

POSITION PAPER

'FUNCTIONALITY OF WATER SUPPLY SERVICES'

Functionality/Sustainability Thematic Working Group

01 December 2010

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Introduction

On 26 November 2009, the Sector Stakeholder Group meeting decided to form five working groups to develop thematic inputs for the Joint Sector Review planned in 2010. The Thematic Working Group (TWG) on 'Sustainability/*Functionality of Water Supply Services*' was established on 9 July 2010 and consists of senior staff members of DWSS, DoLIDAR, SEIU, FEDWASUN, RWSSFDB, UNICEF, NEWAH, WaterAid, NGO Forum for Urban Water and Sanitation, RWSSP-WN, and SNV. Between 27 July and 29 November 2010 the Thematic Working Group conducted eight plenary and four core group meetings. Notes of the meetings have been documented. The TWG started with brain storming sessions, identified major topic related causes, issues and later, towards the end, focused on practical recommendations for the short and medium term. The writing was a dynamic, progressive and consensus based process in which views, ideas, experience, inputs and suggestions from the perspectives of group members and non members were incorporated to the extent possible. Reference has been made to a range of studies, reports and policy documents.

This paper focuses on 'Functionality of Water Supply Services' to avoid diversion by the broad meaning of the term 'sustainability'. Actual functionality of water supply services can be considered as a key indicator of sustainability of water supply services.

This paper seeks to contribute towards structural sector improvements and policy adjustment, leading to harmonised efforts for sustained and effective water supply services within a strong institutional set up, to ensure water supply services and schemes that work.

As the term 'Functionality' is relatively new and may cause confusion, this paper defines Functionality as follows:

'Functionality'

The degree to which a product or a service is meeting the aspirations, needs or demands of users or customers, within the range of available options, standards and norms.

'Functionality of Water Supply Services'

The degree to which:

- water supply schemes function up to their design capacity for their design period and serve all water users with quantity, quality, accessibility and continuity,
- water supply services are sustained and continued beyond the design period,
- stakeholders adhere to defined roles, responsibilities, norms and standards,
- stakeholders meet performance standards,
- norms, standards and regulations are available, communicated, adhered to and enforced,
- operation, minor repairs and ongoing maintenance take place at scheme level,
- post construction support is institutionalized, available, accessible and practiced.

A) Policy Framework and Legal Environment

In the last ten years good progress has been made in the development of the legislative framework for Nepal's water and sanitation sector.

Strongly influenced by GoN five-year plans, including the 10th Plan PRSP objectives, the policy framework has gradually developed, with separate policies for water resources, hygiene and sanitation, rural water supply and sanitation, water quality, urban development and urban water supply and sanitation.

Policy development in the past resulted in a degree of fragmented and inconsistent legislation, particularly in relation to inter- and intra-ministerial policies.

Platform government legislation such as the Local Self Governance Act (LSGA, 1999) and 3-year plan (2010) partly express water supply and sanitation sector policies. This is important for defining the roles of line agencies versus those of local government, including Municipalities. This remains a key challenge in a sector traditionally dominated by technical concerns and less focused on PRSP initiatives such as poverty reduction, social inclusion and governance.

The current Three Year Plan (2010 - 2012) does recognise the direct link between livelihood and well being of human being and the availability of water supply and sanitation services.

The long term vision of the water supply and sanitation sector is stated as;

'Raising the living standard and the status of public health by making sustainable and equitable water supply and sanitation services available'.

One of its objectives related to functionality of water supply services is to;

'Ensure sustainable water supply services and a healthy environment by institutionalizing socially inclusive development initiatives'.

The main legislation influencing the delivery of water and sanitation services in Nepal is presented below;

Act or Regulation	Areas Addressed	Gaps
Urban water supply and sanitation policy 2009	<ul style="list-style-type: none"> ○ Addressing cost sharing and co-financing 	
National Drinking Water Quality Standards 2006	<ul style="list-style-type: none"> ○ Sets standards for water quality ○ Focuses on Water Quality Improvement Plan ○ Service Providers responsible for monitoring ○ Local level offices of the Ministry of Health & Population responsible for surveillance ○ Guidelines specify methods and frequency of sampling & testing 	<ul style="list-style-type: none"> ○ Unclear operational procedures for enforcement

<p>Water Supply Tariff Fixation Commission Act 2006</p>	<ul style="list-style-type: none"> ○ Establishes the WSTFC. ○ Provides for appointments to the Commission. ○ Authorises the Commission to fix tariffs to be charged by service providers. ○ Authorises the Commission to monitor service providers to ensure compliance with standards. 	<ul style="list-style-type: none"> ○ Jurisdictional responsibilities and operational guidelines unclear ○ Poor institutional set-up ○ More appropriate for commercially operated schemes than for rural schemes
<p>Water Supply Management Board Act 2006</p>	<ul style="list-style-type: none"> ○ Establishes Water Supply Management Boards to manage services in municipal areas. ○ Authorises WSMBs to issue licences to operators and enter into agreements with Service Providers to collect tariffs. ○ Constitutes Kathmandu WSMB 	<ul style="list-style-type: none"> ○ More specific to Kathmandu Valley ○ Different modalities not addressed ○ Only relate to Municipalities and adjoining VDCs
<p>Rural Water Supply and Sanitation National Policy, Strategy and Action Plan 2004</p>	<ul style="list-style-type: none"> ○ Roles and responsibilities of key government agencies ○ O&M fund will be created with upfront contribution at WUSC level ○ Rehabilitation fund (minimum of 20% of national rural water supply and sanitation budget is allocated for rehabilitation and repair of existing water supply schemes) ○ Capacity development for community management 	<ul style="list-style-type: none"> ○ Policy unclear about level of upfront payment for local O&M fund ○ 20% of national RWSS budget is not allocated for rehabilitation fund ○ Unclear demarcation of roles & responsibilities among ministries, departments and agencies ○ Inadequate compliance & enforcement in O&M fund establishment and mobilisation ○ No working procedures on how to establish rehabilitation fund
<p>Design Guidelines Community Gravity Flow Rural Water Supply 2002</p>	<ul style="list-style-type: none"> ○ Definitions of terms ○ O&M policy ○ Institutional arrangements ○ Procedures ○ Human resource development 	<ul style="list-style-type: none"> ○ Weak link with high level institutions and arrangements ○ Focusing on operational and technical issues

<p>Local Self Governance Act and Regulation 1999</p>	<ul style="list-style-type: none"> ○ Establishes a decentralised governance structure ○ Sets out the powers, functions and duties of the VDC, Municipality and DDC in relation to water and sanitation. ○ Sets out which natural resources are assets of local bodies and empowers local bodies to levy a natural resource tax. ○ Allows local bodies to transfer assets to consumer groups. ○ Establishes the procedure for the formulation of water related plan and project implementation 	<ul style="list-style-type: none"> ○ Covers planning but not implementation, institutional set-up and operational modality ○ Can lead to conflict with regards to source ownership and distribution ○ Not sector specific
<p>Drinking Water Regulation 1998</p>	<ul style="list-style-type: none"> ○ Regulates the use of drinking water. ○ Provides for the formation of Drinking Water User Associations and sets out the procedure for registration. ○ Deals with licensing of use of drinking water. ○ Deals with the control of water pollution and maintenance of quality standards for drinking water. ○ Sets out the conditions of service utilization by consumers. ○ Provides for the acquisition of house and land and compensation. ○ Provides for formation of Service Fee Fixation Committee 	<ul style="list-style-type: none"> ○ No separate water supply act ○ More than ten years old, needs systematic review ○ Ground water extraction and surface water regulation not adequately addressed
<p>Water Resource Act and Regulation 1992/3</p>	<ul style="list-style-type: none"> ○ The umbrella Act governing water resource management. ○ Declares the order of priority of water use. ○ Vests ownership of water in the State. ○ Provides for the formation of water user associations and establishes a system of licensing. ○ Prohibits water pollution ○ Allows completed projects to be transferred into ownership of users associations ○ Sets out the procedure to register a Water User Association and to obtain a license. ○ Establishes the District Water Resource Committee. ○ Sets out the rights and obligations of Water 	<ul style="list-style-type: none"> ○ General act, not specific to Water Supply ○ More applicable for energy sector ○ Unclear about consumer rights ○ Service delivery not defined ○ Renewal process of WUSCs not clear ○ Monitoring of performance of WUSCs not addressed

	User Associations and license holders. <ul style="list-style-type: none"> ○ Deals with the acquisition of house and land and compensation 	
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B) Institutional Arrangements

In the 1990s, political liberalisation and focus on decentralisation saw important new actors emerge in the sector such as community groups, local government, the private sector and non-governmental organisations. New working methods, including a demand led community based participatory approach, were introduced and communities in rural schemes were encouraged to take full ownership and contribute to the capital costs, thus allowing scarce external resources allocated to the sector to go further. As a result, the water and sanitation sector is now characterised by the involvement of a wide range of key government institutions at national, district and local level, NGOs and Associations, listed below;

Ministries	<ul style="list-style-type: none"> ○ Physical Planning & Works ○ Local Development ○ Water Resources ○ Health & Population ○ Education
Government Departments	<ul style="list-style-type: none"> ○ Department of Water Supply & Sewerage (under MPPW) ○ Department of Local Infrastructure Development and Agriculture Roads ○ Department of Urban Development & Building Construction ○ Department of Health Services ○ Department of Education
Government Bodies	<ul style="list-style-type: none"> ○ Water Supply Tariff Fixation Commission ○ Nepal Water Supply Corporation ○ Kathmandu Valley Water Supply Management Board ○ Rural Water Supply and Sanitation Fund Development Board
Local Government	<ul style="list-style-type: none"> ○ District Development Committees (75) ○ Municipalities (58) ○ Village Development Committees (~ 3.912)
Civil Society	<ul style="list-style-type: none"> ○ Federation of Drinking Water and Sanitation Users Nepal (FEDWASUN) ○ NGO Forum for Urban Water & Sanitation ○ Right-based organisations
Others	<ul style="list-style-type: none"> ○ Local NGOs, I/NGOs, UN agencies, bilateral and multilateral organisations and donors ○ Public Private Partnership for Urban Environment

The **Ministry of Physical Planning and Works** has overall responsibility for water supply and sanitation promotion. Under the MPPW, DWSS and RWSSFDB play important roles in the drinking water and sanitation sector.

The objective of DWSS is:

'... to achieve sustained improvement in health status and productivity for Nepalese people as a whole with particular emphasis on lower income group through the provision of adequate, locally sustainable water supply and sanitation facilities in association with improved personal, household and community hygiene behaviour by the year 2017'.

DWSS is based in Kathmandu and has five regional and seventy-five district offices in the country. As the lead agency, DWSS has following functions¹;

- Sector planning and coordination,
- Developing technical standards,
- Management of design and construction activities for water and sanitation facilities,
- Coordination of health and hygiene education and construction of sanitation facilities.

The **Ministry of Local Development** is the lead government body for promoting local development and decentralization. The ministry achieves this through supporting capacity building in local bodies i.e. District Development Committees (DDC), Municipalities and Village Development Committees (VDC). Under MLD, the Department of Local Infrastructure Development and Agriculture Roads (DoLIDAR) is responsible for small scale rural development activities² through the District Technical Offices and VDCs.

The **Ministry of Education** is responsible for the overall development of education in the country. The Physical Services Section in the Department of Education is responsible for designing and constructing basic school infrastructure including water supply and sanitation facilities. These school water supply schemes are contracted at a district level under the supervision of the District Education Office's chief engineer. Currently, there are 19,044 school water supply schemes out of 27,106 schools nationwide.

The **Ministry of Water Resources** is responsible for implementation of water resource policies. However, it has no direct involvement in water supply and sanitation other than licensing and registering Water User Associations through District Water Resources Committees.

The **Water Supply Tariff Fixation Commission** was established in 2007 and is responsible for fixing water tariffs and for ensuring quality standards in service delivery. In addition, the Commission is charged with monitoring service delivery and for resolving

¹ Urban and Rural

² Including water supply schemes < 1000 users

disputes between a Service Provider and the Consumer. Although initially responsible for only Kathmandu, the scope of Commission beyond Kathmandu Valley is currently under discussion.

The **Nepal Water Supply Corporation** has been responsible for the provision of drinking water and sewerage in designated municipalities since 1973. The Corporation was transformed into Kathmandu Valley Water Supply Management Board in 2008. The operation of the Board was subsequently managed by Kathmandu Upatyaka Khanepani Limited, which is now responsible for operating the water and sewerage services in the Kathmandu valley. The Rural Water Supply and Sanitation Fund Development Board implements a national programme addressing the needs of many small and medium sized rural villages. It implements projects through a system of technical support agencies (consultants) and support organisations (local NGOs).

A variety of multi- and bilateral organisations and donors, INGOs, NGOs and civil society organisations support and implement water supply schemes and provide services. Many of these organisations also invest in capacity building of key sector stakeholders to strengthen the sector by improving the quality of service delivery at local, district and national level.

Institutional roles and responsibilities in relation to Functionality of Water Supply Services by function;

Function	Role & Responsibilities of (agency/stakeholder)
Development of Policies & Guidelines	MPPW/DWSS (with 'no objection' letter from NPC)
Endorsement of Policy & Guidelines	Cabinet/Ministries/Concerned Agencies
Planning & Monitoring	Central Planning: NPC/MPPW Local Planning: DDC/Municipalities/VDC Policy Monitoring: Ministries Programme Monitoring: Implementing Agencies at various levels
Decision making	At national government level, sectoral budget and investment decisions are made by the Ministry of Finance and the National Planning Commission. Based on national and international commitments, long term targets, periodic plans are developed and a sectoral plan including investment plan is prepared to fit in the periodic plan. Donors and INGOs prepare their plans to support the national development sector plan. Local Government bodies make investments on the basis of participatory and inclusive planning processes.
Regulation	Ministries and Departments set and regulate national standards. FEDWASUN is responsible for independent monitoring & social auditing of water supply schemes (2004 policy). VDCs act as the local regulator for proper operation of water supply

	<p>schemes and play a role in water disputes.</p> <p>The Tariff Fixation Commission sets tariff standards and regulates service levels.</p>
Financing	<p>Sector contribution from donor funding is around 71%. Asian Development Bank and World Bank alone contribute nearly 60% of the total sectoral investments. Off budget line (not included in government book of records and implemented by I/NGOs) is around 11%³.</p>
Implementation	<p>Under the Local Self Governance Act (1999), central ministries have devolved the responsibility for implementation of rural water supply schemes to local bodies at district level. At district level, larger water supply schemes (above 1000 users) are usually designed and estimated by WSSDO, and the remaining by the DTO under the DDC. RWSSFDB and I/NGOs also implement schemes with less than 1000 users. I/NGOs usually employ their own staff in the district, working alongside district government staff. Others operate independently and parallel to government, applying their own standards and criteria. At local level, WUSCs commonly act as local implementer and function like a contractor during construction, including purchase of materials and organising labour.</p>
Operation & Maintenance	<p>WUSCs consisting of 9 users (at least three females) are established during construction and become responsible for O&M after completion of the scheme. This responsibility also includes organising, managing and increasing the O&M fund for payment of the village maintenance worker and regular repair and maintenance.</p>
Private Sector	<p>Examples and opportunities for private sector engagement in the sector are increasing and open new venues and opportunities.</p>
Users/consumers	<p>Responsible for proper use, sound operation, following local rules and regulations, monthly contribution to WUSC for VMW & O&M, reporting problems to WUSC/VMW, self monitoring, accountability and organising tap committees.</p> <p>The interests of users are represented by the WUSC. Registered WUSCs are member of district water user federation⁴. Users also form voluntary watch and pressure groups to support the federation.</p>

³ ADB report 2008

⁴ FEDWASUN's mission is to protect the rights of drinking water and sanitation users' organisations throughout Nepal by raising their awareness, and organising and empowering them to attain their additional rights, and by advocating for access to policy framing and decision-making. Its success will be based on inclusive participation with all stakeholders working together to ensure the availability and sustainability of drinking water and sanitation (Fedwasun 2066 – 70 strategy document).

C) Situation Analysis

DWSS data indicate that about 38,000 gravity flow water supply schemes have been constructed. Different studies illustrate that about half of the existing water supply schemes in the country are partly or totally defunct⁵. Many schemes do not function up to their design capacity for their design period and do not serve all water users with quantity, quality, accessibility and continuity.

Results Study DWSS on the basis of NMIP/DWSS data, 2010

S.N.	Functional Status of Gravity Flow Water Supply Schemes ⁶	No. of Schemes	Covered Households	% Coverage
1.	Well managed projects	7.734	373.295	18%
2.	Minor repaired required	16.935	809.996	39%
3.	Major repair required	4.375	246.481	12%
4.	To be rehabilitated ⁷	4.967	437.800	21%
5.	To be reconstructed	3.438	189.756	9%
6.	Projects not possible for re-operation	467	27.008	1%
7.	Others	15	530	0%
	Total	37.931	2.084.866	100%

Moreover, the study above shows that 75% of existing schemes run without a Village Maintenance Worker, 79% have no O&M fund, 72% have inadequate maintenance tools and 68% are lacking registered users committees. It is also noted that 12% of existing schemes have already exceeded their design life of 20 years. Nearly 39% of all gravity flow water supply schemes do not have adequate water throughout the year⁸.

The effects of failing water supply schemes are directly felt by their users, notably women and girls who need to spend more time collecting water from far away and often unreliable water sources, and deprived groups who tend to lose out in accessing reduced water availability. Users become prone to water borne diseases, affecting productivity and socio-economic development.

Consequences are felt at sub-national and macro-level as well, premature failure of water supply schemes result in low return and losses in sector investment, high recurrent costs and a widening resource gap to realise MDG and national targets. Here also, the poor and vulnerable in the periphery are likely to lose out as public resources are likely to be re-invested in rehabilitation and reconstruction of existing schemes closer to decision making centres, at the expense of expanding services to uncovered and remote settlements.

⁵ See Annex B for reference to results and figures from different studies undertaken

⁶ Excluding 143 surface pumping systems, 164 overhead tank with deep tubewell systems and 69 schemes of other type

⁷ Schemes in the rehabilitation category (S.N. 4) on average serve a larger number of households (nearly 90) than schemes in the other categories (between 35 and 58 households per scheme), suggesting that schemes serving more users are more vulnerable to premature break down than those serving fewer users.

⁸ More study and analysis is required for interpretation and full understanding of these figures.

Functionality of water supply services thus becomes very much related to WASH governance & equity. Causes of the failure of sustained water supply services are connected with a range of historical, institutional, organisational, managerial, social, technical and environmental factors.

Historical factors

In 1971 the Government of Nepal started an ambitious programme to increase rural access to water supply. Investments in water supply further increased during the International Drinking Water Supply and Sanitation Decade (1981 – 1990), resulting in substantial increase in coverage. However, the decade long conflict which formally ended in November 2006 had a considerable negative effect on the sustainability and functionality of water supply services and on the construction of new schemes. It also contributed to radical social change that can provide good opportunities for improved sector performance. Annex B briefly describes negative and positive effects of the conflict on the sector.

Technical factors⁹

Quality of construction work and building materials is often sub-standard. Insufficient trench depth for HDP pipes in gravity flow schemes is common, leading to frequent breakage and leakage. Physical components of the schemes are not regularly checked, maintained and repaired. Intake and reservoir structures are inadequately protected. After occurrence of initial functionality problems, users often make their own arrangements to secure water for their family, altering the distribution of water. Technical training received by WUSC members and VMWs is insufficient to effectively solve emerging technical problems over time. Other technical factors include incompatibility and inflexibility of scheme design in relation to changes in demographics, needs, desires and expectations (e.g. the increasing demand for household connections). Obviously, old schemes show technical problems that are more difficult to solve and are in need of partial or entire redesigning and replacement.

Institutional, organisational and managerial factors

By and large, policies guiding the sector and its stakeholders are appropriate. Nonetheless, considerable room for improvement exists in the actual adherence to policies and guidelines and the way they are implemented. Generally speaking, WASH stakeholders¹⁰ insufficiently adhere to defined roles and responsibilities. Enforcement and a regulatory framework are inadequate. The current governance system is not yet fully effective in creating an environment which is conducive for strong motivation and quality performance. Likewise, monitoring and corrective action on the performance of non-state actors is weak. Also, donor's adherence to the Paris Declaration (March 2005) and the Accra Agenda on Aid Effectiveness (2008) appears inadequate.

As a result, the WASH sector is characterised by poor coordination, high complexity and fragmentation, multiple state and non-state stakeholders with insufficient capacity and means, applying different and even contradicting modalities and approaches.

⁹ Qualifications below are general and do not refer to good exceptions.

¹⁰ Donors, decision makers, implementers, regulators, operators and users

Sector efficiency and effectiveness would greatly benefit from improved governance, downward accountability, transparency and leadership.

Practises of community participation vary widely. Genuine participation in the sense of decision making and control over resources in critical stages of the project cycle is often lacking. Many WUSC members and VMWs loose interest and commitment after their families are assured of drinking water and when problems exceed their competence and capacity.

WUSC members, especially after their engagement during implementation, tend to show little sustained commitment and motivation in taking post construction responsibility for ongoing operation and maintenance, largely attributable to the comparative lack of benefits and support¹¹ after construction.

Capacity constraints of key stakeholders at national, district and scheme level are a major cause of poor performance and, as a result; dysfunctional and failing water supply schemes and water supply services. Capacity constraints relates to available qualified staff versus required, in terms of: experience, skills & confidence, staff motivation, HRD opportunities, prevailing incentives & disincentives, management of staff performance and the functioning of the civil service system.

Environmental factors

Evidence of changing rainfall and weather patterns as a result of climate change is well documented. Rural villagers depending on springs for their water supply have observed the gradual drying up of sources and reduced yields long before studies were carried out and published. Deforestation and poor protection of sources/catchment area also contribute to the problem of diminishing water sources.

Occurrences of landslides and floods have long been considered as unavoidable natural disasters and are now increasingly linked to the effects of climate change.

Social factors

Rapid urbanisation, modernisation and an increasing proportion of the work force employed abroad are radically changing the fabric of society, increasingly challenging the validity of assumptions on voluntary community management and responsibility for local scheme operation and maintenance. Despite increased public awareness, gender equity and social inclusion continue to pose substantial challenges to the sector. WUSCs face larger challenges in effectively operating & maintaining larger schemes with users belonging to different ethnic and social groups. In the DWSS data, the average number of users of schemes in the category 'to be rehabilitated' is much higher than the others. Although various policy provisions focus on inclusion and equitable representation of vulnerable groups including women, deprived ethnic and marginalized communities in water supply services, there is inconsistency in the provisions. Participation of these excluded groups in the management of water supply services is mostly ceremonial and limited to labour contributions. Moreover, the deep rooted caste system often hinders the traditionally marginalized and deprived caste groups from access to water facilities.

¹¹ Technical, institutional, organisational and managerial support

Financial factors

Users tend to see water and a water supply scheme as a free service and not as an economic good that needs regular tending and care. Thus, users are reluctant to deposit up-front capital and provide monthly O&M tariff. Despite investments in providing financial training to WUSCs, the mechanism to raise and manage funds is often not systematic and rarely effectively practiced. Initial problems in regular water supply trigger default of regular payment of non-receiving users, starting a downward spiral and further degradation of scheme functioning. Most WUSCs are incapable of reversing this trend and the scheme reaches a point of no-return.

Evidential Factors

Implementing agencies appear to focus more on project completion than on the entire life cycle of water supply schemes and generally follow a traditional project approach. WUSCs (selected villagers) act as voluntary contractors and implementers during the construction phase. After construction, the WUSC becomes fully responsible for O&M. Evidence shows that WUSCs rarely succeed in effectively operating and maintaining the scheme and O&M funds throughout its designed lifetime, even when the design is sound, no conflicts over water resources exist, no major natural calamities occur, technical standards are met and the WUSC and the Village Maintenance worker(s) are well trained and prepared for their tasks. Naturally, schemes where these preconditions for longevity do not exist are likely to deteriorate and collapse earlier.

Regular users' contribution for the community O&M fund becomes problematic when performance of the scheme and the WUSC is not meeting users' expectations. Without corrective measures, the scheme quickly degrades further, particularly when users start making their own arrangements (e.g. diversions and extensions) and the WUSC loses control, confidence and trust, leading to unequal distribution of water, conflicts and irreparable damage to infrastructure.

Failing water supply schemes where major repair and rehabilitation are not economically viable, qualify for reconstruction. The institutional sharing arrangement requires relatively less community contribution (cash & labour) for new construction (20 %) than for major repair and rehabilitation. Also the attraction of possible advantages related to purchase of materials and fund management acts as a disincentive for sound operation and maintenance. In some cases water supply infrastructure has been demolished to gain access to existing and emerging funding opportunities for new construction. In general sector stakeholders find it more interested to focus on new construction as it appears more rewarding and easier to satisfy donors.

A key problem in functionality is the lack of functional and workable institutional arrangements to provide effective monitoring and backstopping support after construction of water supply schemes. Feed back and experience from the field clearly illustrate the sorrow state and the multiple causes of actual functionality of water supply services. The following chapter highlights the key issues related to the theme.

D) Key Issues related to functionality of water supply services

Historical

- Social change, public awareness and assertiveness in demanding sustained water supply services and service levels
- Democratisation process and the role of civil society
- Voluntary community management of O&M in changing society

Policy and planning

- Orientation on 'projects' (as opposed to broad programmatic approach)
- Monitoring and evaluation of (functionality of) water supply services
- Quality collection, processing and validation of data and information
- Compatibility of planning and financing mechanisms and systems
- Decentralised planning processes in relation to national plans

Institutional, organisational and managerial

- Consistency of policy framework related to O&M
- Policy on on post construction responsibilities and follow up support
- Policy on distinction of roles between implementer, regulator and operator
- Capacity, motivation and resources of service providers to address functionality problems
- Adherence to roles, responsibilities, standards and policies
- Enforcement and regulatory framework for quality and sustained services

Technical

- Quality of construction work and building materials
- Adherence to minimum building specifications and standards
- Breakage and leakage of supply pipes and depth of trench
- Regular repair, maintenance and replacement of spare parts
- Protection of intake and reservoir structures
- Technical training to WUSC and VMW
- Quality and flexibility of design for changes societies
- Meeting changing desires and needs (e.g. household connections)
- Source protection measures

Operation and Maintenance

- Tendency of donors and service providers to invest in new schemes
- Investment criteria and decision support tools in favour of existing schemes
- Information about, availability of, and access to essential spare parts, quality tools and training opportunities
- Coherence in O&M fund and tariff system
- Management of O&M fund
- Post construction support for problems that cannot be solved by WUSCs

Social

- Balance between engineering versus soft ware processes
- Changing society and feasibility of voluntary community management of O&M
- Gender equity, social inclusion and governance in O&M dynamics
- Size and ethnic/social composition of users of schemes in relation to community management
- Quality of participation, decision making, accountability and other soft ware processes

Environmental

- Source reliability in connection with climate change and deforestation
- Source/catchment area protection measures

E) Recommendations

Following prioritised recommendations are based on the situation analysis and key issues above and focus on essential changes to improve functionality of water supply schemes and services on the short and mid term.

Key Recommendations for the Short Term

Top Priority

1. Establish common guiding principles and minimum requirements and standards for planning, designing, implementation, O&M, and life long follow up of water supply services
2. Develop and test post-construction support mechanisms (for institutionalisation at latter stage)
3. Critically examine and review the assumption of voluntary post construction community management of water supply services (e.g. develop and test professionalized O&M services at scheme level, including private sector)
4. Clarify functions, roles & responsibilities of sector stakeholders, highlighting the essential and functional relation between WUSCs and local bodies

High Priority

5. Establish common guiding principles and minimum standards for the performance of sector actors at all levels
6. Improve existing information management system(s) to monitor and update the functional status of existing schemes with standard key indicators
7. Develop national and district *'action plans for repair and rehabilitation of existing schemes'*
8. Design coordinated & standardized national and district *'capacity building and HRD plans'* to achieve sustained quality of water supply services
9. Study key success and fail factors that determine functionality of water supply services in different geographical areas

Medium Priority

10. Standardize tariff system for O&M (including poverty & social inclusion sensitive arrangements)
11. Develop outline for an independent and authorised regulatory body
12. Conduct a study to determine the total costs of human and financial resources required to sustain continuous water supply services and maintain service levels at scale (in order to develop decision making tools to rationally determine the cost benefit of major repair/rehabilitation/reconstruction)
13. Develop mechanism to address functionality issues related to natural calamities and environmental factors

Key Recommendations for the Mid Term

1. Establish independent and authorised regulatory bodies at national and district level
2. Introduce, implement and institutionalise post construction support mechanism
3. Strengthen and empower civil society and water user associations to effectively promote and protect the voice & interest of water users
4. Implement national and district '*action plans for repair and rehabilitation of existing schemes*'
5. Implement national and district '*capacity building and HRD plans*'

Annex A Reference documents

The following documents have been reviewed and analysed in preparing this position paper:

1. Long term sustainability monitoring: An experience of WaterAid Nepal 2010
2. NMIP/DWSS study 2010
3. Research into financial and institutional structures to support the functionality of sustainability of rural hill water systems, WaterAid 2010
4. WASH Sector Stakeholders' Analysis in Nepal, WaterAid, Binay Shah 2010
5. DoLIDAR's draft WATSAN approach manual
6. Urban Water Supply and Sanitation Policy 2009
7. Long term sustainability of RWSSFDB funded projects batch I and II, RWSSFDB 2008
8. Public Procurement Act and Procurement Regulations 2008
9. Water Supply Management Board Act 2006
10. Water Supply Tariff Fixation Commission Act 2006
11. MLD's Local Infrastructure Development Policy 2005
12. Looking back study Newah 2004
13. Rural Water Supply and Sanitation National Policy & RWSS National Strategy 2004
14. Rural Water Supply and Sanitation Sectoral Strategic Action Plan 2004
15. Operation and Maintenance Manual (Volume VIII of twelve volumes of Design Guidelines Community Gravity Flow Rural Water Supply) 2002
16. Local Self Governance Act 1999
17. Local Self Governance Regulation 1999
18. Water Resources Act and Regulation 1999
19. Drinking Water Supply Regulations 1998

Annex B

Impact of ten years conflict on functionality of water supply services

Nepal is a country at a crossroads. Nepal's decade-long conflict formally ended in November 2006 and the country is now in transition towards lasting peace and a democratic republic. During the conflict, the functioning of Nepali society was heavily affected and the basic service delivery system including water and sanitation sector was largely non-operational.

Following are key impacts of the conflict on water supply services¹²;

1. The Government machinery was paralyzed and confined to district headquarters. Skilled human resources (e.g. engineers and sub engineers) could not visit the villages, interact with villagers and provide development support, training, supervision and monitoring. Local level development activities of NGOs were less affected.
2. Regular meetings and normal functioning of WUSCs was difficult as local gathering was restricted. In many instances, WUSCs were compelled to pay 'taxes' from ongoing project budgets. Many WUSCs were also required to withdraw O&M funds for this purpose. This affected the quality of work during construction and the proper functioning and maintenance of these schemes after construction.
3. Procurement and transportation of water supply related construction materials was completely restricted. Particularly GI pipes and fittings were considered to suspicious as these could be used to locally produce explosive devices.
4. Many water projects were destroyed by conflicting parties and damaged by floods and landslides.
5. Few in-country employment opportunities, insecurity and increased opportunities abroad have motivated a large number of rural male youth to seek and find employment overseas¹³. This has led to radical demographic shifts in rural villages, leading to shortages in local manpower, affecting construction, operation and maintenance of water supply schemes.

The conflict has also resulted in positive and encouraging changes;

1. Adult literacy rate increased from 40% (2000) to 57% (2009), enabling stronger leadership in WUSCs and VDCs, providing a better basis for improved functionality of water supply services.
2. Health and hygiene promotional activities and awareness programmes run by government and non government organizations were instrumental to increase assertiveness in local demands for safe and sustained drinking water systems.

¹² Sector performance figures indicate relatively little progress in water supply coverage during the conflict period; Coverage 55% in 2004, 53% in 2005 and 66 % in 2006 - compared to 83% in 2008/9.

¹³ Annually, over 300,000 (4.3%) Nepali youths of the age group 18-39 years leave the country (Himalayan News Services -2010/06/18).

3. Democratic norms and values are gradually being internalised, strengthening the potential for improved decision making, community participation and accountability.
4. Social awareness, consciousness and knowledge of identity and rights have increased, particularly regarding issues of equity, inclusion, gender, caste and ethnicity. Traditional social hierarchical relations based on gender, caste, ethnicity and age are gradually reducing. This provides the basis for improved gender sensitive and inclusive sensitive planning, implementation and post construction follow up, ultimately leading to improved sector performance
5. The population has become more conscious on their 'rights', e.g. right to safe drinking water, rights of indigenous people on local natural resources and child rights. Coupled with a sense of responsibility and duty, this will ultimately lead towards improved sector performance.
6. Civil society organizations are becoming stronger and play a stronger role in making service providers more accountable for the quality of their services. Besides, public-private partnership and collaboration towards addressing 'functionality' is taking momentum.

Annex C The 'Functionality Thematic Working Group'

Organisations and persons¹⁴ involved in the process;

<u>DWSS</u>	<u>Mr Tiresh Khatri (lead)</u>
<u>DoLIDAR</u>	<u>Mr Siddheshwor Shrestha</u> Mr Kamal Jaishi Ms Maheshwori Khadka Mr Krishna Katuwal
<u>FEDWASUN</u>	<u>Mr Rajendra Aryal</u> Mr. Bal Krishna Pokharel
<u>NEWAH</u>	<u>Mr Ratan Budhatoki</u> Mr Govinda Bhetwal
<u>NGO Forum Urban Water & Sanitation</u>	<u>Mr Prakash Amatya</u> Mr Tri Ratna Manandhar
<u>RWSSFDB</u>	<u>Mr Maheshwar Yadav</u> Mr Manoj Kumar Lal
<u>RWSSP-WN</u>	<u>Mr Bimal Chandra Sharma</u>
<u>SNV</u>	<u>Mr Henk Veerdiq (co-lead)</u>
<u>UNICEF</u>	<u>Ms Anu Paudyal Gautam</u> Mr Madhav Pahari Mr Ilmari Saarilehto
<u>WaterAid</u>	<u>Mr Barun Kanta Adikhari</u>
AIN	Mr. Phanindra Adhikary
SEIU	Mr Jiban Prasain Mr Nanda Bahadur Khanal Mr Prabhakar Man Sing Mr Dinesh Adhikari
UN-HABITAT	Ms Sudha Shrestha

¹⁴ The underlined organisations and persons are members of the TWG

Annex D Abbreviations

ADB	Asian Development Bank
DDC	District Development Committee
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DTO	District Technical Office
DWSS	Department of Water Supply and Sewerage
FEDWASUN	Federation of Water and Sanitation Users Nepal
GoN	Government of Nepal
INGO	Internation Non Governmental Organisation
KUKL	Kathmandu Upatyaka Khanepani Limited
KVWSMB	Kathmandu Valley Water Supply Management Board
LSGA	Local Self Governance Act
MLD	Ministry of Local Development
MPPW	Ministry of Physical Planning and Works
NEWAH	Nepal Water and Health
NGO	Non Governmental Organisation
NMIP	National Management Information Project
NPC	National Planning Commission
NWSC	Nepal Water Supply Corporation
O&M	Operation and Maintenance
PRSP	Poverty Reduction Strategy Plan
RWSSP-WN	Rural Water Supply and Sanitation Project Western Nepal
SEIU	Sector Efficiency and Improvement Unit
TWG	Thematic Working Group
UNICEF	United Nations Children’s Fund
VDC	Village Development Committee
VMW	Village Maintenance Worker
WSMB	Water Supply Management Board
WSSDO	Water Supply and Sanitation Divisional Office
WSTFC	Water Supply Tariff Fixation Commission
WUSC	Water Users and Sanitation Committee