

CASE STUDY

Contributions of knowledge networks and communities of practice to the water and sanitation sector in developing countries

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With the aim of responding to the challenges of the Water and Sanitation sector, active stakeholders have been providing, since decades, different services and technological solutions. Often the duplication of efforts tends to affect the overall results of the sector. Thus, clear efforts to enhancing collaboration, information sharing and joint action through the establishment of global networks and Communities of Practice (CoP) are being made by sector stakeholders. Little has been examined as to how these mechanisms give organizations and practitioners the opportunity to build their capacities and learn from each other. This paper explores the contributions of networks and CoPs to the sector, by examining three case studies: the Rural Water Supply Network (RWSN), the AGUASAN Community of Practice and the Uganda Water and Sanitation NGO Network (UWASNET). The first part is dedicated to presenting a short conceptual definition of networks and CoPs followed by a summarized description of the background of the three cases. The second part addresses the main contributions of RWSN, UWASNET and AGUASAN to the water and sanitation sector together with the challenges to such contributions. In the last section, the main conclusions and recommendations drawn from the analysis are discussed.

Introduction

Today, about 0.9 billion people are without access to clean water while 2.5 billion live without adequate sanitation. More than 120 million and 350 million people need to be served per year in water and sanitation respectively to meet the Millennium Development Goals (MDGs) by 2015. Additionally, almost half the world's population live in rural areas, but more than 70% of them live without improved sanitation and millions still live without access to improved drinking water (Water and Sanitation Program 2008).

With the aim of responding to the above-mentioned challenges, stakeholders active in the water and sanitation sector have been providing, for decades, different services and technological solutions. However, often the duplication of efforts and a lack of knowledge- and information-sharing regarding current initiatives, good practices and lessons learned tend to affect the overall results of the sector, affecting the achievement of the Millennium Development targets for water and sanitation (United Nations, Economic and Social Council 2005).

Aware of this situation, various stakeholders active in the sector have made clear efforts to enhance collaboration, information sharing and joint action through the establishment of

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global networks and communities of practice (CoP). However, little research has been conducted into how these mechanisms give organizations and practitioners the opportunity to build their capacities and learn from each other.

Looking forward to addressing this question, this paper will explore the contributions of networks and CoPs to the sector by examining three case studies from the water and sanitation sector: the Rural Water Supply Network (RWSN), the AGUASAN Community of Practice and the Uganda Water and Sanitation NGO Network (UWASNET). Based on an analysis made by reviewing websites, publications, workshop reports and other documentation produced by the networks and the CoPs and by carrying out semi-structured interviews with their representatives the author used an inductive analytical framework to compare and contrast the information obtained. Additional in-house¹ experience from other networks indirectly related to the water, sanitation and hygiene (WASH) sector was also taken into consideration. Thus, the conclusions and recommendations proposed in this paper are based on the experience gained throughout the years by the organizations involved.

The first part of the paper is dedicated to presenting a short conceptual definition of networks and CoPs, followed by a summarized description of the history and background of the two networks and the CoP. The second part addresses the main contributions of RWSN, UWASNET and AGUASAN to the water and sanitation sector together with the challenges to such contributions. In the last section, the main conclusions and recommendations drawn from the analysis are discussed.

Background and context

To compare and contrast the contributions of networks and CoPs to the sector, first it is necessary to understand their role in knowledge management.

Communities of practice and networks have become important mechanisms for knowledge sharing and learning in the development cooperation (Egger *et al.* 2006). Networks, on the one hand, act as effective catalysts for building up relationships and commitment among public and private stakeholders at local, national, regional and international level. They are systems linking different people and organizations, thus contributing to coordination and joint action (Egger *et al.* 2006). Communities of practice, on the other hand, are 'groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting in an ongoing basis' (Egger 2004). Communities of practices are meant to foster trust among people who share a common interest in a specific area of knowledge competence. The members participate voluntarily to share and develop their knowledge, solve common problems and support each other in finding answers regarding a specific thematic domain.

The main difference between a network and a CoP is that the latter is mainly focused on knowledge sharing based on experience and practice, whereas networks tend to have a wider focus which includes advocacy and joint action (Egger *et al.* 2006). In spite of this difference, networks and CoPs both aim to link individuals and organizations on the basis of learning and collaboration.

Based on this understanding, three cases were selected as units of analysis: the Rural Water Supply Network (RWSN), the Uganda Water and Sanitation NGO Network (UWASNET) and the AGUASAN CoP. Each one works in different sub-sectors of the water and sanitation sector: the first one in rural water supply, and the latter two in drinking-water supply and sanitation.

The Rural Water Supply Network (RWSN)

With the hope of maintaining the momentum built up during the United Nations International Drinking Water Supply and Sanitation Decade 1981–1990, RWSN, formerly known as the Hand pump Technology Network (HTN) was created in 1992. The initial focus of the HTN was on community based handpump technologies. In 2003, the thematic vision of the network included other topics related to rural water supply issues, such as self-supply, cost-effective boreholes and sustainability, transforming the HTN into RWSN. Currently RWSN comprises more than 2000 members spread out all over the world, representing a wide variety of organizations and individuals from governments, non-governmental organizations (NGOs), multilateral organizations, bilateral donors, the private sector, universities, research and development groups and inspection agencies. RWSN builds alliances and linkages for technical co-operation and local capacity building, enabling South–South contact and North–South dialogues. Working towards common objectives, RWSN is a co-operation between partners including the World Bank’s Water and Sanitation Program, UN Children’s Fund (UNICEF), WaterAid, the African Development Bank and Skat.

This global network has the aim of catalyzing vibrant knowledge exchange between the most active rural water supply actors and of strengthening the sustainability, efficiency and effectiveness of rural water service delivery. Through information-sharing, dialogue and exchange as well as in-depth studies, RWSN helps practitioners and professionals to make informed decisions on how to better improve access to safe water for rural people. RWSN uncovers and shares good practices, provides guidelines and tools, and promotes proven innovations (www.rwsn.ch). It considers access to basic water and sanitation as a fundamental right and essential for human development. In order to contribute to the water and sanitation MDGs, RWSN’s efforts are coordinated under four themes, known as flagships : cost-effective boreholes (CEB); sustainable rural water supplies (SRWS); self supply (SS); and handpump technologies (HT). RWSN has an emphasis on Sub-Saharan Africa.

The Uganda Water and Sanitation Network (UWASNET)

UWASNET was launched in November 2000 and started operations in June 2001, with the support of the Government of Uganda, particularly the Ministry of Water and Environment. It was formed to coordinate activities between the Government of Uganda, NGOs and community based organizations (CBOs), to increase access to information and learning of national, sector related NGOs and CBOs. Currently the network has close to 200 NGOs and CBOs as members, both nationally and internationally. The network’s mission is to strengthen Uganda’s NGOs and CBOs in the water sector as well as the coordination and collaboration among them and other stakeholders. The network is open to international, national and local NGOs and CBOs working in the sector in Uganda.

The main area of focus of UWASNET is rural supply water and sanitation, addressing issues related to rain water harvesting, shared wells, construction of ecological sanitation toilets and other related issues. Some members, however, have activities in urban areas; thus the topic of water and environmental sanitation in urban areas is also being considered (www.uwasnet.org).

AGUASAN

AGUASAN is a Swiss interdisciplinary CoP, which brings together a wide range of specialists to promote wider and deeper understanding of key issues in water supply and environmental sanitation in developing and transition countries. Active since 1983, it is

one of the oldest existing CoPs on the Swiss water sector and development scene (Egger 2004). Founding members belong to several Swiss development and development research organizations, including the Swiss Agency for Development and Cooperation (SDC), the Department of Water and Sanitation in Developing Countries at the Swiss Federal Institute of Aquatic Science and Technology (Sandec/Eawag), Helvetas and Skat. Currently, the CoP consists of about 40 active members including NGOs such as HEKS, Caritas, Terre des Homes, Medair and World Vision, water utilities such as *Eau Service Lausanne* and research institutions such as the Swiss Federal Institutes of Technology in Zürich and Lausanne (ETHZ/EPFL), the University of Zürich, the Swiss Tropical Institute, the Center for Development and Environment at the University of Bern and the Graduate Institute Geneva.

The focus of AGUASAN is on drinking water supply and environmental sanitation, whilst nurturing the interfaces to other water uses within the concept of integrated water resources management. Among the core activities of AGUASAN are the quarterly face-to-face meetings held at the premises of SDC. The main focus of these one-day-long meetings is sharing knowledge among community members on water-related issues. Additionally, annual, five day-long international workshops are held to provide a forum for in-depth exchange, reflection and learning, bringing together project staff, desk officers, researchers, experts and consultants working in the water sector. To date some, 25 workshops have taken place. Recent topics discussed at AGUASAN workshops included private sector involvement; the household-centred approach; and the continuum approach that links relief, rehabilitation and development.

Contributions of two networks and one CoP to the water and sanitation sector

Creation of new knowledge for the sector

Following the assertion of Davenport and Prusak that 'networks act as critical conduits for much innovative thinking' (2000, p. 66), it can be asserted that one of the most evident contributions of the three analysed cases (RWSN, AGUASAN and UWASNET) to the water and sanitation sector is on the creation and dissemination of new knowledge.

The two networks and the CoP offer a space in which new approaches and management options for equitable and sustainable drinking water and sanitation services in developing countries are discussed and assessed. Their main contribution was the adoption of those approaches by member organizations or donor agencies. For example, two approaches that were introduced and assessed by AGUASAN members have been the 'cross sector approach' (CSA) and the 'household centred approach' (HCA). The CSA links water and sanitation with health, education and income generation interventions in order to have greater impact on the people's livelihoods and on poverty alleviation at the level of households. The concept evolved from the lessons learned and gathered by water and sanitation professionals, where quality WASH services are considered important not only for health reasons, but also for improving household economy. Similarly, based on the insights gained from a series of topic cases presented in plenary sessions and on the knowledge transfer among participants in working groups, the AGUASAN learning community worked on the HCA model presented by the Environmental Sanitation Working Group (EAWAG/SANDEC) of the Water Supply and Sanitation Collaborative Council (WSSCC). This approach represents a radical departure from the centralized planning approaches of the past and puts the household and the neighbourhood at the core of the planning and decision-making process in WASH related projects and programmes (EAWAG/SANDEC and WSSCC 1999). As a result, both approaches have been included in the SDC's projects and have shaped its sector policy.

Another example, showing how networks are efficient mechanisms for implementing innovative projects, can be found in the Rural Water Supply Network. Fifteen years after the creation of the network, members managed to establish a consensus on the standards for hand pumps. Key sector professionals from different countries were involved in the revision and development of such standards in a learning- and knowledge-sharing environment. Currently, about 20 African countries have adopted the standards and benefited not only from a free market of improved hand pumps but also from their competitive prices; for example, 'in 1987, an Afridev pump was sold for USD1200. In 2008, the same pump with better quality could be purchased for USD300' (www.rwsn.ch/flagships/hand-pump-technology/). Similarly, RWSN has effectively positioned the self-supply paradigm. As promoter of this concept and under the initiative of the flagship coordinator, RWSN has launched pilot projects in different countries using the 'learning by doing' methodology. As a result, the notion of self-supply is becoming widely recognized in different countries in Africa and it was discussed at the Water, Engineering and Development Centre (WEDC) Conference in Ethiopia in 2008, showing a degree of ownership.

In the case of UWASNET, the domestic rainwater harvesting (DRWH) approach was supported by Uganda's Ministry of Water and Environment, who financed the implementation of a pilot project by providing 214 DRWH tanks. One major achievement of the pilot project activities was that they sensitized the district leadership and the community to the appropriateness and benefits of DRWH (ACORD 2005). Additionally, two UWASNET NGO members implemented another innovative pilot project on self-supply, where 16 water sources were set up in different districts of Uganda. Through these pilot projects UWASNET was able to catalyze self-supply support strategies, build NGO capacity and collect evidence-based arguments for self-supply support from NGO/CBO membership (Carter *et al.* 2006).

Involvement of decision-makers

The participation of decision-makers as members of the networks or CoP has proved to be effective in terms of applying the knowledge generated. By taking part in face-to-face meetings and other network discussions, decision-makers become aware of the sector-related activities carried out by the members. For example, UWASNET advocated the financial support of the Uganda government to its members for the implementation of 'self-supply' mechanisms and new approaches such as the DRWH. Several NGOs were able to implement pilot projects in several parts of Uganda. The knowledge shared by network members about these two approaches had an influence at government level and the Ministry of Water and Environment has recognized the use of such technologies. Additionally, the Ugandan Government is currently supporting other NGOs and CBOs to implement them since they are considered appropriate and affordable technologies for the country.

Similarly in many countries of Africa, governments have supported RWSN initiatives. For example, at the request of the Zambian Government, RWSN facilitated a research project on how to develop models to enable small communities to improve their own supplies within Zambia. This project was financed by UK Department for International Development (DFID) with the additional support of the government of Zambia, Ireland Aid, WaterAid, Peace Corps, SNV and UNICEF.

In the case of AGUASAN, the role of SDC as, fund provider of the workshop participant of the CoP and as member of the steering committee has been important for the adoption of new approaches in the water policy of the SDC. In this case, AGUASAN has become an important think-tank for the water sector for SDC.

Decision-makers are key partners for disseminating innovations in the sector. However, one of the challenges faced, especially by the two networks and not by the CoP is to find the right balance between collaborating with national governments and at the same time promoting and advocating for new initiatives and approaches that initially may not be fully accepted by key government leaders. It has also been observed that in some countries, where the two networks are active, governments fail to support initiatives that are not in line with their politics.

The role of learning by doing

Learning by doing and action research are useful methods used by networks and CoPs to test innovations in the field. Additionally, sector professionals have the opportunity to share experiences and knowledge by working together and building personal and professional partnerships. For example, the Self Supply Flagship of RWSN has carried out a pilot project in Uganda with two local NGOs over a 16-month period. This project resulted in the improvement of 41 water sources, but more importantly it has provided an opportunity to learn numerous lessons on how self-supply can be supported. Similarly, UWASNET supported its member NGOs to carry out different pilot projects with the aim of learning new approaches and initiatives. The most important ones in the last years were the DRWH pilot project, the Software pilot project, the Self-supply pilot project, and a formative research programme on hand washing, implemented in the framework of the National Hand Washing Campaign. The implementation of such pilot projects allowed participant NGOs and CBOs to learn these approaches by doing.

AGUASAN, on the other hand, opens up space for reflecting upon the different projects during the workshops. Participants present case studies based on projects implemented by the members and participants have the chance to work on such cases. For example, the AGUASAN workshop of 2007 was about 'opportunities and challenges of the water and sanitation sector in a decentralized context'. During the workshop participants had the opportunity to study four projects in countries dealing with decentralized models for service delivery such as Kenya, Mali, South Africa and the Ukraine. Based on these case studies, workshop participants brought up several findings such as the need for strengthening the capacities of local institutions, organizations and human resources to guarantee sustainable and effective decentralized water and sanitation services as well as the need for a functional financial mechanism and a clear and appropriate allocation of roles and responsibilities.

One of the challenges for research and learning, observed mostly at the level of the two networks, but not so much in the CoP, is the limited participation of members in research activities. In both networks, contributions are mainly observed at the level of a small group of committed people or some selected members. In general, it is observed, that the majority of members tend to be passive recipients of information and are not systematically involved in the process of knowledge generation. Only recently, RWSN has launched a membership survey to more actively include members in the generation of ideas and in the sharing of knowledge and information regarding the four flagships. UWASNET on the other hand, has been including its members in pilot projects more on an ad hoc basis without a structured and well defined strategy. A more systematic strategy of involving members at different levels could enhance further learning and knowledge generation in the networks.

Face-to-face interactions as key for learning and innovation

It is observed that in networks and CoPs, face-to-face interactions have an effect on the development and dissemination of new knowledge. Workshops and meetings are important

since people have the opportunity to share creative insights in formal and informal settings and find personal synergies with each other. Furthermore, face-to-face interactions enable personal contacts by creating a culture of trust, in which different participants are certain that new approaches have trustworthy sources. In all three cases, UWASNET, RWSN and AGUASAN, face-to-face meetings have proved to be spaces for learning and innovation. For example, the 5th RWSN Forum entitled ‘Scaling up entrepreneurship in rural water supplies to meet the MDGs’ took place in Ghana in 2006. The forum brought together 290 people from 39 countries. In the forum private sector providers of water to rural areas, conventional drillers, hand drillers, suppliers and consultants interacted with stakeholders from Government, research organizations and NGOs. In addition to the 52 presentations, extensive discussions were held in small ‘dialogue groups’, demonstrations and exhibitions and an ‘ideas fair’ session. This forum in Accra provided a platform to explore the questions of how to increase the pool of service providers to rural areas; develop economies of scale; enable rural businesses to be profitable; and cater for the very small villages that are often excluded from Government plans.

In the case of AGUASAN, beyond regular meetings, members of the CoP (from SDC, Skat, Helvetas, and Sandec), annually in June, organize and hold an international workshop in Switzerland. To date 25 workshops have taken place. At these workshops, project field staff, desk officers, researchers, consultants, other sector specialists and wider development practitioners from all over the world come together for five days to reflect collectively on a cutting edge theme of the sector. AGUASAN workshops foster a mutual learning experience and aim at applying the broad and multifaceted knowledge gathered by participants, to mutually elaborate strategies and conceptual tools of practical use in development work. For example, the last workshop, in June 2009, addressed the interaction between Water and Sanitation (WatSan) and the continuum of emergency relief, rehabilitation and development. The constraints of both the humanitarian aid and development cooperation approaches in the WatSan sector were discussed and actions were proposed to effectively ensure synergies and interaction between humanitarian aid and development cooperation interventions. As one of the AGUASAN members mentioned:

[W]hen you sit together with people that you trust, you know that the new knowledge that you receive is of high quality and is validated. You can find in the internet everything, however in CoP meetings and workshops you can be sure that the information you have has empirical evidence (Interview 2009)

UWASNET, with the purpose of supporting knowledge sharing among member NGOs, has established face-to-face meetings of thematic working groups. NGOs meet to discuss and learn about different topics related to the water sector and to devise mechanisms for influencing policy. Additionally, exchange visits have been organized between members so that they can learn from each other. Yet, such activities are very beneficial to members, since they were able to coordinate activities better; there is still a need for organizing frequent conferences to bring member NGOs and district water officers, civil society organizations, politicians and other stakeholders together (Carter *et al.* 2007).

Workshops or face-to-face sessions alone would not have the same effect if it was not for the effective documentation of the learning processes that take place in such sessions. It is important to highlight, that within the analysed cases, the levels to which documenting is taking place varies. AGUASAN and RWSN have digital and paper-based reports of the results of workshops and forums. These reports are available on the Internet and are also circulated to the participants via mail. Additionally, RWSN has produced a wide variety

of documents related to the four flagship programmes – self-supply, cost-effective boreholes, sustainable rural water supplies and hand pump technologies. Pilot projects, manuals and case studies are available on the Internet and on a CD-Rom. UWASNET has published pilot studies on its website. These documents have proved essential in the appropriation of new methods, tools and approaches and are well anchored in documents that have been validated by workshop participants and members.

Conclusions and recommendations

Addressing specific examples from three cases, this paper discusses the main contributions of knowledge networks and communities of practice to the water and sanitation sector:

- The generation and dissemination of knowledge and innovative approaches, paradigms and tools.
- The active involvement of decision-makers in the process of knowledge generation;
- The enabling of learning by doing through pilot projects and exchanges based on field experiences
- The strengthening of collaboration and personal relations between members by using face-to-face interactions such as workshops, meetings and exchanges

Even though these are important contributions, some issues need to still be considered in order to guarantee that networks and CoPs respond further to the challenges of the sector.

The first one has to do with the fact that little has been done to measure the effects of collaborative and knowledge-sharing initiatives promoted by the networks and the CoP. On the one hand, there is a lack of systematic information on how people are using the knowledge products generated or that are shared through publications or websites. On the other hand, there is no follow-up on how knowledge is being applied and used by the wider population. Additionally, there has not been a way of measuring the effects of sector coordination activities promoted, neither by RWSN nor AGUASAN. Only UWASNET have an *Monitoring and Evaluation Manual* that sets out procedures for assessing the effects of network activities. There were reports on activities carried out and action plans developed by the NGO members and the Secretariat, but some of the Working Group Action Plans had not been adequately followed up to affect the desired change in programme implementation and support (Carter *et al.* 2007). It has also carried out an evaluation of the network, which assessed UWASNET's internal organization and management, its services to members, and its wider impact in the water and sanitation sector. The evaluation provided with recommendations for future strategy of the network; however it was difficult to assess its impact due to a lack of baseline information (Carter *et al.* 2007). The importance of systematic documentation has been highlighted and taken as priority by the two networks and the CoP; however, little is known with regards to how members and external sector professionals are benefiting from produced documents, from innovations and from the knowledge sharing processes that are taking place.

The second challenge faced mainly by the two networks analysed here – RWSN and UWASNET – is the need for more active and systematic participation of members, which can guarantee that learning is taking place at all levels of network activity and not only at the level of a small committed group of members. Members need to become active knowledge brokers in order to spread the impact of the lessons learned gathered at core levels.

Finally, networks need to balance the need for advocacy with building close relations to governments and decision-makers, so that they own and adopt the knowledge creation process.

Note on contributor

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Note

1. Skat works closely with other networks such as the Collaborative Working Group on Solid Waste Management and International Forum for Rural Transport and Development. Some of the lessons learned from these networks were also reflected upon while writing this paper.

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