parts, tools and means to keep the system operational are available in the community and that members are accountable and fulfil their responsibilities of providing desired water and sanitation service delivery to the communities. And, more importantly, the institutions are to be seen to carry out all activities in a transparent manner

Financial Sustainability: This means that the UWSSC members are elected by the community and are trained to set up an appropriate tariff system that covers administrative, and O&M costs, fees are collected and finances accounted, managed and controlled, so that facilities continue to function over a prolonged period of time.

Social Sustainability: Social aspects of sustainability ensures that every household in the village is provided with equitable water supply and sanitation services at all times and there is no discrimination whatsoever based on caste, creed, religion etc. Further, social sustainability is also about taking the community into confidence on all aspects of the scheme and ensuring that there is a process in place for grievance redressal.

The comparion between the project schemes and the control schemes in its performance on sustainability is shown in Table 5.4.1 overleaf. Later, the details of the Technical, Institutional, Financial and Social sustainability of each of the project schemes and their overall ranking on sustainability is provided in the following Table 5.4.2.

TABLE 5.4.1: SUSTAINABILITY - COMPARATIVE ASSSEMENT OF PROJECT AND CONTROL SCHEMES

No.	Factor	PROJECT SCHEMES			CONTROL SCHEMES		
		Studied	Achieved	Remarks	Studied	Achieved	Remarks
TECHNICAL							
1	Adequacy of Water Source	20	18	In Athoorwala, the source is adequate for now, however, in-migration of population from the hills may affect the adequacy as perceived in the DPR for design period	20	12	Water source not adequate at Pubhaon, Ranikhet, Ranghadgon (CS of Ranghadgaon PS); Rani Majhri, Budkot, Ransi Khandara, Dharampur Auliya, Onga
				In Kuling, the design did not consider the emergence of home-stays which might impact the adequacy as perceived in the DPR for the design period			
2	Ensuring access of quality water	20	20	The quality of the water is good as reported by the community.	20	15	Water quality issues exist at Dharampur Auliya - using irrigation water, Pubhaon, Jhilihoti Mastgaon, Jaisal, Rani Majhri,
3	Adequacy of Distribution Network	20	20	Adequate in all project schemes, except tail-end habitations of MVS	20	14	Distribution network is inadequte at Dharampur Auliya, Rani Majhri, Devaldhar, Pubhaon, Jaisal, Sirtoli
INSTITUTIONAL							
4	Capacity of UWSSC to				20	0	

No.	Factor	PROJECT SCHEMES			CONTROL SCHEMES		
		Studied	**Achieved**	**Remarks**	**Studied**	**Achieved**	**Remarks**
	address Sustainability						
	Testing of Water Quality	*20*	20	Water Quality testing kits are available in all project schemes. However, capacity should be built amongst the community to conduct testing on a regular basis.	20	20	Water Quality testing is done only during disease outbreaks by the Department
	Ability to balance supply with GW recharge	*6*	1	Shahpur-Shitlakhera where the users and the Community Technician have been sensitized on balancing the supply with groundwater recharge			
5	*Functioning of UWSSC*	26	26	UWSSC is a sub-committee of the PRI. And, as per mandatory requirements, GP meetings are held every quarter. And, the water supply issues are also discussed in these meetings and recorded. However, when there is specific need of water related issues, UWSSC separately calls the meeting, discussions held and decisions recorded.	20	2	2 Nos. UWSSC is a sub-committee of the PRI. And, as per mandatory requirements, GP meetings are held every quarter. And, the water supply issues are also discussed in these meetings and recorded. However, when there is specific need of water related issues, UWSSC separately calls the meeting, discussions held and decisions recorded.
	Functioning of MVSLC	*3*	0	No MVSLC is functioning		NA	

No.	Factor	PROJECT SCHEMES			CONTROL SCHEMES		
		Studied	**Achieved**	**Remarks**	**Studied**	**Achieved**	**Remarks**
FINANCIAL							
6	Pricing, Billing and Collection						
	Pricing	*20*	20	Fixed tariff levels based on consensus among UWSSC	20	20	
	Billing	*20*	20	But no metered billing	20	20	
	Collection	*20*	20	Collection in project schemes is in the region of 80%	20	20	Collection in the control schemes is in the region of 40%
7	Documentation and Disclosure	20	20	All Schemes	20	4	Dharampur Auliya, Rani Majhri, Kamsal, and Khandara
8	Resource mobilisation for Normal Upkeep and Repairs	20	20	Collection is found adequate for normal upkeep and maintenance and two schemes have generated surplus - Naini-Poundar and Shahpur Shitlakhera	20		Difficult to quantify
SOCIAL							
9	*Ensuring services in a non-discriminatory manner*	20	20	UWSSC that are maintaining the schemes are distributing water to all the households without discrimination	20	20	
10	*Ensuring equity in WATSAN services*	20	20	UWSSC maintains equity in water and sanitation services to all the households.	20	20	

Table 5.4.2: Sustainability Ranking of the Project Schemes

NO.	SCHEME NAME	SUSTAINABILITY				
		Technical	Institutional	Financial	Social	Overall Ranking
1	Talar Bhena, Almora District	Adequate Source; Good Water Quality; All households connected to network; however tail-end villages facing problems;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded; MVSLC formed but not active;	Tariff order issued; Tariff Collection is at around 70% - lower collection in tail-end village; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme likely to be sustainable if the Technical and Institutional shortfalls are addressed and tariff collection improves;
2	Badiyura Thana Metrana, Almora District	Adequate Source; Good Water Quality; All households connected to network; however tail-end villages facing problems;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded; MVSLC formed but not active;	Tariff order issued; Tariff Collection is at 70% - lower collection in tail-end village; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme likely to be sustainable if the Technical and Institutional shortfalls are addressed and tariff collection improves
3	Thandapani Jhilasu, Chamoli	Adequate Source; Good Water Quality;	UWSSC Formed; UWSSC functioning through meetings as	Tariff order issued; Tariff Collection is at	All households provided similar water and sanitation services;	Project Scheme highly likely to be sustainable if the tariff collection improves;

NO.	SCHEME NAME	SUSTAINABILITY				
		Technical	Institutional	Financial	Social	Overall Ranking
	District	All households connected to network;	required and minutes recorded;	80%; All decisions documented and made available; Resource mobilisation adequate for O&M;	No discrimination in services experienced by any section of the village population;	
4	Nail Kuraw, Chamoli District	Adequate Source; Good Water Quality; All households connected to network; Households aware of water conservation and have installed RWH systems	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 80%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme highly likely to be sustainable if the tariff collection improves;
5	Kuling, Chamoli District	Adequate Source; Good Water Quality; All households connected to network; Households	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 95%; All decisions documented and made available; Resource mobilisation	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is sustainable;;

NO.	SCHEME NAME	SUSTAINABILITY				
		Technical	Institutional	Financial	Social	Overall Ranking
		increasing their economic standards through participation in tourism activities;		adequate for O&M;		
6	Nail Thapla, Chamoli District	Adequate Source; Good Water Quality; All households connected to network;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 80%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is highly likely to be sustainable if the tariff collection improves;
7	Athoorwala – II, Dehradun District	Adequate Source; Good Water Quality; Inadequate distribution network for an expanding population;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 60%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is likely to be sustainable if the technical issues are addressed and adequate measures are taken to improve the tariff collection
8	Bansiwala, Dehradun	Adequate Source; Good Water Quality;	UWSSC Formed; UWSSC functioning	Tariff order issued; Tariff Collection is at	All households provided similar water	Project Scheme is highly likely to be sustainable if

NO.	SCHEME NAME	SUSTAINABILITY				
		Technical	Institutional	Financial	Social	Overall Ranking
	District	All households connected to network;	through meetings as required and minutes recorded;	around 80%; All decisions documented and made available; Resource mobilisation adequate for O&M;	and sanitation services; No discrimination in services experienced by any section of the village population;	tariff collection improves;
9	Pasta Pipalsar, Dehradun District	Adequate Source; Good Water Quality; All households connected to network;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at 80%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is highly likely to be sustainable if tariff collection improves
10	Shahpur Shitlakhera, Haridwar District	Adequate Source; Good Water Quality – Water Quality Monitoring carried out regularly; All households connected to network and metered;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 95%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is sustainable;

NO.	SCHEME NAME	SUSTAINABILITY				
		Technical	Institutional	Financial	Social	Overall Ranking
		Households have good awareness of water conservation indicated by their participation in RWH;				
11	Narayanpur Muliya, Nainital District	Adequate Source; Good Water Quality; All households connected to network;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded; UWSSC has become a model institution in the region;	Tariff order issued; Tariff Collection is at around 90%; All decisions documented and made available; Resource mobilisation adequate for O&M; O&M resources shared with neighbouring villages;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is sustainable;
12	Aamhat, Pithorgarh District	Adequate Source; Good Water Quality – Water Quality Monitoring carried out regularly;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 80%; All decisions documented and made available;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the	Project Scheme is highly likely to be sustainable if tariff collection improves;

NO.	SCHEME NAME	SUSTAINABILITY				
		Technical	Institutional	Financial	Social	Overall Ranking
		All households connected to network;		Resource mobilisation adequate for O&M;	village population;	
13	Legamkanda, Pithorgarh District	Adequate Source; Good Water Quality; All households connected to network and metered; A number of households are involved in dairy activities that is enhancing their income levels;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 95%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is sustainable;
14	Jugapaani Rueena, Pithorgarh District	Adequate Source; Good Water Quality; All households connected to network;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 80%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population; Excellent Grievance	Project Scheme is highly likely to be sustainable if tariff collection improves;

NO.	SCHEME NAME	SUSTAINABILITY				
		Technical	Institutional	Financial	Social	Overall Ranking
					Redressal Mechanism;	
15	Taljaman, Rudraprayag District	Adequate Source; Good Water Quality; All households connected to network;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 80%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population; Social Audit conducted to ensure that the vulnerable groups requirements are addressed	Project Scheme is highly likely to be sustainable if tariff collection improves;
16	Medanpur, Rudraprayag District	Adequate Source; Good Water Quality; All households connected to network; Integrated approach has led to increased economic benefits to	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 95%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is sustainable;

NO.	SCHEME NAME	SUSTAINABILITY				
		Technical	Institutional	Financial	Social	Overall Ranking
		the households;				
17	Naini-Poundar, Rudraprayag District	Adequate Source; Good Water Quality; All households connected to network; Integrated approach has led to increased economic benefits to the households;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 95%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population; Emerging women leadership in the village;	Project Scheme is sustainable;
18	Ranghadgaon, Tehri Garhwal District	Adequate Source; Good Water Quality; All households connected to network;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 80%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is highly likely to be sustainable if tariff collection improves;
19	Bunksheel, Tehri Garhwal District	Adequate Source; Good Water Quality;	UWSSC Formed; UWSSC functioning through meetings as	Tariff order issued; Tariff Collection is at around 70% - lower	All households provided similar water and sanitation services;	Project Scheme likely to be sustainable if the Technical and Institutional shortfalls

NO.	SCHEME NAME	SUSTAINABILITY				
		Technical	Institutional	Financial	Social	Overall Ranking
		All households connected to network; however tail-end villages facing problems;	required and minutes recorded; MVSLC formed but not active;	collection in tail-end village; All decisions documented and made available; Resource mobilisation adequate for O&M;	No discrimination in services experienced by any section of the village population;	are addressed and tariff collection improves
20	Sapera Basti, Dehradun District	Adequate Source; Good Water Quality; All households connected to network and metered;	UWSSC Formed; UWSSC functioning through meetings as required and minutes recorded;	Tariff order issued; Tariff Collection is at around 80%; All decisions documented and made available; Resource mobilisation adequate for O&M;	All households provided similar water and sanitation services; No discrimination in services experienced by any section of the village population;	Project Scheme is highly likely to be sustainable of tariff collection improves;

The overall assessment on sustainability of the project schemes are provided in the following Table 5.4.3:

Table 5.4.3: Overall Assessment on Sustainability of Project Schemes

Sustainability Ranking	No. of Schemes	Names of Schemes
Sustainable (All aspects of sustainability adequately covered)	6	Kuling, Shahpur Shitlakhera, Narayanpur Muliya, Legamkhanda, Medanpur, Naini-Poundar,
Highly Likely to be Sustainable (One aspect of sustainability needs to improve)	10	Thandapani Jhilasu, Nail Kuraw, Nail Thapla, Bansiwala, Pasta Pipalsar, Aamhat, Jugapaani Rueena, Taljaman, Ranghadgaon, Sapera Basti
Likely to be Sustainable (Two or more aspects of sustainability needs to improve)	4	Taler Bhena, Badiyura Thana Metrana, Athoorwala-II, Bunksheel,

It is clear from the above two tables that in certain project schemes the institutional issues surrounding the sustainability needs to improve in order to achieve sustainability. Amongst the four schemes that are in the "likely to be sustainable" category, 3 project schemes are MVS schemes in which the functioning of the MVSLC needs to improve along with ensuring adequate distribution network for the tail-end villages and improvement in tariff collection efficiency in order to move the project schemes to "sustainable" category. Likewise, in the Athoorwala schemes, certain policy changes need to be made to ensure the Tehri Dam oustees are willing to pay the tariff. Similarly, 10 of the 20 project schemes are in the "highly likely to be sustainable" category because each of these project schemes need to achieve improvement in tariff collection efficiency. However, 6 of the 20 schemes are "sustainable" because all the aspects of sustainability is covered in the project schemes.

Considering the highly positive outcomes on sustainability, it can concluded that the URWSSP has ensured that the all the aspects on which sustainability of a scheme depends on, have been addressed through all stages of the project. These include ensuring community employ their local knowledge and techniques in planning and designing the project scheme. Also, URWSSP promoted the use of local labour and user contribution. Additionally, through the formation and UWSSC, the URWSSP made certain that the local people have

power to make decisions, thus creating accountable and democratic local institutions. Moreover, the URWSSP mandates the UWSSC to take up O&M of the schemes thus enabling the local community have a stake in its protection, as well.

The URWSSP also incorporated 'cooperation" amongst various stakeholders which implies that decision-making authority is shared between the local people and DIAs. This has led to transparency and accountability, increased implementation of and compliance with decisions, application of diverse knowledge sources to design, execution and O&M, including both local knowledge and science, improved resource management, increased monitoring, decreased conflict over water service delivery, enhanced trust and strengthened social relationships within the community, empowered communities and improved sanitation and hygiene conditions.

It is noted that all the project schemes implemented under the URWSSP continue to deliver water and sanitation services at the designed level. This includes maintaining and in some cases exceeding the designed 55lpcd of water in each of the project scheme and delivering at a quality that is good and helps prevent the occurrence of water borne diseases.

Figure 5.4.2: Water Service Delivery in the Project Schemes

Additionally, all the project schemes have a distribution network that caters to the increasing demands of the beneficiaries i.e., moving away from public stand-posts to private household connections. More importantly, the technical sustainability of the project schemes is indicated by the acknowledgement from the beneficiaries that they continue to receive good quality water supply and sanitation services. Moreover, it is observed that there exists a strong sense of social cohesion amongst the users, good financial discipline and reporting, and improved sanitary and hygiene conditions in the villages. Further, it is found that majority of the households pay their bills and acknowledge to receiving good water and sanitation services. More importantly, as compared to the control schemes, the project schemes serve the needs of the whole community equitably.

Institutionally, it is seen that in all the project schemes there is active involvement of the community representatives in the UWSSC and that these members are trained to manage the scheme efficiently. The beneficiaries in all the 20 project schemes acknowledge that the mandate given to the UWSSC to manage the water supply scheme in terms of O&M, billing and collection and financial record keeping is being performed in a responsible manner by the UWSSC. The beneficiaries' further state that the UWSSC has involved the community in major decision making and makes available all the records to ensure transparency in the whole process. Also, it is seen that in those project schemes that have excellent leadership at the UWSSC has been able to successfully deliver the services to the satisfaction of all concerned. However, in the control schemes where the training and capacity building have not been provided to the PRI members, the service delivery has not been satisfactory.

The project schemes have addressed the aspect on Financial Sustainability by having a working tariff structure that is reasonably framed in order to meet the operation and maintenance cost. Moreover, the water tariff collection is of a high order with the project schemes achieving over 80% tariff collection on a regular basis. Further, in the project schemes where there is surplus funds available, the same has been deposited in banks so that additional revenue can be earned by the UWSSC.

Socially, the project schemes have ensured that every household is supplied with the same quantity and quality of water supply. In fact, the enhanced access to safe drinking water has

provided both the women and the vulnerable groups, an opportunity to be in command of vital aspects of their livelihood and maximize their sense of confidence/self-esteem.

Through training and capacity building carried out under the URWSSP, the community has understood the need to protect and safe-guard the water sources from possible agents of contamination. Hence, the community has agreed for implementation of a catchment area management plan, enforcing no-grazing rule and installation of household latrines to prevent open defecation. It was well noted that the community has understood the significance of safe drinking water coverage with the reduction of water borne disease and improvement of health status leading to increased household productivity.

One of the notable distinctions between the understanding of the sustainability at the agency and community level is the interpretation of the lifespan. At the agency level, a project scheme is considered sustainable if water supply is maintaining an acceptable level of service throughout the design life of the water supply scheme. However, at the community level, sustainability is understood as the capacity of a scheme to continue to deliver its intended benefits over the longterm. This is especially true in these project schemes, as the community has faced breakdown of the earlier schemes that were implemented a couple of decades ago. And, this time, the community is keen to get the water supply service over a longer-term period. Hence, the beneficiaries are looking towards having an effective mechanism to make funds available to cover the ever increasing operation and maintenance cost and for sustained water supply service delivery and benefit over time.

In order to ensure technical sustainability, the design features chosen for the project scheme were based on an understanding of the technical expertise of the community. In the regard, one of the best practices has been in terms of source identification for drinking water schemes. While formulating a project / scheme for drinking, participation of local community in planning, implementation, operation and maintenance has been ensured. Preference has been given to locally manageable and sustainable schemes/ projects in terms of system and sources. This is true in all the schemes that have surface water as the drinking water source.

In project schemes based on ground water, emphasis has been given to ensure that only replenishable amount of water is drawn and in-built provision is made in the project scheme itself for ground water recharge at least equivalent to drawal. In Shahpur Shitlalhera scheme, the Pump Operator has been trained to carry out tests to this effect and ensure that water supplied is equivalent to the groundwater recharge potential. Additionally, supplementary domestic requirement have been met by harvesting rainwater, storing and use the same. Further, quality of water was maintained through appropriate treatment options for both surface water and ground water.

BOX 14: MVS - A BOON FOR AREAS FACING DRINKING-WATER SCARCITY

The need for increasing water and sanitation service levels to meet the Sustainable Development Goals has led to the search for sustainable water sources. Where drinking water scarcity exists and groundwater quality is poor and / or not conducive for exploitation, utilising one source for a number of villages is a very good option. And, in Uttarkahand it is all the more advantageous because in a number of instances the sustainable water source is located in a neighbouring Gram Panchayat and pipelines have to pass through multiple villages. Hence, in such cases it is better for the villagers to come together and implement one Multi-Village Scheme (MVS) covering all the enroute and nearby villages. Moreover, providing source protection would be economical, as well. Over 37 MVS have been implemented in Uttarakhand under the URWSSP and the Consultant has assessed three of these schemes as part of the study. These include the Taler Bhena and Badiyura Thana Metrana Project Schemes in Almora District and Bunksheel Scheme in Tehri Garhwal District.

Decentralized implementation of water supply projects has brought in its own set of challenges for these MVS. It has had consequences at all stages of the project viz., planning, design, execution and O&M. The schemes have managed user contribution in such a way that it is equitable to all the villages and all economic classes. Also, considering that the MVS are relatively complex to design and operate and large lengths of pipelines makes it imperative to carryout regular surveillance the UWSSC have personnel who ensure that the network is without leakage and illegal tapping. In fact, the management system got all the more complicated in Bunksheel Scheme wherein the individual villages had social conflict and had no instance of working together on any kind of project. Mrs. Sarita Devi, Chairperson of the UWSSC in the Bunksheel Project Scheme says that *"the involvement of the Support Organization and the DIA has come in handy to address these challenges".*

In all the three project schemes, individual UWSSC have been formed to design, construct and maintain village-level infrastructure while a Multi Village Scheme Level Committee (MVSLC) comprising representatives of all the individual villages are responsible for procurement of goods and services for the common infrastructure. The MVSLC constituted sub-committees to oversee goods and service procurement and ensure construction quality.

The Support Organization and the DIA (UJN in each of the cases) have acted as intermediaries in the process as well. During operation as well, the MVSLC is to ensure the operation of the common infrastructure while the individual UWSSC ensures the supply to each of the villages and maintains the distribution network within the village. The President of the UWSSC in the Badiyur Thena Metrana MVS Project Scheme says that "*...the challenge we face is to ensure equity of water supply services especially when all the villages have contributed to the capital costs"*. Towards this, all the three MVS are seeking to achieve the objective by adopting demand management through metering and appropriate tariff design. Further, rainwater harvesting is also being explored in recent times to meet water demand for other consumptive uses. For the source protection in Taler Bhena MVS it was required to restrict grazing and the villagers in a meeting agreed to abide by the "no-grazing in the catchment area" rule. The MVSLC does carryout spot checks to verify the policy adherence by the villagers and has not come across any violation, thus far.

The residents of all the villages are happy with the water service delivery. One of residents of the Bunksheel Project scheme says that *"....our supply earlier was erratic and irregular, and we were told that it is because we were located at the tail-end of another MVS scheme and hence there was not much pressure to supply the water. Now, it has changed, we get regular services and the quality of water is good, as well."* Now, all the villages are in the process of constructing individual household latrines under the Swachh Bharat Abhiyan and the villages expect to attain Open Defecation Free (ODF) status in the next year. Most notably, the National Rural Health Mission (NRHM), ICDS and SBM converge at the field level in all the three villages in the Taler Bhena Multi-Village Scheme. The residents, Taler Bhena in particular, say that there is considerable reduction in the incidences of water borne diseases like diarrhoea and skin related ailments.

At present, in all the three MVS, the common infrastructure is maintained by the UJN. On this, Mrs. Sarita Devi, Chairperson of Bunksheel UWSSC says that *"...while we would been keen to maintain the common infrastructure, we do not have the necessary personnel to do it. We have sought training for some of our own residents so that the maintenance of the common infrastructure can be taken on a cyclical basis."*

All of the project schemes have UWSSC that has provided prominence to gender representation and enrolling members from the vulnerable groups. Majority of the members of each of project-scheme UWSSCs had good knowledge of their responsibilities. However, there were variations in how far these were being put into practice as a result of inconsistencies in capacity and capability.

The UWSSC in Naini-Poundar village is a highly motivated committee headed by a women and ensures that the service is constantly functional. Similarly, in the Shahpur Shitlakhera Village, the UWSSC has recognized the scheme benefits and ensures that operation of the

scheme is not affected even during the drier months of the year. The excellent performance of the Naini-Poundar and Shahpur Shitlakhera Village Committees can be traced to prioritisation the community accords to the important health benefits of an improved water service.

BOX 15: OVERCOMING DISASTER ….TOGETHER

Taljaman Village, Rudraprayag District

In 2006, the Taljaman Water Supply Scheme was selected to be implemented under SWAp and later commissioned in 2008. During the process, the villagers overcame social barriers and ensured that every household gets the water supply services. Hence, with the project, the long-standing discrimination of the SC/ST community in the village ended.

In 2013, disaster struck when the Uttarakhand State experienced one of worst disasters and in the process the Taljaman Water Supply scheme was completely destroyed. Hence, the UWSSC consisting of 4 males, 2 females and 1 SC female members petitioned the District Project Implementation Unit to reconstruct the scheme. Every household including the PRIs became once again actively involved in planning and execution of the scheme. Since the disaster had damaged the entire water source infrastructure, the major focus was on protection of the source. Hence, check dam and retaining wall was constructed around the source to prevent it from damager. However, this time around, the user contribution to the capital costs was not collected from the households. A local NGO, Jan Prerna Shikshan Sansthan was involved in capacity building of the UWSSC members and raising awareness amongst the households.

UWSSC constituted a Purchasing Committee consisting 3 members to collect at least 3 quotations from the market so that the UWSSC could issue the Purchase Order to the supplier who meets the criteria at the lowest price. The information on the selection of the Supplier was shared with the community. The UWSSC also formed a 5-member Project Progress and Quality Committee to oversee the progress of the project. Additionally, the Swajal DPMU collected information in prescribed format and the project progress was updated on a regular basis in centralized database. As per the progress achieved, the UWSSC generated demands for funds with the Swajal DPMU which was released upon review of the progress being made. Concurrent monitoring of the progress ensured good quality construction and un-hindered progress. In fact, during the visit by then Principal Secretary Mr. Utpal Kumar the villagers were very happy to hear to the words of appreciation from him for reviving the scheme after the disaster.

UWSSC has appointed a Village Maintenance Worker for billing, collection and maintaining accounting and bank records. At present, the UWSSC has a deposit of Rs. 11000/ in the bank to take care of upkeep, repairs and maintenance of the scheme. In addition, the UWSSC maintaining a complain register with treasurer who records, reviews and takes appropriate action to address the complaints.

In addition to the water supply scheme, all the families in the village have constructed toilets under the Total Sanitation Campaign of the Government of India and achieved the Open Defecation Free status. As village is attained ODF status, incidents of water borne diseases have reported to be very less.

With the water supply restored to the village, the villagers formed a Self Help Group to resurrect their livelihood in the form of reviving the livestock business that the community indulged in prior to the disaster. Since the villagers lost the entire livestock and sustained damages in the agricultural land, the present of SHG help the households come together to implement the revival plan that has help every family earn an average Rs.5000/month by selling milk and vegetables.

Finance is another key factor affecting sustainable water services including capital costs and appropriate tariff levels. The URWSSP ensures the participation of the community and support agencies to decide the technology to be utilized for the scheme thereby keeping the capital and O&M costs affordable to the community. The water tariff are based on standard guidelines issued by the state government and is not based on neither the actual O&M expenses nor the community's ability to finance the O&M. In 18 of the 20 project schemes, the tariff billing and collection has been impressive. This has resulted in each of the schemes having enough funds to procure spare parts and / finance minor repairs.

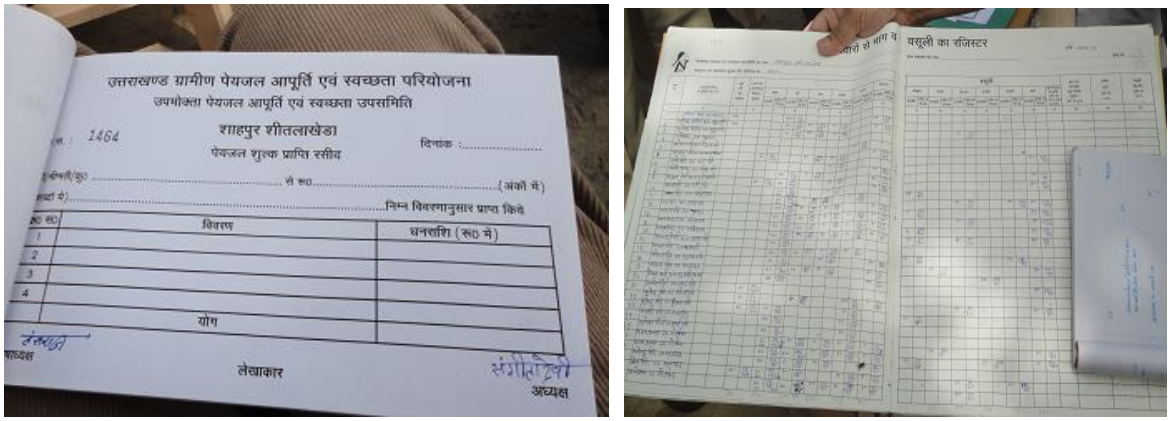
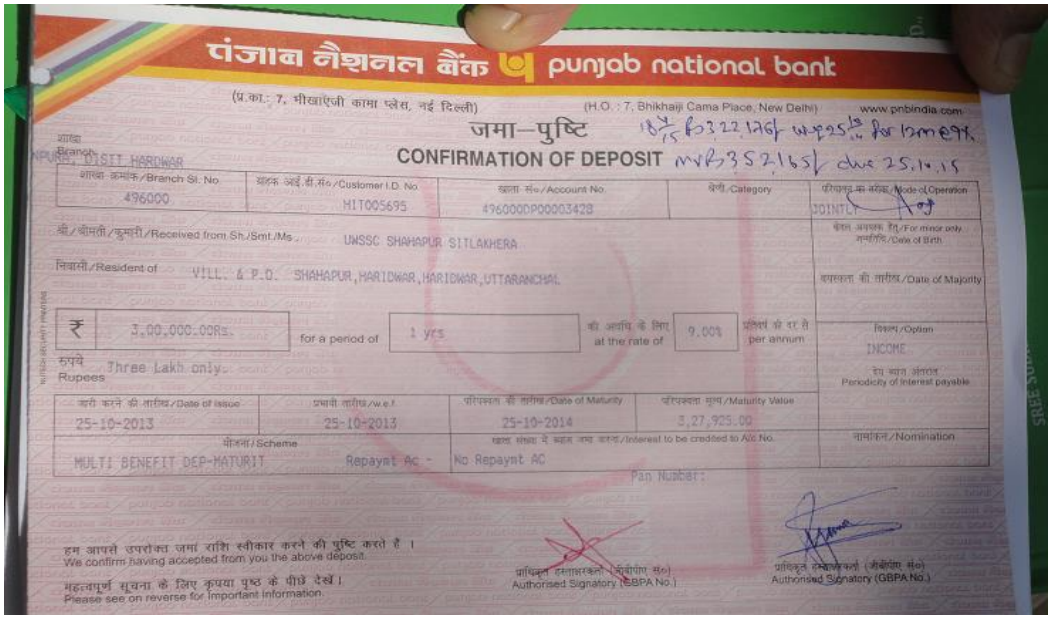


Figure 5.4.3: Billing and Collection in one of the Project Schemes

However, the tariff billing and collection in the Multi Village Scheme is very poor. The URWSPP ensures that the UWSSC collect contributions for the creation of a fund for operation, maintenance, repair and replacement, as well as organising its management. This

community-led O&M model makes the community solely responsible for O&M. In such case, poor collection of tariff shall impact the sustainability of the water supply schemes.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खाता सं./Account No. 496000DP00003428

श्री/श्रीमती/कुमारी/Received from Sh./Smt./Ms. UWSSC SHAHAPUR SITLAKHERA

निवासी/Resident of VILL. & P.O. SHAHAPUR,HARIDWAR,HARIDWAR,UTTARANCHAL

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जारी करने की तारीख/Date of issue 25-10-2013

प्रभावी तारीख/w.e.f. 25-10-2013

परिपक्वता की तारीख/Date of Maturity 25-10-2014

परिपक्वता मूल्य/Maturity Value 3,27,925.00

योजना/Scheme MULTI BENEFIT DEP-MATURIT Repayment Ac -

खाते संख्या में ब्याज जमा करना/Interest to be credited to A/c No. No Repayment AC

Pan Number:

हम आपसे उपरोक्त जमा राशि स्वीकार करने की पुष्टि करते हैं।
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Authorised Signatory (GBPA No.)

Figure 5.4.4: Deposit of surplus funds in one of the project schemes

The URWSSP recognised that that an effective and sustainable good quality spare parts supply had to be made available at affordable prices in order to make the project sustainable. Towards this, it was ensured that technologies that have the consent of community was chosen. Hence, the availability of technical know-how was addressed to ensure one of the important aspect of sustainability. Training and empowering locals to become local technicians encouraged the community to be self-sustaining. While mobilizing communities to instil a sense of ownership and responsibility has its advantages, shifting operation and maintenance from facility-provider to end-user should not be taken lightly.

All the communities in the project schemes have experienced equitability in water supply i.e., each of the households in the scheme are securing similar services. Further, the URWSSP has ensured the equity in water supply, as well right from the inception stage i.e., no household in the project scheme villages are discriminated against in term of providing water and sanitation services. Taljaman project scheme is one of the best examples wherein the project has enabled the SC/ST communities obtain water connections right from the

beginning of the project. Earlier to the project scheme, the communities faced discrimination that denied them the right to access to drinking water.

BOX 16: WATER PROMOTES SOCIAL HARMONY

Taljaman Village, Rudraprayag District

Taljaman Village in Rudraprayag District has over 35% of the population who belong to the Scheduled Caste / Scheduled Tribe Community. Even though discrimination based on caste is illegal in the country, there is still a sharp "social" difference that determines access to public good including water. The SC/ST community in the village faced physical hardships on a daily basis for obtaining their rightful share of drinking water. And, during times of sustained water shortage the physical and economic hardships of the community would amplify leading towards conflicts between social groups. The community in the early 2000s faced a number of continuous water shortage and it forced the GP to seek a water supply project for the community. Upon receiving the application, the District Authorities allotted the project to Swajal PMU to implement the scheme under the URWSSP.

Immediately, upon sanction of the project, the traditional community elders were in for a shock as there was a mandatory requirement for the formation of UWSSC that consisted of members from all communities. These mandatory requirements enabled the UWSSC formation with 4 women members and 3 SC/ST members along with 5 other members. Once UWSSC was formed, the members vowed to work together to help every household in the village get access to water. The involvement of the Support Organization greatly helped the process.

One of the first major decision taken by the UWSSC was to make it flexible for the household to provide user contribution i.e., cash or labour. There was a surprise in store when SC/ST community agreed to provide user contribution which broke the generally-held viewpoint that the SC/ST communities want every service free of cost. The SC/ST community got involved in the planning, design and implementation phases as well. Now, every household in the Taljaman village receives water supply services without any discrimination.

A member of the SC/ST community, Mrs. Geeta Devi says *"The prospect of being a co-owner for the water supply project was a matter of pride for all of us. After facing years of discrimination, our hope lay in the being a co-owner for the scheme and seeking water supply services as an equal-partner, The scheme has been boon for us as it has helped overcome the discrimination we faced and has enabled us to live as equals with the other community".*

Social audit conducted at the village recently revealed no cases of discrimination in the provision of water supply services.

In fact, efforts have been made in all the project schemes to ensure that even the poorest of the households and / or the vulnerable groups are part of decision making and are provided

with the necessary services. At the scheme level, the demand for good quality water service is reflected by the willingness of the households to take Private Household Connections (PHCs). The demand for more PHCs are being received by the UWSSCs every month and have been provided within a stipulated time period. This demand for PHCs indicates that a majority of households that have PHCs are experiencing economic and health benefits. In Athoorwala, the PHCs are in great demand and all the households have evinced keen interest in having PHCs at their doorstep. The excellent water and sanitation service delivery in Athoorwala enabled the community overcome the resettlement blues and the village is attracting more people to the village

BOX 17: OVERCOMING RESETTLEMENT BLUES - ATHOORWALA

The Tehri Dam in Tehri District of Uttarakhand on Bhagirathi River, the main tributary of the Ganges is the world's fourth largest dam that has been built. The dam was commissioned in 2006 and is designed to generate 2,500MW of electricity, control floods in the downstream plains and provide water to irrigate 2.7 Lakh hectares of land. The project resulted in the displacement of over 100,000 people and over 5,000 were resettled in Athoorwala Village on the outskirts of Dehradun. The land to which the people were resettled had never been inhabited by humans and contained poorly developed and unhygienic conditions including an inadequate sewerage system and polluted drinking water. Further, the region's hot and humid climate made the area a fertile breeding ground for various vectors of parasitic agents.

In 2009, the villagers approached the District Authorities for implementation of a water supply project. In 2011-12, two projects, one for Athoorwala I and another for Athoorwala II was sanctioned at a cost of Rs. 1.48 Cr. and Rs. 1.22 Cr, respectively. The corresponding community contribution was to the tune of Rs. 3.25 Lakhs and Rs.4.62 Lakhs, respectively. Initially, the project faced obstacles mainly by the Resettlement and Rehabilitation (R&R) Policy that was applicable for the Tehri Dam oustees which involved that all facilities including water supply and sanitation infrastructure shall be provided for by the State Government.

The Support Agency that was selected for the project did a tremendous job in organizing awareness workshops on the benefits of the water supply project and undertook door-to-door campaigning to get the households on board to contribute their share to the project. Finally, the community overcame the reservations on investing in a water supply project and enabled the formation of a User Water Supply and Sanitation Committee (UWSSC) to oversee the implementation of the project. The UWSSC has 5 men and 4 women including 1 man and 1 woman from the vulnerable Scheduled Caste (SC) community that constitute 15% of the total population.

The water supply project that sources water from a deep borewell was commissioned in 2014. All the households in the village are provided with metered private household connections. The UWSSC has a separate bank account to deposit the income earned from the water supply services especially from providing connections. At this time, a surplus of Rs. 12.5 Lakhs has been generated by the UWSSC which is deposited in the bank. Now, the race towards

achieving Open Defecation Free (ODF) status has begun with the availability of reliable water supply services.

Ms. Manju Chamoli, Gram Panchayat President, Athoorwala is highly appreciative of the project and is proud that the improvement in basic water supply and sanitation infrastructure has attracted many new families into the village. However, for some of the families the pangs of dislocation continue as these Tehri Dam oustees residing in Athoorwala are facing their second dislocation in less than 20 years as the expansion of the Jolly Grant Airport is threatening to uproot them one more time. Will the dislocation happen? Only time will tell.

The data from the project and the control schemes revealed not only the significance of each of the factors of sustainability but also that none would be sufficient in itself. Considering that sustainability is like a typical chain wherein it is as strong as the weakest link, it is significant that the community is requesting for additional funds to address all the factors together in order to achieve sustainability of the schemes.

BOX 18: WOMEN AND WATER – A NATURAL BOND

Uttarakhand is home to many a river that liberates the souls of millions since time immemorial. Every river has a special place in the heart of poets, authors, folk artists and common folk across the country. However, when the URWSSP was launched in 2006, no one believed that the project would lead to liberating the women and the vulnerable groups (mainly SC/ST communities) from the clutches of the powerful and help them in accessing drinking water and indulging in activities previously unimaginable. The project has helped these groups come out of their shells and contribute to both economic and social good.

Water and Women have a natural bond and when the drinking water project was launched in the state and implemented in a decentralized manner, the women came to the forefront to not only contribute their savings but also were instrumental in urging every household to come forward to participate in the project. Across the 20 project schemes, women and SC/ST members constitute 87% of the members of the UWSSC. In certain project schemes, women have moved to decision making positions for example, Naini-Poundar and Medanpur Schemes were women hold the position of the UWSSC President, as well.

The NGO who worked on the Pasta Pipalsar Project Scheme as a Support Organization said *"There was tremendous enthusiasm amongst the women to be part of the project. However, to get the women to agree to be part of the decision-making process was a tough one. But, water is a lure that women can't resist. Hence, after the initial hiccups and imparting the necessary training on planning, implementation and O&M, the women have gained the confidence."*

Another NGO openly asserts that *"women walk the talk when it comes to water, and we can quote numerous instances when women have gone out of the way to get things done and get the project commissioned".*


Figure 5.4.5: Women collecting water in Almora District, Uttarakhand

The participation of women in UWSSC meetings has also gone up significantly. Today, across the project schemes, over 60-70% of the participants are women. The women have no qualms in airing their grievances on the water situation and follows up constantly till the grievance is resolved.

The sense of responsibility is evident in the fact when a resident of Aamhat Project Scheme stresses that there is no point in implementing a project schemes if you have run to a government agency every time a motor does not work. It is the same sense of responsibility that has enabled every household in Sapera Basti go in for measured usage of water through metering of their private household connections. A sense of regret is evident in the words of a resident in the Taljaman Project Scheme when she says that "*we used to take bath and wash clothes twice a week, now with the availability of water we have this luxury on a daily basis.*"

Now, women across the project schemes are coming together to promote sanitation and hygiene in their communities and form self-help groups to take up other activities such as growing vegetables, medicinal plants, animal husbandry, promoting homestays for tourists etc. Maybe it all started because of their "selfish" need for "water security", but what is significant is that it has not stopped there.

5.5 TRANSPARENCY AND ACCOUNTABILITY

It is seen that transparency has played a key role in the successful operation of the schemes. In this regard, it is highly noteworthy that the UWSSC has utilized a transparent process to recruit contractors, support agencies and other service providers for implementing and operating the schemes. Moreover, the UWSSC conduct water quality, financial and social audit every year which allows the community to get a third-party assessment on the UWSSC members' working practices. Additionally, the fund provisions and fund utilization for water supply and sanitation services have been made public every year. More importantly, the UWSSC of all the project schemes have not shown any arbitrariness in selection of

beneficiaries for the project. This transparent process has instilled a sense of trust amongst the community about the UWSSC willingness to look after the interests of the communities in ensuring delivery of a sustainable water and sanitation services.

Likewise, accountability of the UWSSC members to the community in each of the successful project schemes are of a high order. This is reflected by the fact that regular meetings of the committee are held, decisions taken on aspects important to the community, recording and implementing the decisions taken and finally informing the community about the progress on implementation. Individual households have also expressed a high regard for the UWSSC members in these villages.

As mentioned earlier, ten factors are being studied to look into the best practices in the Transparency and Accountability innovation. These are reproduced in the figure below:

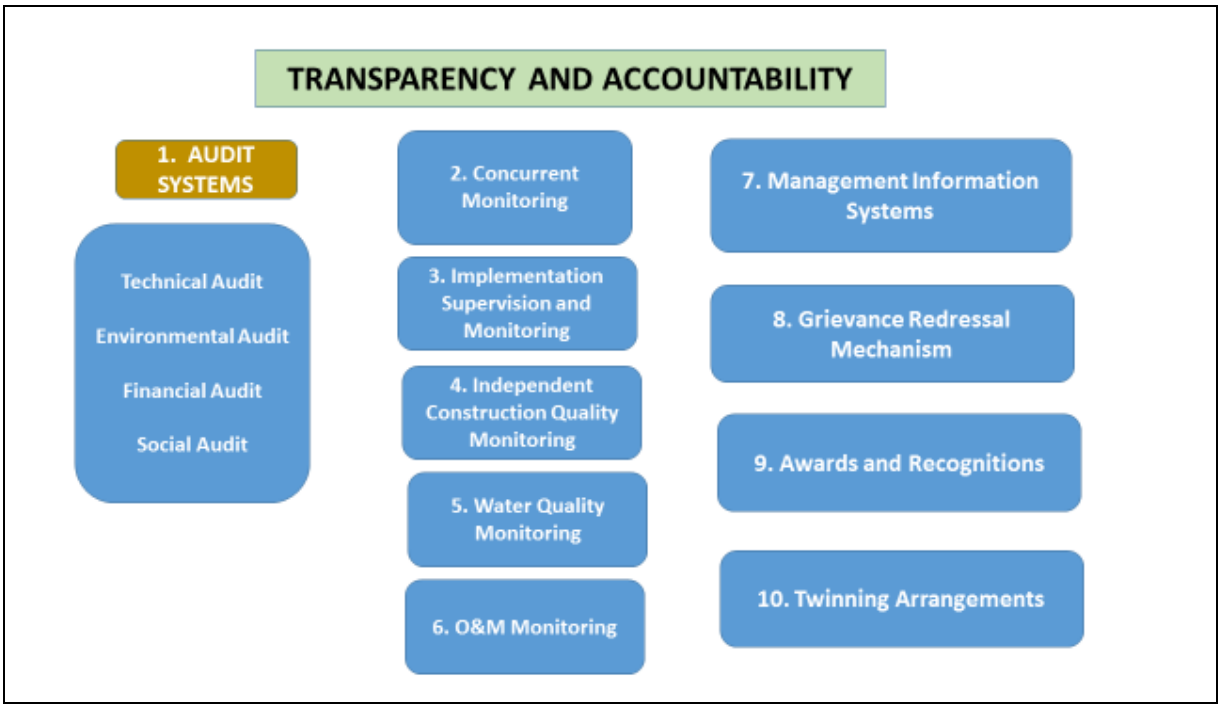

Figure 5.5.1: Factors influencing Transparency & Accountability

The comparison of the project schemes and control schemes on each of the factors on Transparency and Accountability is provided in the Table 5.5.1 overleaf:

TABLE 5.5.1: TRANSPARENCY & ACCOUNTABILITY - COMPARATIVE ASSSEMENT OF PROJECT & CONTROL SCHEMES

No.	Factor	Project Schemes			Control Schemes		
		Studied	Achieved	Remarks	Studied	Achieved	Remarks
1.1	TECHNICAL AUDITS	20	20	Transparent mechanism in place using third-party agency	20	20	Limited to internal audit
1.2	ENVIRONMENTAL AUDIT	20	20		20	20	Limited to Water Quality Assessment
	Vegetation Coverage	20	14	Naini-Poundar, Medanpur, Jugapaani Rueena, Ranghadgaon, Bunksheel, Aamhat, Narayanpur Muliya, Kuling, Nail-Thapla, Nail Kuraw, Thandapaani Jhilasu, Badiyura Thana Metrana, Talar Bhena, Taljaman		NA	
	Erosion Assessment	20	20			NA	
	Water Quality Assessment	20	20		20	20	
1.3	FINANCIAL AUDIT						
	Deployment of Community Accountant	*20*	20		20	20	GP maintains the Account
	Review of UWSSC Procurement Committee Accounting Procedures	*20*	20		20	20	Standard Government guidelines followed
1.4	SOCIAL AUDIT						
	Has social audit been conducted in all	*20*	20	UWSSC is forming a sub-committee to review the	20	NA	

No.	Factor	Project Schemes			Control Schemes		
		Studied	**Achieved**	**Remarks**	**Studied**	**Achieved**	**Remarks**
	schemes?			quality and progress of the scheme			
	Non-UWSSC members part of Social Audit Committee?	*20*	1	In Narayanpur Muliya non-UWSSC members are part of Social Audit Committee	20	NA	
2	CONCURRENT MONITORING	*20*	20	Concurrent Monitoring is done by SO, DIA, PRIs, and Third-party Auditors. In addition, Department of Anthropolgy, HN Bahuguna Central University given responsibiity to monitor outcome of the services provided by SO, DIA and the PRIs.	20	NA	
3	IMPLEMENTION SUPERVISION AND MONITORING	*20*	20	DIA provide a Community Engineer to UWSSC and upon completion of the scheme an Implementation Phase Completion Report (IPCR) has been prepared	20	20	DIA technical staff are involved in monitoring the project implementation
4	INDEPENDENT CONSTRUCTION QUALITY MONITORING	*20*	4	ICQM has been conducted on a sample basis	20	1	ICQM conducted only on the Rani Majhri Control Scheme

No.	Factor	Project Schemes			Control Schemes		
		Studied	**Achieved**	**Remarks**	**Studied**	**Achieved**	**Remarks**
5	WATER QUALITY MONITORING	*20*	20	Regular water quality monitoring in place	20	4	Regular water quality monitoring is only in four schemes. In the rest of the control schemes, water quality monitoring is performed as required.
6	O&M MONITORING	*20*	20	O&M Monitoring and related training has been imparted to all UWSSC prior to transfer	20	2	O&M Monitoring and related training imparted to PRIs in two schemes.
7	MIS	*20*	20	All scheme information available on-line right from project inception and continues in the O&M Phase	20	NA	Manual-based records available at the agency level
8	GRIEVANCE REDRESSAL MECHANISM	20	20	Manual-based in all schemes. All project schemes are maintaining Complaint Register	20	20	Village Maintenance Worker is involved in addressing grievances of the community
9	AWARDS AND RECOGNITIONS	*20*	4	NGP for Naini-Poundar, Athoorwala, Kuling and Narayanpur Muliya	20	0	
			2	State Information Commission, GoUK - At the Program Level		NA	
10	TWINNING ARRANGEMENTS		1	Swajal Pathashala - in the offing		NA	

The URWSSP has been formulated on the premise that good governance requires policy support, community participation, transparency and accountability. While all the elements of good governance are mutually supportive and reinforcing, the transparency and accountability are critical to achieve the community's trust in the system.

Our study reveals that all the 20 project schemes have had regular audits conducted. These audits have been to cover the areas of technical, environmental, financial and social.

Technical Audit

The technical audits have been conducted at all stages of the project. And, these technical audits have been conducted by technical experts who have been specifically recruited for the purpose. Their role has been to look into the design of the project and ensure that the design meets the drinking water and sanitation requirements of the community and ensure its technical sustainability over the project period. All the 20 project schemes have had technical audit conducted. The technical audits have helped determine the adequacy of the structures and determine corrective actions if there are shortfalls.

However, similar technical audits in the planning and implementation for the control schemes have not been in place. But, the DIA carrying out the O&M on behalf of the GPs, jointly assess the scheme functionality with the GPs prior to taking over the scheme and on a regular basis subsequently. And, a statement is obtained from the GP outlining the outcome of such assessments.

The incorporation of the technical audit as part of project implementation process has been highly appreciated by the implementing agencies because of its positive effect on the scheme performance and its sustainability. However, the community members even in the project schemes are largely unaware of the role played by the technical audit in the scheme design and performance. In contrast, the community members in all the schemes have a high regard for environmental, financial and social audits that have been part of the project schemes.

Environmental Audit

The environmental audits have been conducted at both the planning stage and upon completion of the project. The environmental audits have been centered on three areas viz., vegetation coverage at the catchment, erosion assessment and water quality assessment.

Based on the audit results, solutions are designed for catchment area management to improve vegetation coverage and arrive at an understanding with the villagers themselves in terms of solid waste disposal and grazing the animals in the catchment area. Two of the project schemes viz., Naini-Poundar Scheme in Rudraprayag District and Ranghadgaon Scheme in Tehri Garhwal District have implemented an excellent well-designed catchment management plan. The villagers in both these villages have lauded the plan and express great satisfaction at the fact that the increased vegetation coverage has ensured sustainable source of water even during the drier years. One of the residents in Naini-Poundar Village said that "……initially, we were reluctant to stop grazing at the catchment area. However, when the decision was taken unanimously at the UWSSC regarding the same, we abided by the decision. But, now, we are happy that the vegetation coverage has increased tremendously and we are getting the water even during the drier years. In fact, some of the residents in the neighbouring villages do come to our village to collect drinking water during such times".

In certain project schemes, landslides have been frequent. This is especially the case in the project schemes located in the districts of Chamoli and Pittorgarh. For these, the project has incorporated the construction of gabion structures to prevent the landslides. The project schemes in these districts have suffered less damage (on an average) during the flood disaster of 2013 as compared to the control schemes because of the landslide management plan implementation.

Similarly, the project schemes in the foot-hills have faced problems on water quality. In the ground-water based schemes, the water quality problems are faced during the drier seasons of the year and in the surface-water based schemes, the water quality problems are faced during the monsoon season. A Water Disinfection Plan has been incorporated as part of the O&M in these project schemes. Additionally, a Water Quality and Surveillance Plan has been

developed and the UWSSC conducts regular water quality testing so that appropriate actions can be taken in the event there is a deterioration in water quality. Further, the project has built in excellent capacity amongst the UWSSC members to tackle water quality issues during such period.

Financial Audit

The regular financial auditing of the project schemes has ensured that the UWSSC maintains cash books and follows regular accounting procedures. However, similar maintenance of regular accounting practices is lacking in the control schemes. Additionally, there is a provision of deployment of Community Accountant for hand-holding of the UWSSC Treasurer and Procurement Committee in upkeep and management of finances and accounting procedures.

As a result, it is noted that the cost of over 80% of the control schemes are over 15% above the budgeted amount. And, in all the 20 project schemes, the cost over-run is to the extent of 5%. The agencies mention that the cost over-run of the control schemes may be attributed to the lack of an effective financial audit function.

The UWSSC members mention that the regular capacity building programs held for the personnel involved in financial matters in the schemes has greatly contributed to this outcome. In fact, the villagers themselves in all the project schemes are unanimous in lauding the incorporation of financial audit as it has enabled them to seek information from the UWSSC members on fund utilization and gain confidence and trust in the implementation process adopted for the schemes.

Social Audit

Social Audit is an innovative practice that has been incorporated in the URWSSP. The social audit ensures that every community member has access to similar quality WATSAN services without any discrimination. In fact, the community members greatly appreciate the incorporation of the social audit for the fact that it provides them an opportunity to air their

opinions to a third-party without affecting their personal relationships with the UWSSC members or any of the other residents within the village. And, the villagers greatly credit the social audits for effective and efficient O&M in the project schemes.

1. In the village Narayanpur Muliya the social audit committee have raised many questions like, 1) On what basis the cost of the schemes is estimated Rs --- and 2) why such as such dealer been selected as non-local material vendor 3) basis of deciding the site for OHT and Tube well 4) why the less number of stand posts are being planned. The committee satisfied the social audit committee by answering all the queries by disclosing the standard project procedures and provisions and got success in mobilising support of few more opinion makers (non UWSSC members only are selected as social audit committee members) for operation and maintenance operations.

2. In Kuling project scheme in Chamoli District, the audit committee has apprehension of non-chlorination of the water and showing the expenditure on procurement of bleaching powder so the above issue reemphasized on practice of checking the residual chlorine and its documentation.

3. In village Nail Thapla in Chamoli District, the social audit committee formed under SWAp instructed the Van Panchayat to regulate the open grazing to the catchment area as the same was mentioned in the UWSSC bylaws and the said source was under the jurisdiction of Van Panchayat.

Concurrent Monitoring:

Concurrent monitoring has been a distinctive feature of the URWSSP in which the monitoring of the Implementation Phase is carried out concurrently by three agencies; i.e., DIA, SO and UWSSC. Each of the agencies ensure that the quality of construction is not compromised.

Also, SWSM involved the Department of Anthropology of the HN Bahuguna Central University to regularly monitor the outcome of the services provided by the NGOs as a Support Agency, the effectiveness of the role of the DIAs and the working practices of the UWSSCs right from the planning to the implementation phase of the project scheme. The concurrent monitoring was done on a sample basis to cover all the schemes that was implemented under the URWSSP by all the three agencies. The findings of the monitoring were shared with all the stakeholders so that mid-course corrections could be taken up to ensure that the project outcomes are realised without fail.

An Engineer at the UJS was very appreciative of the concurrent monitoring feature. He mentioned that *"….being the first state in the country to mainstream the SWAp, the monitoring by a third agency helped us in learning the various issues involved and implement the learning in our day to day activities and achieve the targeted outcomes in all the projects implemented by our agency:*

Another Engineer at UJN was categorical in his assessment and said that *"…..we being from the technical side had difficulty in understanding the issues such as community participation. But, the concurrent monitoring enabled us to deal with these issues in a more holistic manner to ensure that the project benefits everyone involved".*

An NGO who had worked on the project scheme was very forthcoming in her assessment of the role of the concurrent monitoring agency. She said that *"the assessment findings shared by the Concurrent Monitoring Agency enabled us to ensure that every community member is involved in various activities of the scheme and feel a sense of responsibility and ownership".*

Implementation Supervision and Monitoring

Another distinctive feature of the project was the incorporation of the Implementation Supervision and Monitoring to ensure good quality of construction. Twenty-four individual consultants were engaged to prepare the Implementation Phase Completion Reports (IPCRs). The IPCR for each of the scheme contained detailed information about the scheme and provide good feedback on the functionality of the scheme. IPCRs are a good monitoring tool

practiced under this project. By and large all the three agencies have followed the technical principles (norms, designs and construction practices), as envisaged in the project. Joint Inspection Reports were also prepared by the agencies on all the project schemes. These reports have been provided in a timely manner for all the schemes and has helped the scheme in ensuring quality construction and implement the scheme within the budgetary allocations in majority of the cases. Preparation of IPCRs were not practiced for the control schemes. However, in a couple of control schemes, the DIA were involved in carrying out supervision and monitoring in a timely manner. In fact, 90% of the project schemes as compared to 40% of the control schemes have been able to provide the water services at the designed service levels. The high level of success of the project schemes has been attributed to the third-party verification as it ensured quality construction at optimum cost levels.

Independent Construction Quality Monitoring

Under the URWSSP, eight consulting firms were engaged for monitoring the quality of works undertaken under the project, on a sample basis for about 15% of the schemes. These consulting firms were responsible for construction supervision and on-site technical assistance to the PRIs/rural communities. The findings resulted in improving the design and functioning of the schemes. The quality of construction works and pipeline works undertaken is reported to be of good quality.

The benefits of the involvement of third-party agencies in the preparation of the IPCRs has been excellent summed up by one of the UWSSC member of the Pasta Pipalsar Project Scheme. He says "…. *the timely intervention by the third party agencies enabled us to select the right kind of materials that are locally available. And, since we were implementing an infrastructure project on our own for the first time the advice provided by both third-party agencies and the DIA greatly helped us in controlling the costs, as well. These interventions were very much necessary as this project required us to provide the details of the fund utilization to the community and it would have been a major embarrassment if there were mistakes done"*.

Another contractor at a project scheme in Chamoli District said that *"....we were quite apprehensive of implementing such a large infrastructure project as we had no experience in such matters. However, the involvement of the third-party agencies and the timely inspection by the DIA helped us in selecting the locally available materials that our locally available resources were familiar in working with. But, for their intervention it would not have been possible to achieve the success of the project".*

Water Quality Monitoring:

The water samples are periodically tested with the Field Test Kits under Water Quality Monitoring and Surveillance Program, which also promotes awareness among villagers on water quality related issues, impacts and remedial measures. Trainings are being imparted to the district and block level officials along with grass root level workers. Five members from all GPs have been trained, followed by refresher training to one member per GP. Cumulatively, a total of 2,141 participants from district and block level functionaries, and 60,047 participants from GP level functionaries have been trained for testing of water quality during the project. Also, a total of 48481 sources and 83,919 water samples have been tested through FTKs and H_2S vial. During the FY 2015-16, 140 nos. of refresher training, benefiting 4,533 persons, have been conducted for testing of water quality against an annual target of 205 trainings for 7,971 persons. Also, 5,216 water samples have been tested through FTK and H2S vials during this financial year

O&M Monitoring

The implementation of SWAp enabled the state to move towards establishing a comprehensive O&M Policy. As per GoUK vide GO No. 1481/29(2)/15-2(78Pay.).2012 TC-II dated 10-12-2015, UJS has been designated as the back-stopping agency for all Operation & Maintenance (O&M) works. As such, UJS carries out the O&M of all control schemes. However, in case of project schemes wherein the UWSSC carries out the O&M, the UJS is the fall-back organization for taking assistance as and when necessary.

UWSSC carries out performance checks as per the check list provided at the time of handing over and undertakes spare parts assessment to look its availability to maintain the services. The details are shared with the DIAs and / or UJS for their views, as well. Accordingly, actions are taken to ensure the O&M of the schemes are carried out adequate and the water and sanitation services are delivered to the villagers.

An Engineer at UJS appreciated the O&M Policy and said that it was required to designate one back-stopping agency for providing the necessary support as the State would not have been able to afford to have a number of user committees take their own approach to O&M and these user committees would require an organization to fall-back on when necessary.

One of the UWSSC members in the Nail Thapla Project Scheme said that the designation of the back-stopping agency was very much required as the majority of the UWSSC members are neither technically qualified nor have the necessary experience to ensure effective O&M and maintain sustainable services to the community.

Further, three persons from each of the UWSSC have been trained in O&M of water supply schemes. These include the Chairman, the Treasurer, and the Scheme Maintenance Worker (SMW) of the UWSSC. About 127 O&M trainings have been organized from April 2015 onwards till now. A total of 4,129 persons participated in these training events and 1,441 UWSSCs participated in the O&M training programs.

Management Information Systems

The SWAp under URWSSP has come a long way from manual project data management to a fully computerized sector information system. The vision of the SIS is to have a single integrated sector-wide mechanism that is the first port of call for the information on the water and sanitation sector in the state. The software has been developed through an in-house effort, over an iterative process. The tools for data collection, storage, analysis and dissemination of information were developed to support decision making. Since the incorporation of the SIS, the three agencies have integrated their activities and have made a number of scheme-related information available on-line. The distinctive feature of the SIS is the fact that it takes into

account the institutional setup in which the RWSS sector operates. The District Implementing Agencies such as Swajal PMU, UJN and UJS are the custodians of the information and key actors in aggregating and supporting the GPs and UWSSCs in carrying out the data collection both at the village as well as the household level. The Swajal PMU has 100% track record of the on-line data entry while the UJN (76%) and the UJS (91%) have lower levels. The Swajal PMU has supported UJN and UJS in establishing the online data-entry system and provided training to the lower level functionaries in data collection and sharing.

The MIS of the SWAp has won Right to Information (RTI) award from the Government of India. In fact, the GoI has advised the other state governments to follow the SIS practices introduced as part the URWSSP. The M&E division also undertakes publication of Swajal Samachar and uploading all important documents such as GOs, DPRs, contracts and agreements, on the website.

While the MIS of SWAp has won accolades nationwide, the challenge lies in creation of dialogue platforms for communicating with various stakeholders especially the project beneficiaries. This has been a request by the various village-level functionaries as they opine that such a system can assist them in implementing a sustained O&M in all the project schemes.

Another major challenge the DIA face is the people turnover faced at the village-level which is very much on the higher side. Hence, regular training programmes for new entrants need to be held until a minimum level of competence is reached. Additionally, the capacity of the new entrants need to be increased so that they can act as Trainer for the next set of new entrants. In fact, the low level of data entry track record of both UJN and UJS schemes have been attributed to the resource attrition at the scheme level.

Grievance Redressal Mechanism

Any service is as good as the institution that delivers the service. And, in a community-based rural water supply service delivery system it is important that the community institutions listen to the community and address the grievance at the earliest possible time. In all the

project schemes, there is an effective Grievance Redressal Mechanism that allows the community members register their complaints with the UWSSC and the complaints are attended to by the staff. On an average, in the project schemes, the complaints are effectively attended to in 1-2 days. Only in certain cases, when certain repair works are beyond the skill levels of the local resources, the time taken is larger as the UWSSC has to seek the services of the DIA to attend to the complaint. The effectiveness of the Grievance Redressal Mechanism can be gauged by the fact that even during the flood disaster of 2013 that the state had to face, the services in a majority of the project scheme villages where the services were disrupted were restored within 3-5 days. While a majority of the project schemes have a manual-based Grievance Redressal Mechanism, in certain project schemes an SMS-based system have been utilized, as well. Such an SMS-based system enable the household to obtain the services from the village technician easily, however, record keeping of such SMS-based grievance redressal mechanism is hard to come by. In fact, one the UWSSC member in Shitlakhera Project Scheme, suggested that all the grievances be routed through a centralized SIS as majority of the villagers have access to the SMS-based services today.

BOX 19: JUGAPANI – The road to true "*Gram Swaraj*"

Any water supply scheme is as good as the service it can provide. This was realised by the residents of Jugapani, a village with 72 households situation at about 6.5km from the Pittorgarh District Headquaters. Initially, the residents were a tail-end village of a Multi-Village Scheme whose main beneficiaries was an army cantonment. During times of excess availability of water, the Jugapani residents did not face any problems in terms of supply. However, over the years, with the increased demand in the army areas, the situation became worrisome and eventually the service was stopped. Hence, the villagers requested for a new water supply scheme which was sanctioned in 2010 and commissioned in 2012.

The NGO, Krida Evam Yuva Vikas Samiti, was selected as the Support Organization who helped the formation of the UWSSC with 2 SC male members, 2 women members and 7 members from the general category. Mr. Mahesh Bhat, the President of the UWSSC credits the SO for ensuring monthly meetings are held and for involving all the members in the decision making process of water issues.

The collective effort of the villagers was essential to ensure that the nearby village Devdaar agreed for tapping of the water source from their village because Jugapaani did not have its own water source. Despite the source being located in another village, the villagers agreed to incorporate a catchment area protection component including a check dam and retaining wall constructed around the Gadhera.

The construction of the project took a little over 18 months and got completed as per schedule. A 3-member UWSSC sub-committee ensured that all procurement norms are followed and the assistance of the DPMU was taken from time-to-time to implement the project. Mr. Kishore Bhatt, the treasurer of the UWSSC credits the timely release of funds from the DPMU that helped them source the necessary materials and ensure that the work is not halted by the Contractor at any point of time.

More importantly, the bad water services experienced by the villagers in the earlier phase has made them realise the importance of maintain the water infrastructure created. This is best reflected by the fact that every resident is willing to pay their monthly tariff on-time without fail. On an average, the UWSSC collects Rs.800 per month while the expenditure is in the region of Rs. 700 per month for maintain the service. The women in the village credit the good quality water for reduction in water borne disease particularly dysentery that was common amongst the villagers.

Further, in a unique practice, the UWSSC has formed a Satarkta Evam Nigrani Samiti – a committee responsible to monitor the O&M of the scheme. Also, the committee maintains a Complaint Register in which all complaints pertaining to the water services are recorded and addressed within a particular time frame which is documented in the register as well. Further, the Committee is also monitoring work under the MNREGA, as well.

Now, the village has been selected under Swachh Bharat Abhiyan for sanitation and solid waste management. Under this program, village has attained ODF status and has implemented a solid waste management system that consists of Compost Pits, Garbage System, Soak Pits and Water Drainage System. The village is being proposed for the NGP award for the year 2015-16.

Awards and Recognitions

Five oroject schemes viz., Naini Poundar, Athoorwala II, Kuling, Medanpur and Narayanpur Muliya have won the Nirmal Gram Puraskar Award awarded by the Government of India. The NGP award is based on the extent of the success any village has achieved in the areas of water supply, sanitation and solid waste service delivery.

Government Projects are subject to public opinion and scrutiny as well as media trial to public scrutiny. The Right to Information (RTI) Act 2005 mandates timely response to citizen requests for government/GP information. The State Information Commission, Uttarakhand has twice honoured the project with the RTI Award for transparency and good governance practices which shows excellent consistency in its performance, as well.

SWAJAL Pathashala

The Swajal Pathashala shall be established as a RWSS knowledge centre with printed, audio and video documents on success stories and learning cases. The Pathashala shall focus on documenting knowledge and experiences relating to small and medium water supply schemes for single habitation, single village and small scale multi-village schemes. The Pathashala shall facilitate cross learning visits with other States implementing community-based water supply schemes either under the NRDWP or external donor funded projects. Primary objective of the 'Pathashala' shall be to provide continuous support to the decentralized RWSS schemes and the PRI institutions. Broad steps relating to the Pathashala shall be as follows:

- Swajal Pathshala shall be established as a training and learning Centre of Excellence.
- Field schools and network centres that can partner with the Swajal Pathshala shall be identified. A Memorandum of Understanding (MoU) shall be developed with networked institutions such as Uttarakhand Academy of Administration - Nainital, National Centre for Good Governance - Mussorie and Uttarakhand Integrated Rural Development (UIRD) Rudrapur to conduct training programmes for higher officials.
- A Toilet Museum is expected to be established along with the Swajal Pathashala.
- 5-6 Gram Panchayats can be identified and transformed into ODF GPs, for "live labs" for RWSS programs.
- Budget and business plan shall be prepared for establishing the Swajal Pathshala as a Centre of Excellence. The seed-capital shall be provided by the Swajal-SWAP project.
- The Swajal Pathashala can be launched with an experience sharing workshop for all States of India.

6.0 CHALLENGES

The URWSSP was started at the end of the Pilot Swajal Project under the Sector Wide Approach (SWAp). Since then, it has empowered rural communities in Uttarakhand for demand driven approach to service delivery based on participatory process of decision making in an inclusive manner. It has been working with the communities through Support Organizations and Implementing Agencies. The role of these organizations is to encourage beneficiaries in taking lead for planning, implementation and maintenance of the drinking water supply and sanitation schemes including empowerment of women for the promotion of socio-economic activities, while developing the institutional capacities at the same time.

The URWSSP has observed that the selection of need-based schemes is necessary for the promotion of planning, implementation and O&M responsibilities in the community. Similarly, the project has shown the reduction of capital costs is possible through the partnership with local communities. Likewise, it has been found that the local ownership of schemes can enhance sustainability potential.

Additionally, the project schemes have achieved much more beyond the objectives of increased water and sanitation coverage. Going by the scale of achievements in each of the project schemes, the contribution of URWSSP can be considered valuable. It has mainstreamed the concept of shifting the “engineering-led” paradigm of designing and implementing drinking water and sanitation schemes to a “demand-led as well as community-driven” scheme with direct participation of the beneficiaries with their ownership of operation and maintenance processes for greater sustainability. The households express satisfaction in the services provided and the UWSSC members are excited to take care of their own water supply and sanitation infrastructure. However, with the kind of economic and health benefits experienced by the population because of the good quality services, it becomes pertinent to look into the future and determine ways by which the service quality can be improved and enhanced to cover the entire state of Uttarakhand. Mainstreaming such a practice presents itself with a number of challenges. Some of these challenges have been identified and provided in Box 20 overleaf and briefly explained thereafter:

BOX 20: CHALLENGES IN THE RWSS SECTOR

The challenges that the rural water supply and sanitation sector faces in the state include the following:

Strengthening of UWSSCs on O&M, Management and Technical aspects wherein water supply scheme is being transferred to the PRI;

Provision of livelihood water demand during scheme design using sprinkler systems;

Making a URWSSP Project Scheme as a Model Project for a cluster;

Insurance of assets in the Post Implementation phase through user-contribution;

Conservation of drinking water sources through climate change adaptation activities;

Incorporating MIS integrated mobile-based Grievance Redressal Mechanism

- **Strengthening of UWSSCs on O&M, Management and Technical aspects wherein water supply scheme is being transferred to the PRI**

As per the current O&M Policy in the state, UJS has been designated as the backstopping agency for carrying out O&M of project schemes. Simultaneously, because of the success of URWSSP, many project schemes that have been implemented under other funding programmes are being transferred to the PRIs in keeping with the 73rd Constitutional Amendment that mandates the PRIs to provide various services. In a majority of these cases, the PRI members have not had their training to carryout all O&M activities which include among others, carrying out routine O&M, conducting performance checks, stocking spare parts, billing and collection, opening and closing back accounts etc. Hence, these new PRIs selected for performing O&M should have members who are trained in all aspects of O&M using the assistance of a Support Organization.

- **Provision of livelihood water demand during scheme design using sprinkler systems;**

Our study reveals that in project schemes where is good water and sanitation services, the villagers have the necessary time to showcase their skills and knowledge in a variety of ways and in some cases have led to them carrying out activities that has provided economic benefits to the households. In a majority of these success stories, it has had to do with utilizing greywater and / or supplementary water sources to grow vegetables, fruits, medicinal plants that have been traded in the local market. Considering the benefits that have been

realized, there has been increased demand from the community to design water infrastructure that also takes into consideration the livelihood water demand i.e., to cover water needs for other activities such as agriculture, horticulture, animal husbandry, as the case may be.

- **Making a URWSSP Project Scheme as a Model Project for a cluster;**

Our study indicates that a successful project scheme in region can play a major influence to all the villages near the project scheme. One prime example is the influence of Narayanpur Muliya Project Scheme had on the Dharampur Auliya Scheme in Nainital District. Hence, having a Model Project Scheme in a cluster of say 50 villages in a region would go a long way in helping the villagers learn from their peers and provide water supply and sanitation services of a similar nature in their own community.

- **Insurance of assets in the Post Implementation phase through user-contribution**

The URWSSP has a unique practice of insuring the equipment and materials during the implementation phase of any project. This helps in controlling the costs of project schemes especially in states such as Uttarakhand wherein landslides, earthquake and other natural disasters are quite common. In the same way, insurance schemes should be initiated such that the damage occurring to the water and sanitation infrastructure after the project is commissioned can be covered under an insurance scheme through user-contribution. Such a scheme shall greatly reduce the replacement costs for water supply and sanitation infrastructure.

- **Conservation of drinking water sources through climate change adaptation activities**

Presently, researchers do claim that climate change is a reality that is being experienced by majority of the regions in the world today. This has led to increased changing rainfall patterns across the world. In such a situation, it is necessary to evolve climate change adaptation methodologies that would conserve drinking water sources especially in the State of Uttarakhand where the mountainous regions do face drinking water scarcity on a regular basis.

- **Incorporating MIS integrated mobile-based Grievance Redressal Mechanism**

One of the major successful outcomes of the URWSSP is the incorporation of the Management Information System that enables every stakeholder get the data on any project scheme online on a real-time basis. Now, with the excellent penetration of the mobile-based applications in different activities, there is an increasing demand from a section of project beneficiaries to look into incorporating a mobile-based Grievance Redressal Mechanism so that the monitoring of the grievance redressal can be done at all levels effectively.

Overcoming the above challenges would enable the RWSS sector in the state to enhance service delivery and sustain the services over a long period.