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Knowledge networks and capacity building in the water, sanitation and hygiene sector in Southeast Asia and the Pacific

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The Sanitation and Water Conference held in Melbourne Australia in November 2008 called attention to the need for strengthening of political leadership through evidence-based advocacy in this sector and strengthening capacity commensurate with the scale of the crisis. Water, sanitation and hygiene (WASH) networks are a promising mechanism for both advocacy and building sustainable sector capacity. This paper reports on a research focused on selected WASH networks in this region, elucidating their functions, experiences and effectiveness through an online survey. The work was undertaken collaboratively by WESNet Pakistan, Institute for Sustainable Futures at University of Technology Sydney and International Water and Sanitation Centre (IRC) in the Netherlands. The research revealed several country-level networks operational in the Southeast Asia region and a regional network in the Pacific. These networks were engaged in advocacy, sector coordination, knowledge sharing and capacity building, with varying priority depending on the network or region. This paper describes success stories of these networks and their views on the most effective approaches to the work they undertake. It also describes common challenges such as reliance on voluntary contributions of time and expertise and sustainability of financial resources. These networks are playing important and effective roles in the sector and greater recognition of the benefits they provide might ensure that governments and donors support such networks towards ongoing improvements in the WASH knowledge management in the region.

Introduction

Background

The water, sanitation and hygiene (WASH) sector in Southeast Asia and the Pacific region requires greater attention and investment. As a part of this, capacity building initiatives focused on lateral learning, experience sharing, advocacy and knowledge management are needed so that national policy makers, local government decision makers, programme implementers and service users are made aware of the massive cost of inaction and about relative benefits of various possible solutions (Willetts *et al.* 2009).

These views were presented and endorsed by the participants of a Sanitation and Water Conference held in April 2008 in Melbourne, Australia (Willetts *et al.* 2009). The conference articulated the need for all relevant WASH sector stakeholders to take

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inter-sectoral action, support sector reform, encourage innovations and support regular activities for bringing about positive changes in WASH sector in the region (Willetts *et al.* 2009).

In this context, Iftikhar Hussain, Programme Coordinator of WESNet Pakistan and the Institute for Sustainable Futures (ISF), University of Technology Sydney (UTS) submitted a proposal to AusAID. The proposal comprised research into WASH sector knowledge sharing and knowledge management activities in Southeast Asia and the Pacific. The partnership between Iftikhar Hussain of WESNet Pakistan and ISF was extended through the support of UTS to include collaboration with the International Water and Sanitation Centre (IRC) in the Netherlands who have a long history in knowledge networks and knowledge management in the WASH sector.

The research project was primarily focused on investigating and engaging with effective knowledge networks in Southeast Asia and the Pacific. The research findings evaluate the existing level of knowledge networks in the WASH sector and form the basis for improved regional WASH sector knowledge sharing. The research project on WASH sector knowledge management was closely linked with the Australian WASH Reference Group of which ISF is a founding member. The Australian WASH Reference Group is a community of practice of non-governmental organizations, academic institutions and representatives of the Australian water industry. The research project was designed to assist the Reference Group in extending their outreach into the region and critically reflect on their role and purpose in the light of other networks in the region.

Need for the research project on knowledge management in WASH

Over the past decade, significant changes have occurred in the WASH sector around the world, particularly due to institutional reform and the decentralization of municipal services in many countries. Under-resourced local government agencies have faced challenges relating to legal, institutional, financial and technical changes and have struggled to provide adequate municipal services to poor communities (Bury 2008). These emergent issues emphasize the need for practical solutions. Decision-makers in governments, the development sector and the other WASH sector stakeholders have increasingly shifted focus from conventional technical projects to development of sector frameworks for improving municipal service delivery.

Many organizations, including funding agencies, government and non-governmental organizations have increased their focus on capacity building, sharing of best practice, knowledge enhancement, lateral learning and sector coordination. With many countries undertaking WASH sector reforms, a wealth of knowledge has become available for sharing best practice related to water and sanitation policy development, formulation of strategies and institutionalization of legal frameworks for WASH. Within this context of change, ‘knowledge networking’ is a relatively new concept that has been introduced subsequent to institutional reforms for provision of knowledge sharing and knowledge management services in WASH sector (Shinwari 2005)

Knowledge networks are strongly needed in the WASH sector in developing countries due to instability of government policies and a general lack of coherence and broad based strategies for participatory planning and development. Knowledge networks provide a mean for consultative dialogue, open discussion and information sharing, professional development, lobbying, advocacy and communication.

Networks offer an opportunity to bring together governments, the private sector, civil society and international and multi-sector organizations. Networks have potential

to coordinate the actions of various stakeholders and can promote informed decision making by enabling different actors to contribute to solving problems based on their respective mandates, roles and strengths. The question remains how networks can best meet these high expectations.

Networks also face various challenges and limitations. They often face constraints in their reach in that they cannot support and train the requisite numbers of workers required by the sector. They also at times face challenges in gaining recognition and support from sector stakeholders (where opinions on the best approaches can differ significantly) which is essential to have effective policy influence. Networks also sometimes face challenges in building sector capacity in sound monitoring and evaluation, in enhancing the level of use of information and communication technologies (ICT), in applying result-oriented participatory approaches in knowledge sharing, and in mainstreaming gender concerns in decision making at every level.

The research project described in this paper on knowledge management in the WASH sector in Southeast Asia and the Pacific provides evidence of how networks in this region are functioning and how they are working to overcome the constraints outlined above to increase their effectiveness and impact.

Research methodology

The research approach involved preliminary mapping of knowledge network organizations in Southeast Asia and the Pacific followed by a survey questionnaire undertaken with smaller sample of organizations. The approaches taken are described below and the method of analysis articulated.

Mapping existing networks and organizations

A preliminary mapping exercise of WASH networks and key organizations in knowledge management in the Asia–Pacific was the starting point of this research. To begin the mapping exercise, a database was developed to keep abreast of relevant organizations. It included information regarding each organization’s status, outreach, nature of work, focused areas of work and geographical areas of intervention, interest, ways and means of financial support, how they interact with communities and remain in contact with relevant stakeholders, the ultimate beneficiaries of the organization’s activities, a description of activities undertaken and contact address including postal address, telephone numbers, emails and web portals.

In developing the database, Internet search engines were the primary source used to find information about knowledge networks and other capacity building organizations in the WASH sector operating in selected regions of Asia and the Pacific. The mapping exercise was helpful in identifying locations in Southeast Asia and the Pacific where knowledge sharing activities were already taking place (in one form or another). It also assisted in uncovering locations where no formal system for knowledge sharing or knowledge dissemination exists or seems to exist.

Survey design

Research into selected networks was conducted in the form of online questionnaire using the Survey Monkey software platform (<http://www.surveymonkey.com>). The survey included a mix of closed and open, and quantitative and qualitative questions and was

developed through a collaborative process between the research fellow (based on his strong knowledge of WESNet in Pakistan) and ISF with review by IRC and WaterAid as representative of the Australian WASH Reference group.

Firstly general information about the network or organization was requested including the location of work, focus and role within the sector, date and brief history of establishment and sources of support including government, donor agencies or a particular champion if any. The respondents were asked to elaborate the objectives and nature of the network, what sorts of organizations are involved and how communication takes place. The design of this initial section of the survey was informed by a survey questionnaire jointly prepared by the IRC and WESNet for Knowledge Needs Assessment Survey of WASH Sector stakeholders Northwest Frontier Province Pakistan (May 2005).

In addition, appreciative inquiry was used to inform other elements of the survey. Appreciative inquiry is an approach to social change used successfully throughout the world within many organizational and community contexts (Cooperider and Whitney 1999). The reason for applying appreciative inquiry was to take a strengths based approach rather than focus on inadequacies and gaps. The study therefore explicitly included a focus on positive experiences of networks, and examples where they had overcome challenges. Participants were also asked to identify the characteristics or qualities of individuals or their network that underpinned the successful event or story. The questionnaire also included a section asking networks to identify their most successful strategies and techniques for a range of common network activities including inter-sectoral coordination, building institutional capacity and advocacy. Finally, the survey asked respondents to comment on their vision for the future and what strategies they intended on employing to reach their goals.

Survey sample and respondents

A list of selected organizations from which to seek detailed information was prepared from the large database of formal and informal WASH networks and organizations based in different countries of Southeast Asia and Pacific region. A set of criteria was determined for selecting a small set of knowledge networks or organizations for closer analysis through an online survey. In selecting networks and organizations, attention was paid to representing countries where there was a lack of coordination and sharing of information due to challenges of decentralization and poor capacity at the municipal service delivery level. Organizations working in countries where there is some structure and functioning to how knowledge is shared in the sector were also sought, to ensure a breadth of perspectives was included in the research. Efforts were also made to choose a group of networks and organizations with the following attributes: high outreach level to all stakeholders; strong working history; having and utilizing effective communication tools; acceptance from the government and experience in dissemination of best sector practices related to the WASH sector.

Among the contacted organizations, nine replies to the online survey were received. These included SOPAC and World Health Organisation Fiji (both organizations responded on behalf of Pacific WASH Coalition), Streams of Knowledge and Philippines Centre for Water and Sanitation (PCWS) WASH Philippines Coalition Philippines, Water and Sanitation Working Group Vietnam, World Toilet Organisation (WTO) Singapore, Netherlands Development Organisation (SNV), Australia WASH Reference Group and International Water Centre Australia.

Two types of networks were included in the survey, networks between organizations, and organizational networks. The latter included organizations which have set up their

own networking structure which may be internal, and sometimes also involves external links.

Analysis of results

An analysis of the survey responses was conducted by the researcher and reviewed by the senior colleagues at ISF and IRC Netherlands. The survey monkey interface allowed comparison of responses from different networks for particular questions, and excel was also used for analysis of quantitative components. Analysis is based on the information received from the respondent networks including the following areas which represented the breadth of the survey components.

- Focus on different activities and roles
- Component activities undertaken
- Rural versus urban focus
- Resourcing participation in network activities
- Financial and organizational sustainability
- Nature and level of government involvement in WASH knowledge networks
- Strengths and achievements of WASH networks in Southeast Asia and the Pacific region and their contribution towards development of the WASH sector in the region
- Successful approaches to enabling good sector coordination
- Most effective approaches for building institutional capacities
- Most effective advocacy approaches by WASH Networks
- Challenges pertaining to WASH networks in Southeast Asia and the Pacific
- Visions for the future of Southeast Asian and Pacific networks

The responses from networks and organizations against these areas are described in the Results section below.

Results

The sections below outline the experience of nine networks in the Southeast Asia–Pacific region participating in the online survey. These results offer insight into the factors that make such networks successful in their role.

Relative focus on different activity types or roles

Networks surveyed were asked to highlight their main roles with regards to specific knowledge management-based activities including: advocacy (raising public awareness through public campaigns, providing support in policy formulation, data and research, reports); capacity building (strengthening capacity for research and communication, training, mentoring); sector coordination; and knowledge sharing (providing a platform for WASH sector stakeholders including decision makers for discussing and testing ideas and finding new innovative solutions).

The survey results with regards to time allocation by networks to different activities are depicted in Figure 1. As the figure illustrates the Australia WASH Reference Group focuses more on advocacy initiatives than the Pacific WASH Coalition, which focuses more on knowledge sharing activities. The Southeast Asian networks surveyed focus more

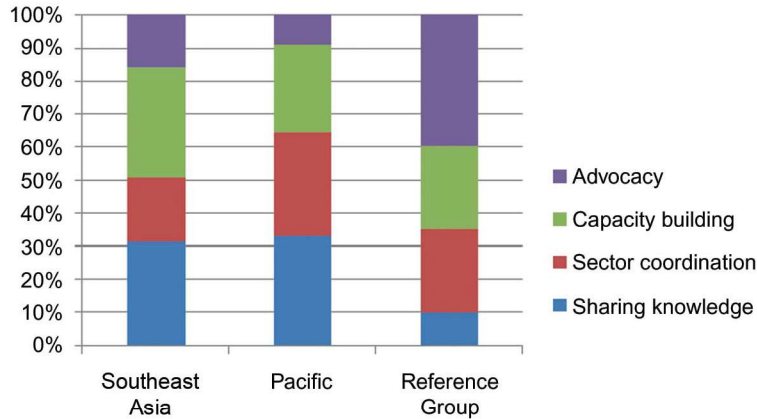


Figure 1. Time and effort spent on different mandated activities.

on capacity building and sharing knowledge while giving less emphasis to sector coordination and advocacy. In comparison with these results, experience of the primary author with WASH knowledge networks in Pakistan is that advocacy was, like for the Australian Reference group, the dominant activity and included policy lobbying, interpersonal meetings and negotiations for reaching to a common goal.

Component activities undertaken by WASH networks

Based on the primary author's experience in WASH networks, typical activities undertaken by WASH networks include documentation services (both physical and virtual), developing alliances, knowledge enhancement of sector stakeholders including municipal service delivery organizations through different mediums, awareness raising, providing WASH sector regular and emergency coordination services supporting government and donor agencies, thematic research on different water supply and sanitation sector themes, conducting need and knowledge assessment of municipal service delivery organizations, capacity building of sector stakeholders and providing support to the government and WASH sector stakeholders in the formulation of regional/national water and sanitation policies and strategies.

The extent to which surveyed networks participate in these activities is illustrated in Figure 2. As can be seen in Figure 2, the Pacific WASH Coalition provides support to WASH sector stakeholders in formulation of regional and national water and sanitation policies, but does not play a role facilitating public-private partnerships. In comparison, networks based in Southeast Asia work on almost all activities described in the questionnaire. Participating Southeast Asian networks were found to have a particular focus on supporting knowledge enhancement of municipal service delivery organizations. WASH networks in Southeast Asian countries also provide support to the governments and WASH sector stakeholders in the formulation of regional and national water and sanitation policies and strategies.

Like other parts of the world, residents of Pacific Island countries are also facing acute water and sanitation related problems, however the situation is more serious in Pacific Islands due to limited land space, fragility, eroding coastline, rising sea level, climate

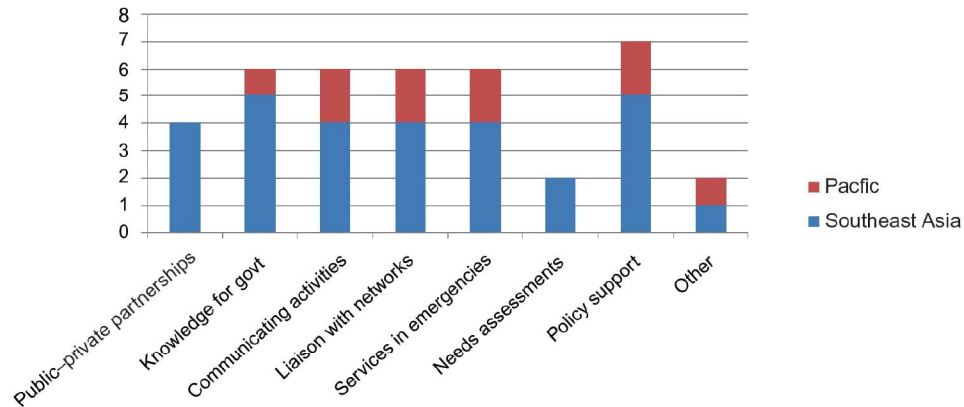


Figure 2. Focus activities of networks and organizations.

change and limited human and financial resources (WHO 2008). There are some regional programmes presently in place including Pacific Waste Water Focal Group and Pacific WASH Coalition established for raising awareness on WASH sector themes and coordinating activities in Pacific Islands related to water, sanitation and hygiene. The research found that the South East Asia Pacific GeoScience Commission (SOPAC) is playing leadership role in WASH sector in Pacific Islands as it has the mandate to support its member countries in the areas of water resources, water supply and sanitation. The Pacific WASH Coalition involves both SOPAC and various other regional representatives however it is clear from the survey responses that some network roles such as advocacy are not the prime focus and there remains a question as to what further network activities or organizations might benefit the Pacific and provide catalyze further action on WASH in this region.

There are however, good examples of excellent work being conducted in the Pacific in the area of capacity building. The Fiji Sanitation Park is an example of knowledge sharing and capacity building in the WASH sector with particular focus on sanitation (Bower *et al.* 2005). The sanitation park project was initiated to fill the gap of awareness and capacity building of communities and health workers in Pacific Islands. Due to lack of financial and institutional capacity and resources, governmental authorities and communities are unable to pay deserving attention to serious sanitation issues in the Pacific Islands, resulting in inadequate development in WASH sector in the region. The park provides an opportunity for interested community members, students, leaders and community health workers to examine how the different sanitation systems work to treat excreta and protect human health. The Project, although implemented in Fiji, has regional application in that the technologies on display are applicable to other countries within the Pacific. The location of the Sanitation Park at a regional training institute, the Fiji School of Medicine, ensures that the Sanitation Park is used as a training site which is available to regional students undergoing health services training. To date, over 250 people have visited the Sanitation Park, including residents from nearby villages, health workers and students from Fiji School of Medicine and the University of the South Pacific (Bower *et al.* 2005).

Similarly in Southeast Asia, it was clear from survey responses that due to limited financial capacity knowledge networks can only provide partial support to capacity building and learning and sharing activities. For bridging the coordination and prioritization gap at

national level it is necessary that governments formulate national water and sanitation plans, arrange consultative dialogue sessions at regional level to formulate policies and strategies, where appropriate, with support of donor agencies. Knowledge networks can play a significant role in policy formulation and consultation by involving all stakeholders including government, elected representatives, civil society, private sector and gender representation. The knowledge networks possess a unique mechanism for improving service delivery through capacity building, knowledge sharing and lateral learning. There is therefore a sound case to be made for governments and funding agencies to strengthen the capacity of WASH knowledge networks and promote their role in bridging the gap and strengthening the interface among all WASH sector stakeholders by playing the intermediate role especially between service providers and governments as well as supporting both the technical and social aspects of WASH.

Rural/urban focus

As Figure 3 illustrates, networks responding to the survey generally responded that they focus equally on urban, peri-urban and rural areas. Networks surveyed in Southeast Asian countries focus more strongly on rural areas, likely based on the extremely low access to sanitation and water in rural areas. It is possible that this focus may need to shift in the future given the increasing urbanization in Southeast Asia and the complexities of service delivery in rapidly expanding informal settlements.

How do network members resource their participation in network activities?

Respondents to the survey included a mix of formal and informal or partnership-based networks. The latter typically have members from different segments of society including non-governmental organizations, government and other public sector agencies, donors, the water and sanitation industry, academia, communities and civil society organizations.

According to survey findings, most networks rely on voluntary participation and contribution of time and expertise from members. Networks require significant commitment

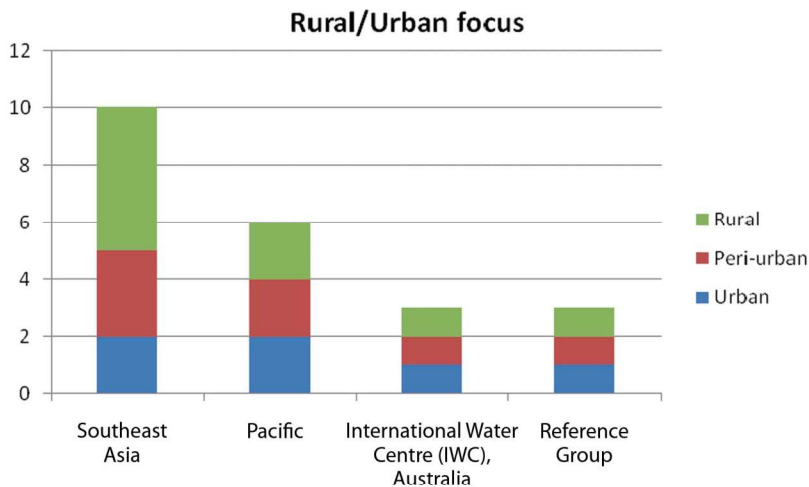


Figure 3. Areas of focus for knowledge organizations and network.

from members as the networks mostly rely on the expertise of members to support activities and gain and maintain credibility of the network as a whole.

In most networks communication takes place through email, mobile phone messages, conversation, focus group discussions and online exchange. Each of these methods of communication has different resourcing implications. Sometimes member organizations allocate time and resources to network activities including advocacy, research and meetings. The World Toilet Organisation, for example, supports the organization summits, exhibitions and other forums. Some internal networks like the SNV provide partial salary to their head/team leader through donor support. Pacific WASH Coalition and Philippines WASH Coalition are both partially supported through the Water Supply and Sanitation Collaborative Council.

Pacific WASH Coalition, Water and Sanitation Group Vietnam, STREAMS Philippines and Australia WASH Reference Group rely mostly on participant commitment to attend and contribute to face-to-face or occasionally virtual forums for sharing experiences, learning best sector practices, information exchange and better future planning. In most cases, network members are supported by their respective organizations to participate in network activities.

Meeting the challenge of financial and organizational sustainability

Most networks responding to the survey rely on their own resources. A few network partners receive revenue from education, training, research and expert services activities. Some work with government departments and donor agencies, and some are engaged in partnerships doing strategic consultancies. Others collect funds through fund-raising exhibitions, selling of paintings, sculptures and other artworks.

While financial sustainability is a critical issue for knowledge networks, in knowledge networks and in the WASH sector more generally the development of adequate capacity is a more complex and arguably much bigger problem than the availability of financial capital for infrastructure investments (Blokland and Uytewaal 2009). In the context of developing countries around the world and based on the primary author's experience of working in WESNet NWFP Pakistan, institutions are as strong as their staff and members and effectiveness is highly personality-dependent. In the experience of WESNet, strong leadership makes the difference however is at times in short supply. Rotation is high, most often a top position may see an almost yearly rotation of bureaucrats, necessitated by political expediency. All these factors have the potential to erode a networks' effectiveness. Donor commitment remains important not only for partial funding, but to provide higher-level technical and intellectual feedback and inputs, which most often come only from champion-professional of a caliber afforded mostly by 'bigger agencies' (Khan 2007). Overall, knowledge networks tend not to be self-reliant financially and partial reliance seems more of a rule than exception, which inevitably means outside support is required. Government contribution in support is critical as many donor agencies will not support, even partially, a network or resource center, which is not endorsed by the government.

Government involvement in WASH knowledge networks

Ensuring long-term sustainability of donor-funded WASH sector projects in developing countries is a challenge. Often, a few years following project completion, problems emerge, for example an increase in costs, changes in economic and political contexts, increase in demand for water and sanitation services due to population growth, illegal use

of services, difficulties relating to obtaining relevant technical information, loss of technical catalogues, non availability of spare parts and conflicts (Bury 2007).

In that situation, the local WASH governance institutions (possibly local government department) require solutions to their problems which can be found from other areas through information and knowledge sharing. This is where the need for a WASH sector knowledge network arises, if the WASH sector at local level possesses a well managed WASH sector knowledge network as a result the local WASH governing institutions will have easy and rapid access to the information and resources they need (Bury 2007, personal communication). In the context of basic service delivery including water, hygiene and sanitation, involvement of the government is important for ensuring ownership, adapting rules and regulation and providing a legal, social and conceptual framework to the network activities (Ewen 2007, personal communication).

Obtaining government support in the context of developing countries especially for a new idea like knowledge management is dependent on many variables, which makes knowledge networks vulnerable to sudden shocks, uncertainty and a difficult operating environment. According to the survey results, Pacific WASH Coalition does not have direct representation of the governments of any of the Pacific Island. In Southeast Asian countries, surveyed networks also do not have direct representation of government as members but networks work with affirmation of the relevant government departments. The WTO works closely with the local government department. According to WATSAN Working Group Vietnam, government agency subscribes to the WATSAN working group mailing list and shares its views with group members. Government departments send newsletters to the WATSAN working group and take part in working group meetings through presentations and discussions. Overall, though governments were mainly not actual members of networks, close collaboration with government was seen by respondents as important to effectiveness of WASH knowledge networks.

Strengths and achievements of WASH networks

According to the survey responses, many networks have good collaboration and communication with WASH sector stakeholders. Most of the networks reported themselves as possessing strong technical expertise and knowledge and as a result of this, able to maintain a high level of credibility. The networks have working relationships with partners on the ground and reported themselves to have motivation, passion and vision for the future. The examples below provide evidence of some of the different types of success stories that have been achieved in the Southeast Asia–Pacific.

The Australia WASH Reference Group described development and use of the report *Getting the basics right* (Willetts *et al.* 2007) as its main achievement since inception. The report was prepared as collaboration between founding network members and used as a key lobbying tool during the 2007 national election. It is considered to be an example of effective collaboration between members, playing to strengths of academic members (in researching and writing) and advocacy members (in lobbying). The collaboration resulted in a meaningful output which has provided visibility for the group and helped to promote the profile of WASH with the Australian Government.

The IWC Australia in collaboration with other universities based in Australia and Timor Leste worked to develop curriculum for engineers and other professionals working in the WASH sector. The project was approved for funding by AusAID and led to curriculum improvement, particularly the inclusion of practical components. In this instance, IWC was able to identify a need, coordinated with Australian and in-country

partners and contribute to a project that has long term benefits for the WASH sector in Timor Leste.

The Pacific WASH Coalition holds membership of the Water Supply and Sanitation Collaborative Council (WSSCC) and is receiving support from WSSCC for a small number of sanitation projects. The Pacific WASH Coalition members actively participated in the International Year of Sanitation (2008) activities. The Pacific WASH Coalition also participated in the celebration of Global Hand Washing Day in 2008 and as part of this provided a newspaper supplement in a local newspaper. The Pacific WASH Coalition also took part in refurbishment of the sanitation park in Fiji that the WASH Coalition members can use as a model for their projects in the Pacific.

The Philippines Centre for Water and Sanitation (PCWS) currently leads the Philippines WASH Coalition (a loose coalition of organizations, local governments, communities and individuals). Coalition members are mostly WASH experts with credibility in influencing local governments and even some national agencies to prioritize the implementation of WASH projects and programmes. The Philippines WASH Coalition considers their experience of helping people realize that water supply and sanitation need not be expensive or complicated and those systems can be built, used, maintained and improved upon by households and communities as one of their successes. It empowered communities and households to believe in their capacities and not to depend on politicians and patrons. The Philippines WASH Coalition has also played a role in preventing corruption and promoted the need for sustained advocacy efforts to address the lack of knowledge, awareness and appreciation of low cost WASH technologies among policy makers.

Streams of Knowledge Philippines is now assisting the Philippines National Government in developing the country's Sanitation Roadmap. This has provided an opportunity for Streams to influence policy direction relating to sanitation.

In Vietnam, following up from the 2005 Joint Government Donor review of the Rural Water Supply and Sanitation (RWSS) sector, the Ministry of Agriculture and Rural Development (MARD) established a Government–Donor Taskforce for the design of the RWSS partnership. The partnership goal is to contribute to reduction of rural poverty and protection of the environment through more effective implementation of the national RWSS strategy. The partnership's purpose is to enhance the effectiveness of resource use in the RWSS sector through establishment of a collaborative mechanism for coordination and harmonization of support for government policies.

In Singapore, prior to the establishment of the WTO, there was noticeable lack of coordination and collaboration in the water and sanitation sector. Sanitation never received due coverage in print and electronic media. There was no forum available for participatory planning for promotion of sanitation. The WTO was established as a forum for sharing sanitation-related best practices, knowledge enhancement and knowledge management.

Successful approaches to enabling sector coordination

With regards to effective sector coordination, some networks considered participation in regular face-to-face meetings and communications as the most effective methods. One network suggested that building trust between groups and among personal relationships is the best means for facilitating good sector coordination.

The survey responses present a variety of examples of approaches to sector coordination. The Australia WASH Reference Group suggested that face-to-face meetings were the most effective mechanism for sector coordination, as these meetings enable everyone

to update their information and time for personal, informal relationships to develop. The Water and Sanitation Working Group Vietnam said that the group joined the government–donor task force for the design of the RWSS partnership and that developing close links with relevant agencies and sharing information often during joint discussions helped the group to find the best solutions. The SNV suggested that a well structured multi-stakeholder process such as the development of jointly produced information or a review of joint experiences enables good sector coordination. The IWC Australia suggested that agreeing on a common goal, building trust between groups, regular communication and knowledge sharing between groups and face-to-face meetings are the most effective methods for sector coordination.

Most effective approaches for building institutional capacity

According to the United Nations Development Programme (UNDP), capacity development is the process by which individuals, organizations, institutions and societies develop abilities (individually and collectively) to perform functions, solve problems and set and achieve objectives (UNDP 2008). In the WASH sector capacity building is defined as the process to provide individuals, organizations, and other relevant institutions with the capacities that allow them to perform in such a way that the sector as an aggregate can perform optimally, now as well as in the future (Luijendijk *et al.* 2007).

With regards to building institutional capacities, some networks surveyed suggested that encouraging links with external organizations is an effective method. Other effective methods identified include training workshops/courses to increase the level of technical skills and developing a system of formal incentives, rewards and sanctions for staff members. The IWC suggested encouraging linkages to external organizations, building capacity of individual staff members, encouraging creativity and productivity within institutions and information sharing are the most effective approaches for building institutional capacity. SNV noted the benefits of participatory assessment led by a vertical group (group of people from different layers of the organization). Streams of Knowledge emphasized champion building at the leadership level, training, policy development and undertaking pilot projects as effective approaches for capacity development. The Philippines WASH Coalition emphasized investing in human resources, maintaining a creative work place and space, harmonizing efforts, raising funds for operations and having a common vision, purpose and goals.

Experience has shown that a very effective approach for capacity building is learning by doing, as practical learning and exercises enables the individuals and eventually the organizations to remember and apply the attained knowledge in practice. Similarly for building institutional capacity, it is important to take the capacity development requirements of each stakeholder into consideration including government owned service delivery organizations, community representatives, private sector actors, academic institutions and non-government organizations. This will develop a potential link between service users, service regulators and policy makers to assess and analyze the enabling and constraining factors in the local WASH sector.

Knowledge networks can play an effective role in building institutional capacity in the WASH sector. Networks can facilitate development of thematic research agendas on different WASH sector themes. They can further facilitate systemized analysis of the existing capacity building gaps and can turn the outcomes of an interesting workshop into tangible products which can possibly be used as capacity building tools (Lieshout 2007).

Most effective advocacy approaches

In response to the survey, networks noted the benefits of different advocacy approaches. Some networks described mass communication campaigns using print and electronic media as the best advocacy technique. Others noted that the release of publications and organizing media advocacy events on significant sector days (e.g. World Toilet Day, World Water Day) is an effective method for raising awareness among the public and civil society about important WASH sector issues and challenges. Some networks described their role in supporting policy formulation and development of strategies at regional and national level as their most effective advocacy technique.

The Philippines WASH Coalition works for organizational networking and knowledge exchange through advocacy. The coalition uses advocacy as a tool to raise the profile of the WASH sector in the Philippines. For example, the coalition built partnerships for action research and demonstration projects to stimulate the development of innovative sanitation and hygiene solutions targeting poor and vulnerable groups. The group produced advocacy materials about low cost sanitation technology options for use in consultation with local governments, NGOs, communities and other groups. Presentation materials were also produced on low cost alternative wastewater treatment for communities and homes.

The WTO organizes World Toilet Day each year on 19 November. The day is globally observed by member organizations of WTO. The WTO also organizes the World Toilet Summit and Expo. These summits and expo events provide momentum for creating a market for low cost sanitation products to provide services for poor and vulnerable groups within society.

Challenges faced by WASH networks in Southeast Asia and the Pacific

While achieving many successes, knowledge networks in the WASH sector also face various challenges. According to survey results, networks often find it difficult to develop longer-term work plans due to the busy schedules of members. Availability of adequate human and financial resources is a significant challenge. Networks also often face challenges in building the capacity of local government departments. Another significant challenge is maintaining strong leadership, which is critical for network operations. Networks often face challenges in securing resources to support their work. When promoting innovative approaches like low cost appropriate environmental friendly WASH technologies, networks can sometimes be under-appreciated by key decision makers in WASH sector including local government and/or donor organizations.

In order to combat these challenges, networks require courage to try to do new things and they must have the confidence to make mistakes. The level of courage remains much dependent on the context in which the networks operate (e.g. what current practices allow, what politics allows, what the decision makers allow). One approach that may help is to seek and collaborate with like-minded people and institutions to promote gradual changes within existing systems (Bury 2007 personal communication).

Visions for the future

In expressing their visions for the future, many networks expressed a commitment to playing their roles in the WASH sector even more enthusiastically and having broader regional impact.

The Philippines WASH Coalition envisioned itself as an organization recognized as a leader and catalyst for improving access to water supply, sanitation and hygiene in the Philippines, and a credible partner within the international WASH coalition framework. In 2008, the Coalition undertook a visioning exercise and strategic planning process. They decided to remain a loose organization to allow flexibility in implementing projects, achieving goals and discharging functions. The Philippines Centre for Water and Sanitation was nominated as the secretariat and four working groups were formed to assist the national coordinator. These groups focus on programme development and resource mobilization, advocacy and networking, knowledge management and research and institutional strengthening. Each working group defined its protocol and work plan based on the coalition's Action Plan. The Pacific WASH Coalition has a vision to strengthen WASH sector partnership and coordination both within and between different agencies. For realizing the vision, the Pacific WASH Coalition intends to build on current activities. The Water and Sanitation Working Group Vietnam is determined to continue providing services to promote the exchange of information between organizations. Thematic topics will likely include disaster mitigation, construction, cost and effective rural sanitation. The Australia WASH Reference Group is seeking to undertake small projects through the group to build the 'community of practice' element of its work. The Australia WASH Reference Group will also continue to work with AusAID in the future and continue its advocacy work with the Australian public and government to increase awareness of WASH issues.

Conclusion and way forward

This research on WASH sector knowledge management in Southeast Asia and the Pacific contributes a useful resource on knowledge networks and sharing in this region for a range of stakeholders. The networks researched in this paper have been shown to be playing effective advocacy, capacity building, knowledge management and sector coordination roles. They also exhibited acceptance and endorsement by sector stakeholders and key decision makers including government and donor agencies which is an important factor in effectiveness. Like many other WASH networks, the networks surveyed face various challenges including financial and organizational sustainability and rely significantly on the voluntary contribution and expertise of network members. All networks described strong contributions they had made to the sector in different forms and described enthusiastic visions for the future.

The authors propose that the efforts of knowledge networks need to be recognized at higher level among the WASH sector decision makers including governments and donor agencies in Southeast Asia and Pacific region. The research described in this paper demonstrates many of the benefits of knowledge networks. They are instruments for learning enhancement and capacity building and have the strong potential to provide support in policy making by initiating and supporting multi-stakeholder dialogue and providing technical expertise. By opening space for inquiry, networks can influence policy by connecting people, testing new ideas and generating new norms. Their long-term support by national and sub-national governments is critical, as well as the reflection of objectives of strengthening leadership capacities at local level in donors' policies and requirements.

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