



## IWRM at micro level – the DOTI experience

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Issues such as increasing water related crisis and vulnerability of a large number of population due to water shortages, primarily of those living in the developing countries, have prompted reassessment of demand and supply-side solutions, and investment needs. Essentially, water has become an increasingly important issue on the international agenda. There are several new issues in water resource development - the impact of climate change on water resources, the need of basin-scale planning and regional co-operation to ease out possible dispute and regional and international tensions. Notwithstanding, the new thoughts have shadowed the voice of those, where the real problem actually lies with the communities.

Implementation of water resources development projects often lead to poor distribution, conflicts and confrontations even at the community level due to the lack of proper water resources planning. At the community level, water resources are critical for life, health, food and energy. In other words, usage of water for drinking, sanitation, irrigation, power and other miscellaneous uses need to be integrated in a manner, whereby the community gets the option to decide and prioritize the use of available water resources according to its collective priority and needs.

Since the 1992 Dublin Conference integrated water resource management (IWRM) has increasingly been recognized as the holistic, people and environment focused paradigm by which water should be managed; a message that has been further reinforced at the 2nd World Water Forum in the Hague and more recently at the Bonn International Conference on Freshwater. These gatherings sought to breakdown sectoral and disciplinary boundaries, to ensure that water is managed at the most appropriate level, by the most appropriate people, and in a manner that acknowledges the rights of other uses and users.

A study undertaken by IRC in 1999, identified eight principles of IWRM, which were primarily based on the Dublin principles and other more recent developments. The study looked into several participatory water resources projects world-wide with reference to IWRM approach. A participatory assessment methodology was developed by project staff to assess the degree of implementation of the eight principles. The eight principles are as follows:

- Water source and catchment conservation and protection are essential
- Water allocation should be agreed between stakeholders within a national framework

- Management needs to be taken care of at the lowest appropriate level
- Capacity building is the key to sustainability
- Involvement of all stakeholders is required
- Efficient water use is essential and often an important “source” in itself
- Water should be treated as having an economic and social value
- Striking a gender balance is essential

Although experiences in Nepal vis-à-vis IWRM approach are limited, there are several avenues where this approach attaches greater significance. This paper looks into the IWRM experiences in Doti District in western Nepal with reference to the above stated principles

### Making communities winners in IWRM

Sustainability of IWRM at the micro level is dependent largely on the community, which should be responsible for the decision-making as well as implementation and management of interventions done at the local level. The issues of conservation, appropriate and efficient management leading to equitable allocation of resources, capacity building and sustainability with gender balance are the key issues to a successful planning and implementation of IWRM policy at the micro / community level.

Poor or marginal communities risk losing out to larger, more focused, and better organized competitors (commercial agriculture, industry, etc.) in water user fora. Priority should be to ensure that communities - and the individuals and households who make them up - become winners rather than losers in IWRM. This will entail focusing on the community level of IWRM; strengthening communities' skills in decision-making and negotiation – while at the same time empowering communities and helping local level support agencies to provide the necessary backup.

### Need for IWRM

Natural resources like water are instrumental and critical in developing sustainable community based facilities. IWRM approach is essential in planning, developing and managing available water resources and helps in:

- Water Source Use Conflicts and Their Resolution
- Prioritization of Water Usage and Allocation
- Conservation and Protection of Water Resources
- Optimization and Conservation

- Productive Use of Water
- Gender Balance

### **IWRM framework and practices in Nepal**

Water resources development has been accorded a high priority in the national development context in Nepal. There have been several acts and regulations, which have been promulgated by the Government to effectively facilitate sustainable development of water resources in particular at the local as well as national level. Some of the relevant acts are the Water Resources Act (1993), Environmental Act (1996) and Local Self-Governance Act (1999). These acts are made more effective with the advent of related regulations, which have been formulated by the Government for the effective implementation of the acts and also to develop a legal framework.

It is within this legal framework that community's involvement in planning and management of water supply schemes has received more encouragement in Nepal. There are a number of successful examples both at the program and project level. Similarly, such successful examples in community irrigation and micro hydropower also exist. However, these are sector specific interventions, which have not yet demonstrated cross-sectoral integration in planning and development. One of the initial practices, at least in the planning phase, has been the Water Resources Management (WARM) approach of Helvetas Nepal in western and far-western regions of the country.

### **WARM programme - Helvetas**

Helvetas/Nepal supported Self Reliant drinking Water Support Programme (SRWSP), which developed itself on the basis of 20 years of experiences in the drinking water and sanitation sector in the Western Development Region (WDR) of Nepal, has gained valuable experiences. Significant achievements are in the field of social mobilization of the communities; the women in these communities; sanitation; capacity building of partners; and provision of high quality drinking water systems. Nevertheless, it is felt that due to the sectoral approach of SRWSP these achievements are not explored to their optimal level. Many of the problems in drinking water and sanitation sector are related to improper management of the water sources, which include frequent cases of source disputes; improper planning and use of the water sources.

WARM's *modus operandi* involves to define wards and Village Development Committees (VDCs), which are closer to the people for this type and scale of development work, as planning units. WARM takes a preventive and proactive approach in terms of planning, management and utilization aspects of water resources. Through step-wise procedure and participatory planning, WARM facilitates the formation of Water Resource Management Sub-committees (WRMSCs) at the ward and community levels. The WRMSCs represent themselves in a larger Water Resource Management Committee (WRMC) together with VDC

members. Social and technical assessments of potentials, needs and possibilities regarding water source, distribution and usage are discussed and decided among WRMC members, which finally takes the shape of an officially recognized local water resources master plan for the VDC, which is called the WUMP. A WUMP covers four components of water resources management pertaining to water supply and sanitation, irrigation and drainage, environment and ecology and other issues like energy and power.

The obligations and contributions of the VDC, WRMC and WRMSCs, the need and contents of internal and external support together with the tangible outputs and benefits are clearly mentioned and documented for transparency and to avoid future misunderstandings.

### **The Doti experience in IWRM**

Under an assignment of the Water Resources Management Program (WARM-P) of HELVETAS Nepal, ICON successfully completed the field assessment of 9 water resources management sub-committees of Laxminagar VDC, 8 sub-committees of Nirauli VDC and 9 sub-committees of Khairsen VDC of Doti district and developed the Water Users Management Plan (WUMP) for these VDCs. This document was finalized in close collaboration with the community members and the obligations and contributions of the VDC, WRMC and WRMSCs, the need and contents of internal and external support. At this stage the tangible outputs and benefits were clearly mentioned and documented for transparency and greater understandings. After the WUMP was prepared, the WARM program has supported the VDCs in implementing some selective drinking water schemes following the SRWSP approach. Communities, through their respective WRMSCs are being motivated for HSE and latrine construction. Demonstration latrines and other proactive measures are also taken to enhance sanitation awareness in the community.

### **Participatory planning**

During the initial assessment process in all the VDCs, the participation of the community members was quite extensive. On the average 11.88 percent of the total community members participated in the social assessment meetings and nearly 20 percent participated in the social assessment works in the field in Laxminagar VDC. Similarly, in Nirauli VDC, on the average 15.08 percent of the total community members participated in the social assessment meetings and nearly 21 percent participated in the social assessment works in the field. However, in Khairsen VDC because of the security concerns the participation process was done on a limited scale. This kind of participation even at the assessment stage is reflective of the community's willingness to participate in future planning, development and operation works and should be taken very positively. An exercise in participatory planning was done at the field itself, when the community participated in developing a resource map of their individual sub-committees. The

members of community not only located all the water sources, existing infrastructure, etc., but also identified their primary needs and prioritized them. The community on the basis of general consensus and agreement did relative prioritization of the identified potential schemes. This prioritization was done with the view of overall water resources development in the individual sub-committee.

### **Water resource assessment**

These field level assessments of Laxminagar, Nirauli and Khairsen VDCs have indicated the availability of various kinds of sources like spring and stream sources for potential water resources development schemes. The water sources for the proposed schemes in all the VDCs have been identified with the help of local people/inhabitants. During the course of the fieldwork, 460 water sources were identified and assessed in Laxminagar VDC alone. Similarly, 394 water sources were identified and assessed in Nirauli VDC. Considering the total VDC land area and the number of the sources, the average source density in Laxminagar per square kilometer of land becomes 6.02 nos while in Nirauli it is 7.62 nos. In Khairsen VDC, field assessment identified 193 water sources. These sources were identified and assessed in co-operation with the community.

### **Existing water use scenario**

The water supply and sanitation scenario in all the VDCs is slowly improving. There are several institutions including the sector lead agency, involved in the provision of water supply and sanitation facilities in the VDC and the District. As per available figures, presently, the water supply coverage is about 24.71 percent in Laxminagar VDC and about 66.91 percent in Nirauli. Some 14 drinking water schemes provide water supply to about 40 percent of the population in Khairsen. However, the quality, quantity and reliability of these schemes require considerable enhancements.

The collected data in Laxminagar indicates that for about 20.70 percent of the population is enjoying service level one, which as per prevailing definition implies that the source is protected, per capita quantity available for consumption is above 45 liters, accessibility is less than fifteen minutes and the supply is continuous throughout the year. On the other hand, about 10 percent of the population access very poor quality water service, which is grouped under service level four or very poor. While in Nirauli about 51.12 percent of the population are enjoying service level one and only about 3.53 percent of the population access very poor quality water service.

There were a number of local farmer developed and managed irrigation systems in all the VDCs. They are traditional type water diversion systems for irrigating agricultural lands in the area. There also are a few hill irrigation systems built with the assistance and initiative of government agencies like the Department of Irrigation. The field survey established that there are two such systems irrigating

about 510 *Ropanis* or 26 hectare of land in Laxminagar VDC. While in Nirauli there is only one such system irrigating about 250 *Ropanis* or 13 hectare of land. There were several farmer managed irrigation systems (FMIS) in Khairsen VDC, which cumulatively irrigate about 40 hectare of agricultural land.

Laxminagar and Nirauli VDCs do not have access to electricity. Fuelwood and kerosene meet the entire energy needs, where available. However, there is a genuine need for electricity in these VDCs and some of the sub-committees have indicated this in their need prioritization. Comparatively in Khairsen VDC, majority of the sub-committees have access to electricity and roads.

### **Need identification and assessment**

The community identified nearly 227 schemes in Laxminagar, 194 schemes in Nirauli and 96 schemes in Khairsen during the course of the social assessment work in the field. The top priority was given to drinking water supply by most of the sub-committees. However, some of the priority schemes identified by the communities in these VDCs were not technically feasible, as found by the technical assessment works.

It was also aimed that while executing the prioritized tasks WARM-P/Helvetas would focus more on bringing the VDCs at the forefront through co-ordination, training and facilitation. Keeping this fact in view, a three-day workshop was organised at Regional Health Training Center, Dhangadhi to facilitate Laxminagar and Nirauli VDCs for screening and priority ranking of the identified potential WARM related schemes to prepare a Water Use Master Plan. The Draft development and investment plan proposal based on the field study was finalised in this WUMP workshop which was participated by 20 WRMC and VDC officials of Laxminagar and 17 WRMC and VDC officials of Nirauli. The WUMP preparation process is currently underway for Khairsen VDC and shall be developed and finalized as per the modality described in the following sections.

### **Planning for development**

The Water Use Master Plans (WUMP) for Laxminagar and Nirauli VDCs is the outcome of intensive interaction with the community on resource identification, assessment, prioritization and mobilization. As part of the social and technical assessment works carried out by the consultants in the VDC, PRA approach was adopted to develop the resource and need inventory for each and every water resources sub-committee. As mentioned earlier, a preliminary plan was developed in the field itself, when the concerned communities developed resource maps for each sub-committee.

The planning WUMP workshop further refined the needs and priority of the community in the overall context of the WRMC and its various sub-committees. Once the final list of potential schemes in priority order was developed and

the resources to implement those schemes were identified, the VDC officials were left to themselves for preparing the five-year investment plan. While preparing such plan, the VDC personnel were asked to refer to the WARM frame as well as to see if there were schemes apart from water supply and sanitation and irrigation which were not worked out by the technical assessment team.

The number of projects identified by the Laxminagar VDC to be implemented in the coming five years consisted of 102 schemes related to water supply and sanitation, 55 irrigation and drainage, 5 micro-hydro power schemes, 27 environmental and ecological programs, 22 others development activities and 4 support activities.

In the same vein, the number of projects identified by Nirauli VDC to be implemented in the coming five years consisted of 65 schemes related to water supply and sanitation, 26 irrigation and drainage, 4 micro-hydro power schemes, 22 environmental and ecological programs, 3 others development activities and 9 support activities. The Five Year planning exercise was followed by formulation of a One Year Detailed Action Plan. The two VDC personnel were again left to themselves for preparing this action plan. After a rigorous participatory discussion, the VDCs came up with a final action plan for the coming one year.

The next course of action after the preparation of the Water Use Master Plan (WUMPs) was the identification of potential collaborators/resources/support organizations, external or internal to implement the potential schemes. The VDC officials, keeping in view the capacity of VDC to spend for a particular scheme, classified the potential schemes in two broad categories, those needing external assistance and those able to be implemented internally.

The immediate concern in this planning exercise has been the continuous updating of the WUMP by the members of the WRMC and their sub-committees at least once a year. The WUMP has adopted short and medium term goals to be achieved for the effective harnessing of available water resources. However, a longer vision can also be developed based on these information and continue the process of resource identification, planning and implementation by the community. These types of planning exercises are not a one-shot approach and are much more dynamic in nature and effort. Therefore, to maintain the dynamism of the whole exercise, the water resources committees need to carry forward this exercise and develop a sound platform for future growth.

## Conclusion

The sectoral development efforts at the grass root level needs to be further enhanced by adopting a more holistic

approach towards water resources. An integrated approach for water resources planning at the community level can ensure optimum use of available sources, which can translate into economically efficient use of sparsely available investments. On the social front, source conflicts regarding use or even priority uses, which is often encountered at the grass root level, can be solved at the preparatory planning phase of sectoral development efforts. An integrated approach in the use of water resources can also lead to economically productive use of water and limit wastage.

Therefore, in the context of community level development, it is desirable that overall assessment of water resources be done, such that planning for the different uses and their priority can be made more effectively. Further refinement of the available information can ensure optimum quantum of water for various sectoral uses and economize the required investment. This approach shall also mean that available sources are conserved and productively used. VDC level planning can be used to prepare *Ilaka* level planning jointly and *Ilaka* level planning would form the basis for preparation of district level plan.

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