Similar approaches

The challenge of managing shared water resources has been recognised in other countries and by other organisations. A common element is the strong emphasis on citizen participation in the planning process to build common understanding and clear mandates and responsibilities for action. Independent evaluations on all of these could be improved or made more publically accessible.

Water Safety Planning is an internationally accepted methodology that is used by many water utilities and authorities world-wide to assure the quality of water reaching the user, and thus has more limited application that Water Source Protection Guidelines. It was developed by the World Health Organisation and recently they have been working on its application for small and rural water supply systems, with piloting in Tajikistan. Key publications are:

- "Water safety planning for small community water supplies: Step-by-step risk management guidance for drinking-water supplies in small communities", WHO (2012). Available in English and Russian.
- "Water safety plan: a field guide to improving drinking-water safety in small communities" WHO (2014). Available in English and Russian.

Water Use Master Planning (WUMP) is a methodology developed by the Swiss-based NGO, Helvetas-Intercooperation who have been applying it in Nepal for over ten years. It is a bottom-up approach to IWRM. Key publications available from:

- nepal.helvetas.org/en/our_projects/warm.cfm

Community Integrated Water Resource Management (CIWRM) is a way of making IWRM relevant and useful at the local level, and provides linkages to wider river-basin issues. The methodology has been developed by WaterAid in Nepal and is part of their wider approach on Water Security. Key publications are:

- "Water Security Framework", WaterAid (2012). Available in English, French and Portuguese
- "WaterAid Nepal's experiences in community-based water resource management" WaterAid in Nepal (2008)
- "Water resource management: integrated planning and management at community level" Training Manual, WaterAid in Nepal (2011)

Jargon Buster

- **District Implementation Manual (DIM).** Revised in 2013, it provides a comprehensive overview and technical guidance of the water and sanitation sector in Uganda. Available from www.mwe.go.ug
- **Ecosystem/Environmental Services.** Those natural processes, qualities or resources that provide economic benefits, risk reduction, cultural and spiritual value to people today and future generations.
- **IWRM - Integrated Water Resource Management.** Defined by the Global Water Partnership as "a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems."
- **Payment for Watershed (or Ecosystem) Services.** A voluntary transaction where a well defined Ecosystem Service is bought - often a downstream water user paying an upstream water user not to pollute or over-abstract.
- **Water Management Zones (WMZ).** Uganda is split into four WMZs, each with a MWE office that carries out water resource management functions.

Further Information

- To download the guidelines and policies on IWRM and Water Source Protection in Uganda visit the Ministry of Water & Environment at www.mwe.go.ug
- For more resources on rural water supply and to join the network, visit RWSN at www.rural-water-supply.net
- A wealth of resources on larger scale IWRM are available through the Global Water Partnership: www.gwp.org

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Rural Water Supply Network

Water Source Protection

Exploring ways to incentivise citizens and organisations to manage shared water resources in a fair, equitable way.

The water works for the town of Mbale, in Eastern Uganda, takes water from the River Manafwa. In recent years, the flows in the river have become more erratic and laden with sediment due to activities like sand-mining and the cultivation of the steep slopes of Mount Elgon (and these areas also suffer from lethal landslides).

Consequently, treatment costs have escalated and the reliability of the supply has fallen. Building a bigger treatment plant will be costly and can't solve all the problems. Is there another way?

[Photos: S Furey 2013]

RWSN Briefing Note:

March 2015

Key Messages

- Important to sensitise land and water users in catchments to the impacts of their actions on others; aligning their self-interests with the wider collective interest is vital for avoiding conflict and protecting the rights of poorest, and the quality of the natural environment.
- Bottom-up planning is essential where conventional permitting, monitoring and enforcement is ineffective or under-resourced.
- More evidence is needed to show how effective locally-focused water source protection and resource management are when scaled up beyond resource-intensive pilot projects.

The Rural Water Supply Network (RWSN) is the global network of professionals and practitioners working to raise standards of knowledge and evidence, technical and professional competence, practice and policy in rural water supply and so fulfil the vision of sustainable rural water services for all. RWSN places a very strong emphasis on innovation, documentation, research and capacity building.

Why is RWSN interested in Water Source Protection?

RWSN's vision is of a world in which all rural people have access to a sustainable and reliable water supply which can be effectively managed to provide sufficient, affordable and reliable and safe water within a reasonable distance of the home.

RWSN has four focus areas and Skat leads the **Sustainable Groundwater Development** theme, which comprises three topics:

- **Cost Effective Boreholes** is professionalising the water well drilling sector to improve quality and value.
- **Pump Technologies** focuses on improving the quality, reliability and affordability of water lifting devices, handpumps in particular.
- **Cost Effective Groundwater Management** looks at ways that aquifers can be managed so that they deliver reliable quantities and quality of water.

In this context, the Ministry of Water & Environment, Uganda and Skat worked in partnership in 2012-13 to draft national guidelines on water source protection. The scope extended beyond groundwater to also include surface water and hydro-electric resources, and provide a bridge between water supply and Integrated Water Resource Management (IWRM)

This brief outlines key features of the guidelines which were designed for the Uganda context, but may have useful lessons for other countries.

What is Water Source Protection and why is it needed?

Everyday, everyone in the world relies on water taken from the environment: diverted or pumped water from a rivers, lakes, streams or wetlands, water pumped up from aquifers, or collected from springs. To do this day-after-day we need the quantity and quality of the water to be reliable. But the quantity of freshwater is finite and varies from day-to-day, season-to-season, year-to-year.

If water consumption reaches the limits of what the local ecosystem can provide, there is potential for conflict. Generally it is the poorest and most marginalised households and communities that suffer first and hardest.

In many industrialised countries a regulatory system of permits for taking water and discharging wastewater is used to protect the environment and other water users, and mediate conflicts between water users. However, this governance system is expensive and only works efficiently where large scale agriculture, industry and water utilities mean that there are relatively few users to monitor, regulate and (where necessary) prosecute.

In countries like Uganda, the vast number of small agricultural, domestic and light-industrial water users is beyond the capacity of government to monitor and regulate. Therefore, a different approach is being taken, led by larger water users, such as water supply providers, who face quantity and quality problems with their water source.

This is not a complete solution in itself; a Water Source Protection Plan is the lowest tier of IWRM and is set within the framework of catchment plans and Water Management Zone strategies.

What is a Water Source Protection Plan?

A Water Source Protection Plan can be an extension of Water Safety Planning (see overleaf). The main focus is on the threats and issues that lie outside the pumping station compound. The plan is an agreed statement between stakeholders that establishes objectives, actions, responsibilities and funding. However, it should go beyond the needs of the water infrastructure and actively look for win-win opportunities:

1. Improved Water Quality	**1.1 Health:** Minimise the risk to human and livestock health. **1.2 Equipment:** Minimise risk of damage to pumps and water services equipment (e.g. from corrosion, abrasion).
2. Reliable Water Quantity	**2.1 Yield:** Ensure adequate yield to meet demand. **2.2. Reliability:** Minimise seasonal disruption or halt long term declines in water flows/levels.
3. Better Livelihood Opportunities	**3.1 Sustainable Land Management:** Increase level and reliability of household income from better farming and forestry practices. **3.2 Poverty Reduction:** Develop new source of income and socio-economic security through better catchment management.

The planning process

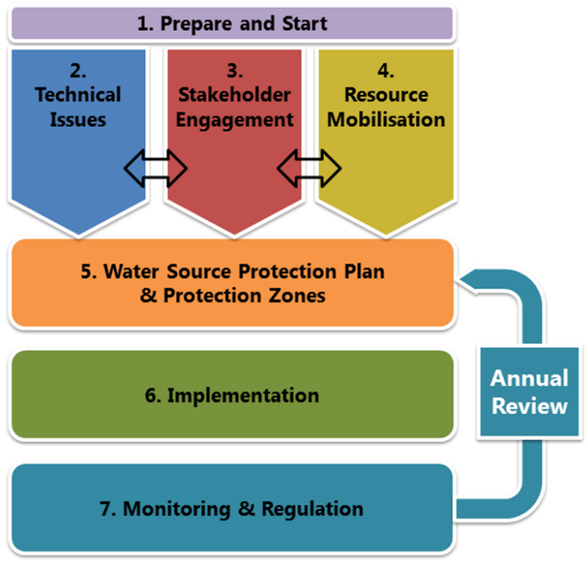
The process for preparing a Water Source Protection Plan is not strictly linear and is different for new and existing water infrastructure. Furthermore, for simple point-source water sources, such as a community borehole or springs, a detailed plan may not be needed. A simple plan based on advice from the District Implementation Manual (DIM) is used instead.

The first step is to identify the water source protection objectives and identify the conditions needed to make the protection 'successful'.

The three steps that follow proceed in parallel - but are interconnected. Only when the results of the technical analysis (what needs to be done), the stakeholder analysis (who needs to do what) and the resource mobilisation (who will pay for what and when) are agreed upon then the Water Source Protection Plan can be written and signed up to by the relevant authorities and partners.

One option, which is provided for in Ugandan legislation, is establishing a Water Protection Zone, in which specified activities can be controlled or excluded. In some cases, this may mean fencing off a catchment area for a river, spring or aquifer, relocating homes and businesses in those areas, and providing suitable compensation. However there are many other options available and the nature of the implementation will depend on the complexity of the situation and the ingenuity of the people involved.

Because of cross-cutting nature of the plan, it is critical that it spells out clear responsibilities for implementation, monitoring and review. If not, the actions will fall between the gaps of institutional mandates and not get done.



Water Source Protection Guideline Structure

[Source: MWE (2013) Framework and Guidelines for Water Source Protection, Volume 1: Framework for Water Source Protection]

Who are the guidelines for?

The Guidelines are designed to be flexible to fit a range of different situations, from a single borehole to a hydroelectric dam.

The advantage of the approach is that it places the responsibility for action with the owners or operators of water-using infrastructure so that they engage with stakeholders in their catchment areas out of self-interest. This limits the demand on limited government resources.

However, this motive may create political tensions, particularly if the planning process takes place close to an election.

Like all frameworks and processes, it is only as good as the people who use them. Therefore the identification and capacity development of champions is critical to make anything happen.

Oversight of the planning process is also needed because the poverty reduction aspect of the process may be pushed aside when it comes to allocating resources and responsibilities in the Water Source Protection Plan. There is a risk that benefits will be captured by a small elite and not benefit the wider community in the catchment area.

Does it work?

It is still to early to tell. The guidelines are being trialled nationally and will be then revised based on the early experiences. It will be important to evaluate their use rigorously to identify what is needed to ensure their success, for example - stronger scientific evidence; more training and capacity development; better community outreach; or stronger national policies.

Where now?

The national roll-out of the guidelines in Uganda got underway during 2014 with the National Water & Sewerage Corporation (NWSC) commissioning the production of Water Source Protection Plans, linked to further work being implemented on IWRM, which is reported in the annual Sector Performance Report (SPR)