Maximizing the benefits of learning and knowledge management to tackle the sanitation challenge in India

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Abstract

In 2012, India launched the *Nirmal Bharat Abhiyan* – NBA – Clean India Campaign, which was adapted from the national Total Sanitation Campaign (1999-2012), the world's largest sanitation intervention. India has a strong policy framework to tackle the sanitation challenge but this does not translate into improved coverage in the entire country. Despite an investment of more Rs. 6 billion and construction of over 9 million latrines in rural areas, the Census of 2011 revealed that only 22 % of rural households in India had access to a toilet. Coverage figures alone do not give the whole picture, as actual use of the facilities and sustained behaviour change are crucial elements for reaching the desired NBA results. There is also evidence that sustainability is a challenge with regards to sanitation. In addition, there is a challenge of inclusiveness, reaching the poor and marginalized. Another challenge for the sector is related to human capacity development.

However, there is great potential for learning from the Gram Panchayats and states that are successful in order to achieve sustained and universal progress. There is also potential for better documentation, dissemination and learning between states on effective approaches and for capacity building at state level.

This paper examines the status, role and scope of knowledge management and networking in accelerating sanitation achievements in India and advocates for prioritizing knowledge management (KM) and learning, and outcome - focus for sustainable sanitation results. As the countries in the region have rich and varied experience in sanitation service delivery, the paper also proposes a South Asia knowledge management network for learning and sharing across countries in the region. It argues for improving knowledge sharing and learning opportunities and suggests various practical approaches that could contribute to KM and learning for improvement in the sector. A step-by-step methodology would not be appropriate, given the range of contexts and specific knowledge needs. Flexible, but connected learning methods are needed, but there is no blueprint. A South Asia knowledge Management Network for learning and sharing across countries in the region is a further potential knowledge management resource that can be explored.

Keywords: sanitation, knowledge management, networks

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[1] IRC International Water and Sanitation Centre is an international knowledge-focused NGO, founded in 1968 and working with a worldwide network of partners in water, sanitation and hygiene (WASH). Our focus is on services that work at scale, for all citizens, and that last *www.irc.nl*

Glossary

DEWATS   Decentralised Waste Water Treatment System
CBO   Community Based Organisation
IHHL   Individual household latrine
IWRM   Integrated Water Resource Management
GP   Gram Panchayat
NGO   Non-Governmental Organization
Nirmal Bharat Abhiyan (NBA)   Clean India Campaign
Nirmal Gram Puraskar (NGP)   Clean Village Award
ODF   Open Defecation Free
PRI   *Panchayat Raj* Institution
TSC   Total Sanitation Campaign

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Introduction

This paper examines the status, role and scope of knowledge management and networking in accelerating sanitation achievements in India and advocates for prioritizing knowledge management and learning, and outcome - focus for sustainable sanitation results. As the countries in the region have rich and varied experience in sanitation service delivery, the paper also proposes a South Asia knowledge management network for learning and sharing across countries in the region.

1. Background: India's sanitation policy

In 2012, India launched the *Nirmal Bharat Abhiyan* - NBA - Clean India Campaign (Ministry of Drinking Water and Sanitation, 2012). This campaign was adapted from the national Total Sanitation Campaign (TSC - 1999-2012), the world's largest sanitation intervention. NBA includes the elements that have been recognized as key for a successful approach to rural sanitation: a robust supply-side providing access to hardware, intense promotion and demand creation, and a strong enabling environment. Despite an investment of more Rs. 6 billion and construction of over 9 million latrines in rural areas, rural sanitation grew at just 1 % annually throughout the 1990s and the Census of

2011 found that only 22 % of rural households had access to a toilet (Ministry of Drinking Water and Sanitation, 2012).

To achieve the sanitation targets improved knowledge management is imperative. This paper illustrates that there is scope for improving knowledge management and for learning from practices both within and beyond India, to reach the national sanitation targets and sustain improvements. By more systematically leveraging knowledge, collaborating to generate new knowledge and disseminating it among sector stakeholders, lasting progress in sanitation and hygiene in India can be achieved.

2. The challenge: what is the current status of sanitation in India?

While India has made remarkable economic progress over the last decades and invested heavily in sanitation, the country ranks number 148 out of 176 nations for rural sanitation coverage with improved latrines according (WHO/UNICEF, 2010), with an estimated 23% of the rural population covered. Using the Indian census data of 2011, for improved latrines (sewer, septic tank, improved pit latrines) which estimates rural coverage of 27.6%, India would still have ranked an astonishing 144 out of 176 countries.

Coverage figures alone do not give the whole picture, as actual **use of the facilities and sustained behaviour change** are crucial elements for reaching desired NBA results. A key element of the TSC policy was the acknowledgement that the construction of a toilet does not automatically lead to its actual use and that people need to be motivated to abandon practicing open defecation. There is also evidence that **sustainability** is a challenge: In 2008 UNICEF reviewed 162 NGPs that had been declared ODF between 2005 and 2007. This study found that in most GPs there was a sharp decrease in efforts for social mobilization and monitoring of ODF status after the NGP award has been received.

In addition, there is a challenge of **inclusiveness**: reaching the poor and marginalized. Data suggest that sanitation services have not benefited the poor, rural population to the extent intended. Another challenge for the sector is related to **human capacity development**. In 2002, a national study commissioned by the Planning Commission (Planning Commission, 2002) identified the need to (a) build capacities of states; (b) improve promotion of sanitation and hygiene awareness; (c) increase participation of communities in decision-making processes; (d) provide external support for communities to deal with "internal" threats such as conflicts, poor leadership, equity issues, and theft.

In summary, India has a strong policy framework to tackle the sanitation challenge but this does not translate into improved coverage in the entire country. The inter - and intra-state inequity in coverage and access indicates that there are opportunities for improved knowledge sharing and knowledge management. There is also potential for better documentation, dissemination and learning between states on effective approaches and for capacity building at state level. There is a clear need to move from the current focus on hardware, subsidies and household toilets towards a sustainable service delivery approach for sanitation. Under the sustainable sanitation service delivery approach, good quality documentation, knowledge sharing and joint learning are important elements of improved knowledge management in the sector. Communities of Practice, on the job coaching, exchange visits and learning and sharing workshop are possible solutions, which are further discussed in section 3.4.

3. Moving Forward: How Knowledge Management can help translate good policy into good practice

Sanitation and hygiene is a complex sector, institutionally and in terms of strategy and approach. An engineering approach and focus on technology alone needs to be combined with attention to 'software', and attention to psychological, cultural, social and gender aspects that are equally important in determining successful results of sanitation and hygiene programmes. Section 1 detailed the scope of challenges facing India in terms of sanitation and critical gaps with reference to knowledge and capacities. The following section provides a simple framework and practical suggestions towards knowledge management for sanitation service delivery.

3.1 Building on good practices, experience and lessons learned

"Knowledge" is commonly understood as capacity for effective action, which includes information useful for effective action (making decisions, solving problems, or physical action). There is potential to move forward on sanitation by building on good practices, experience and lessons learned in successful sanitation and hygiene programmes, both in India and internationally. In this section we will explore what knowledge management is about and identify some practical steps that could be taken in the area of knowledge management (KM) and learning.

3.2 What is knowledge management?

Knowledge management aims to facilitate the supply of the right knowledge to the right person at the right time in order to take effective action. An interesting example of knowledge management and the potential of a knowledge network to gather, share and generate new knowledge is provided by the case of 'Mazhapolima' a well recharge Project in Kerala, in which the Water Community, Solution Exchange (WCSE) played a crucial role, as elaborated in **Box 1- 'Mazhapolima' Well Recharge Project, Kerala, India** .

Box 1- 'Mazhapolima' Well Recharge Project, Kerala, India

Kerala is a coastal state in South India where about 71% of the households depend on household wells for drinking water. Despite an annual average rainfall of 3,000 mm (national average is 1,000 mm) over a 3-4 month monsoon season, 70% of these wells go dry the rest of the year, resulting in severe water shortage (Census of India, 2001).

The District Collector (DC), Thrissur district, Kerala, India being a member of Water Community, Solution Exchange (WCSE), was aware of its potential for knowledge mobilization and finding collaborative solutions to water issues. Inspired by various e-discussions in WCSE, in May 2008, the DC drew up a project outline to use rainwater harvesting for recharging household wells to augment lean season water availability. The project aimed at recharging the household wells using rainwater collected from rooftop rainwater harvesting (RWH) structures. The district has about 450,000 open wells, accounting for replacement investment value of about of Rs. 18 billion (USD 350 million). By recharging the wells, the project hoped to make use of the existing assets to store water and enhance groundwater reserves.

In August 2008, the DC approached WCSE with his project outline and in consultation with the moderator floated a carefully drafted query eliciting inputs on simple technology options, social marketing tools, and innovative financing options from WCSE members. In a period of 3 weeks, 43 responses were generated by WCSE. The resource team structured the responses into a solution set consisting of national remote sensing maps (to guide choice of suitable locations with high recharge potential), technology options together with cost information for rooftop RWH structures, and referral to NGOs that provide training for villagers in the design and construction of RWH structures. The need for an education campaign consisting of street plays and door-to-door campaigns specifically aimed at educating women on concepts such as groundwater recharge, and aquifers was highlighted.

The DC incorporated the solution inputs and evolved 'Mazhapolima', a participatory well recharge project. Mazhapolima was highlighted at the Annual Forum of WCSE in 2008 and Arghyam, a NGO and a partner of WCSE, offered to support the project with a grant for research and advocacy. A core team representing the Government of Kerala, WCSE, and Arghyam was constituted to run the project under the DC's guidance for the overall monitoring and evaluation of the project.

The project was piloted through a selected Panchayat Raj Institution (PRI; local government unit) of 600 households. Based on the learning thereof, the process elements were refined and the project was extended to the rest of the district. From May 2008-April 2010, about 5,770 wells in 37 PRIs had been recharged with rainwater collected using rooftop RWH structures, at an average cost of Rs 3,000 (USD 60) per well.

This project intervention has resulted in the reduction of the time taken by a villager to collect water during the dry months from 1.5 hours to a few minutes a day. In July 2009, WCSE held a Regional Forum highlighting Mazhapolima. The senior government officials at the Forum realized the potential for scaling it up across Kerala and decided to take it forward. (Source: Lala and Jacob, 2011) Acknowledgement: Dr. V. Kurian Baby IAS, then District Collector, Thrissur.

WCSE's role in the Mazhapolima well recharge project went beyond passive information sharing to actively seeking input on rainwater harvesting, social mobilization techniques, and financing options. This information was used to design and initiate the project.

Knowledge management has an important role to play in developing the capacity of organisations and individuals to improve water and environmental management and the delivery of sustainable water supply and sanitation services towards the achievement of national and international sanitation goals. To be more effective, the sector needs to be more dynamic and adaptable in our strategy, design and implementation – and that in turn requires that we place more emphasis on sharing knowledge and on learning in order that we and our implementing partners learn and adapt for maximum aid effectiveness (Young, 2012).

3.2.1 From 'knowledge banks' to learning and sharing to enable continuous improvement

Knowledge management science has gone through a development from an initial focus on technology (and knowledge banks) to a focus on sharing and learning among peers and on learning-by-doing in networks. In KM literature this is often referred to as the three generations of KM, which are characterized by the words: *Collect, Connect and Cooperate*. Knowledge management requires systems and technologies to ensure that information and knowledge is documented and organized in a way that it can be easily retrieved and used by those who need it. Opportunities for sector professionals to interact, share their knowledge and experience and to jointly generate new knowledge are equally important. Cross-country platforms and networks can enable learning from the field to regional and global levels. An international example is the regional sanitation and hygiene practitioner workshops organized by IRC in collaboration with other sector players (IRC, 2011) and described in **Box 2 Regional Learning and sharing workshops**.

### Box 2 Regional Learning and sharing workshops

In 2007 IRC together with a range of partners started organising regional learning and sharing workshops on sanitation and hygiene. One of the main objectives of such a gathering is to get key players and practitioners to focus on "what works" and "what doesn't work" in the area of sanitation and hygiene. Such workshops are a potential first step in the development of a community of practice on sanitation and hygiene; they can be used to identify areas for research and action.

In Asia, for example menstrual hygiene management was first tabled in 2008 as a neglected area in in water sanitation and hygiene programmes. In 2010, workshop participants discussed necessary provisions for menstrual hygiene management in toilet design (washing facilities, sufficient space, and incinerators) as well as issues of availability and affordability of menstrual hygiene materials. In 2012 participants had taken the topic forward and notable progress was reported: BRAC in Bangladesh has integrated Menstrual Hygiene Management (MHM) in their WASH programme, especially in 3,900 schools and WaterAid, IRSP in Pakistan was undertaking menstrual hygiene management in its WASH programme and WaterAid was developing a Menstrual Hygiene Management Guide.

Before the workshop, practitioners are supported through a review process to write up the field stories and the research that are too often lost. During the workshop, robust discussions and learning are stimulated through a variety adult learning tools and participatory facilitation methods.

Source: IRC, 2012

Systems, conversations and joint action can be visualised as interlocking wheels of knowledge management that drive progress (see **Figure 1 wheels of knowledge management**)
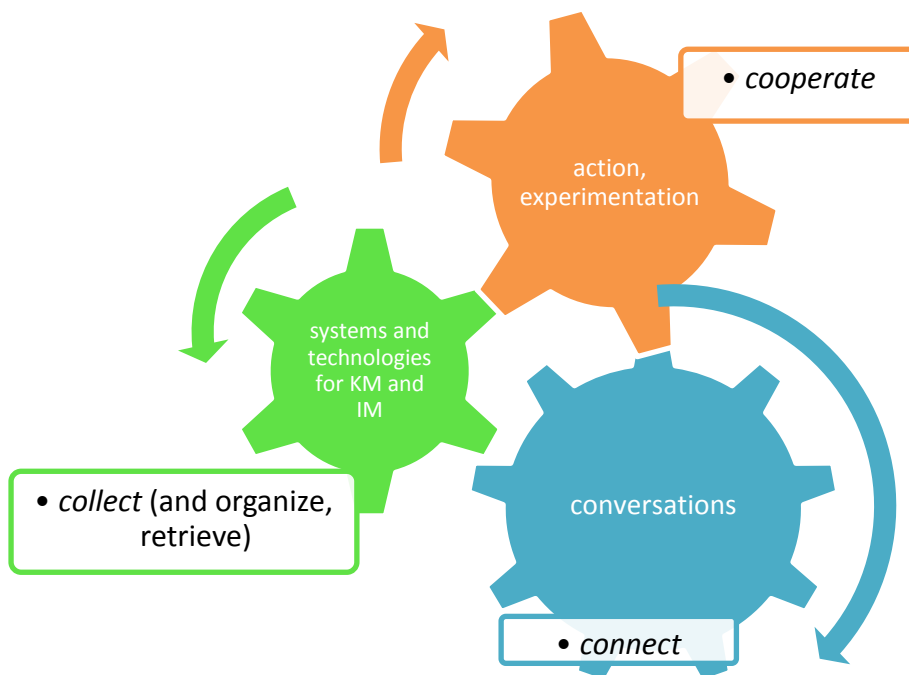
Figure 1 wheels of knowledge management

Knowledge management and learning are not achieved by a one-time project intervention, but entail a continuous process towards improvement (IRC, 2012) (see **Box 3 - Stimulating continuous learning: the 'learning** organization')

Box 3 - Stimulating continuous learning: the 'learning organization'

Organizational learning must be addressed with approaches such as increasing internal communications, promoting cross-functional teams, and creating a learning community. Learning is an integral part of knowledge management. In this context, learning can be described as the acquisition of knowledge or a skill through study, experience, or instruction. Organizations must recognize that people operate and communicate through learning that includes the social processes of collaborating, sharing knowledge, and building on each other's ideas. Managers must recognize that knowledge resides in people and that knowledge creation occurs through the process of social interaction (ADB 2008, p5)

3. 3 Current Status of Knowledge Management in India

Currently in the sanitation sector in India the key knowledge management routes are: monitoring sanitation, documentation of best practices, learning and adaptation in programmes and policies (at national and state level), cross visits, conferences and workshops.

India has a number of documented good practices in sanitation across the country. There are lessons to learn on successful approaches to sanitation at scale within South Asia too. However, knowledge management and learning approaches and systems with a clear outcome focus have yet to be established in India and the region. A selection of networks in water and sanitation in India is presented in Annex 1 and elaborated below, based on research done by Nitya Jacob and Sunetra Lala (2011).

United Nations Solution Exchange Water Community, (WCSE)
Solution Exchange is a unique initiative of the United Nations in India, which builds communities of development practitioners working in a common area of interest and passion. In these communities, people working in development learn about each other's successes and mistakes in an atmosphere of trust and collaboration, thereby saving time and resources by not reinventing the wheel. The

Water Community, Solution Exchange (WCSE) works through UNICEF and its nodal ministry, the Ministry of Drinking Water and Sanitation. The Community has a current membership of around 4,600 and it offers a common space for the government, NGOs, civil society, research institutions to interact and find collective solutions. About 12% of WCSE is from other countries.

WCSE seeks to supplement academic research with tacit knowledge gleaned through discussions from practitioners, based on their work. This involves identifying members with expertise in the given area, contacting them for their inputs, editing (where needed) the comments, consolidating them into archival form, and feeding it back to the network.
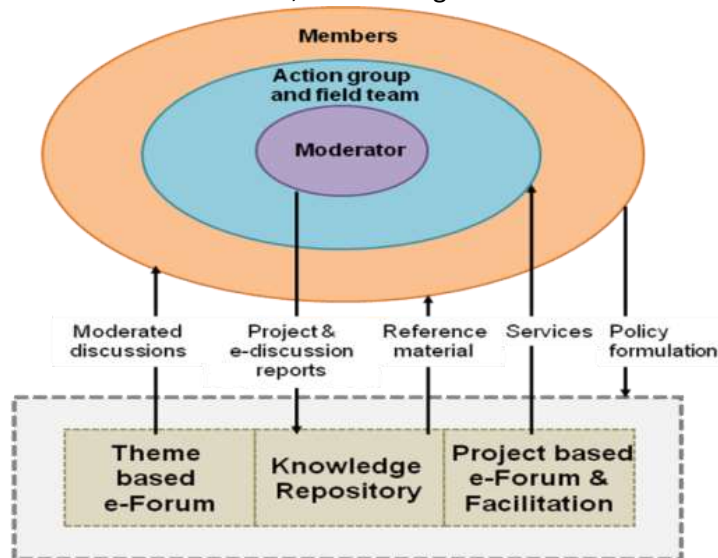
Figure 2 Facets of WCSE

The WCSE's forte lies in actively seeking out and moderated running discussions in an impartial manner. The MDWS, Ministry of Water Resources (MoWR) and Planning Commission have in the past sought the inputs of the WCSE for the Draft National Water Policy, Draft National Water Framework Law, Strategic Plan on Drinking Water and Sanitation, Approach Paper to the 12th Plan, etc.

There are three primary facets to WCSE. The moderated e-discussions are theme-based, aimed at expansion of subject matter knowledge and the facilitation of water projects. The moderator abstracts a 'consolidated reply' from these discussions and archives them in the Knowledge Repository. Some members walk the extra mile and form a field project team. The project details, metrics, and lessons learnt are also archived in the Knowledge Repository and shared with WCSE (see **Error! Reference source not found.**).

Since its inception in 2005, WCSE has responded to over 200 queries on various issues related to water and sanitation. Some discussion threads have evolved into projects in which WCSE has not only provided a solution set but has also participated during the solution implementation phase.

Other Networks
There are other networks working on sanitation; their main thrust is similar but the approach varies. The Consortium of DEWATS Dissemination's (CDD) mission is to improve the social, economic and environmental conditions of the poor by providing basic needs (such as sanitation) in a decentralised manner. The India WASH Forum advocates for sanitation at the national level and has a membership comprising of senior practitioners.

SaciWATERs-CapNet Network's vision is to strengthen the human and institutional capacity by adopting an integrated approach within water sector in South Asia region through education and training; research; knowledge based development; advocacy; and networking. The India Water Partnership is a partner-based network that facilitates the activities of the Global Water Partnership to promote IWRM.

The Odisha Water Forum focuses on policy, climate change and IWRM. Water Initiatives Odisha works on climate change, IWRM and water conflicts, among other topics. The Megh Pyne Abhiyan in Bihar is a network of five NGOs working in the flood-prone areas of the state to help people become

resilient to floods and improve the management of common property resources. In Andhra Pradesh, the Andhra Pradesh Farmer Managed Groundwater Systems (APFAMGS) project is a network of 9 NGOs that have come together to work under a Nodal NGO BIRDS for implementing community led demand side groundwater management programmes in 638 habitations spread over 7 districts of Andhra Pradesh. In Gujarat, PRAVAH is a network which advocates for people-centered decentralized inclusive systems in drinking water and sanitation since 1994 with an initial membership of 60 organisations.

The South Asia Network of Dams Rivers and People is a network of people working on dams and rivers. The Forum for Policy Dialogue on Conflicts (FPDC) documents water conflicts, conducts action research on conflict resolution, conflict prevention and networking (Jacob and Lala, 2011).

The India Water Portal is a web-based interactive platform for sharing water management knowledge amongst practitioners and the general public. The portal is an initiative of Arghyam, a foundation set up to promote sustainability efforts in water sector. Endorsed by the National Knowledge Commission, the portal was launched in February 2007. In addition, it also has a regular E-newsletter feature reaching out to a wide audience.

Knowledge Management initiatives of the Ministry of Drinking Water and Sanitation (MDWS)

For dissemination of information and for enhancing knowledge MDWS has introduced a Quarterly E-Newsltter entitled "Swajal Nirmal Bharat" in which best practices in sanitation and water are highlighted. MDWS also regularly networks with sector professionals on issues of sanitation and water through its Facebook page. The Ministry is in the process of launching a dedicated repository for sharing soft copies of IEC materials containing best practices of sanitation and drinking water. In addition, the MDWS website is accessed by functionaries of all levels: state, district, block and GP; CSOs, NGOs, VOs, international agencies. Policy papers and the best practices are disseminated on this website.

Reflections

From the above it is clear that existing knowledge networks in India are focused heavily on water. Given the experiences of different states within India and countries in the region, such as Bangladesh and Sri Lanka, there exists urgent need for strengthening KM and networking for accelerated and sustainable achievement of sanitation results.

Critical KM challenges for the sanitation sector in India are: shifting towards developmental outcome focus (rather than counting toilets constructed or awards granted), prioritizing and providing institutional backing for knowledge management, knowledge sharing and learning, strengthening knowledge networks, developing knowledge products tailored to specific audiences and monitoring use their use, and measuring the impact of KM.

3.4 Practical approaches towards improving knowledge sharing, learning and knowledge management for sustainable sanitation at scale in India

The key pillars of knowledge management are:
1. Strategy, defining the direction you want to take
2. People, the 'knowers' and learners who make or break the processes
3. Processes, the way KM is organised
4. Technology/ systems and structures, the enabling institutions that facilitate storage, handling and sharing of data and information.

By strengthening these pillars, critical gains in sanitation in India can be achieved. The strategy ensures that knowledge sharing, learning and information management proceeds in a way that is aligned with the current national sector goals, targeted on the right issues and critical knowledge gaps, and is coordinated with other existing sector programmes. Practical suggestions are given in this section. Linking to these pillars the following approaches could be beneficial for India.

Table 1: Approaches towards improving knowledge sharing, learning and knowledge management

	Knowledge management Pillars			
	Strategy	**People**	**Processes**	**Technology/ systems**
Approaches to strengthen knowledge management pillars	**Identify knowledge gaps, areas for innovation/ research, promising approaches:** Develop innovation and action learning programmes on key sanitation topics, linked to sector priorities and based on sector monitoring. Detail analysis of knowledge-related strategic issues, resources and next steps. Generate new knowledge and experiment, building on experience (local and international).	**Training and capacity development:** Training and capacity building in sanitation and behaviour change Development of curriculum on sanitation and hygiene, and facilitation/ training methods that increase opportunities for critical reflection and learning from practice	**Support knowledge sharing:** Support knowledge sharing among staff: capture knowledge of staff who are transferred elsewhere Peer-learning and learning journeys, mentoring, Establish/ strengthen knowledge communities: Communities of practice, regional/global knowledge network, social networks, thematic groups, learning alliances Improve information flow (documenting success and failure, versioning documents for different audiences, improving repositories, facilitating conversation)	**Strengthen the knowledge base on 'what works', and 'what not':** Establish/ strengthen knowledge communities: Communities of practice, regional/global knowledge network, social networks, thematic groups, 'learning alliances' (see box 4). Improve information flow (documenting success and failure, versioning documents for different audiences, improving repositories, facilitating conversation) Strengthen block resource centres/ decentralised information and knowledge hubs Keep an up to date database on sector professionals to enable networking Keep a shared calendar of relevant sector events Document and publish field stories of 'sanitation consumers', good practices.

Knowledge is found largely in people (Sveiby, 2001). Thus, printed documents and databases offer only limited access to the total knowledge resource of any team, organization or sector. Creating platforms where people learn together for improved practice and policy is an important step towards accelerating the uptake of local good practice and innovations. One such model is the 'learning alliance', see **box 4 Learning Alliances.** Other models we have highlighted in this paper are knowledge networks, communities of practice and practitioners' workshops.

Box 4 - Learning Alliances: Bridging the gap between research and uptake of research results

A learning alliance is a process undertaken jointly by research organizations, donor and development agencies, policymakers and private businesses. The process involves identifying, sharing and adapting good practices in research and development in specific contexts. These can then be used to strengthen capacities, generate and document development outcomes, identify future research needs or areas for collaboration, and inform public and private sector policy decisions. It is important to note that existing sources of good practice may come from within the learning alliance (e.g. one or more of the partner organizations) or from outside (from a literature review or the practices of external organizations). The main challenge is to identify relevant good practices, adapt them to existing needs and contexts, apply them more widely and document and share the outcomes (Lundy, Gottret and Ashby, 2005)

The learning alliance concept has broken through in the WASH and broader water sector, to overcome limitations in innovation and scaling up, by explicitly working through platforms with multiple stakeholders at multiple levels (Smits *et al,* 2007).

4. Discussion and recommendations

Knowledge is pivotal to success in sanitation, but it is a transient asset. Good practices need to be documented, analysed and shared to avoid reinventing the wheel and to make better use of resources. Encouraging learning, adaptive management, knowledge sharing and knowledge management are critical for ensuring sustainable sanitation services. A climate of continuous improvement is supportive of knowledge management. Such a culture is encouraged by a focus on evidence and openness to critically analyse success and failure of programmes on the ground. There is great potential for regional KM if sector professionals recognise the value of the knowledge gained elsewhere.

Learning starts with sharing information, knowledge and practical experience and is a fundamental pre-requisite of performance improvement. Furthermore, learning contributes to better use of resources. Learning needs to take place at all levels and should reflect both successes and failures in practice. Learning on sanitation at national level needs to be adequately structured and grounded within good platforms to be effective.

This paper argues for improving knowledge sharing and learning opportunities and suggests various practical approaches that could contribute to KM and learning for improvement in the sector. A step-by-step methodology would not be appropriate, given the range of contexts and specific knowledge needs. Flexible, but connected learning methods are needed, but there is no blueprint. Some of the suggested areas for KM improvement can include the following:
- Regional Learning and sharing workshops, Exposure visits for people working at different levels
- Documentation of practical experience: Case studies and reviews of existing programmes
- Facilitate cross learning from international best practices and knowledge products
- Strengthen and synergies KM networks at the local, national, South Asia, and international levels.

One of the commitments of SACOSAN IV was to build and strengthen capacity for sanitation and hygiene implementation, including investing in higher education facilities, development of curricula, research and development, knowledge exchange and partnership development. A South Asia

knowledge Management Network for learning and sharing across countries in the region is a further potential knowledge management resource to explore at SACOSAN V.

In addition, knowledge management related E-newsletters can be brought out which can be shared across governments in the South Asian region. A SAARC quarterly release of best practices in audio-visual format and other formats can be initiated. The learning from knowledge management in other sectors such as agriculture, irrigation (such as those initiated as Swaminathan Foundation, ICT initiated e-chaupals, etc.) can also greatly help in this regard.

References

Asian Productivity Organization, 2008. *Knowledge Management in Asia: Experience and Lessons*. Report of the APO Survey on the Status of Knowledge Management in Member Countries (06-RP-GE-SUV-31-B) [pdf] Tokyo: Asian Productivity Organization. Available at< http://www.apo-tokyo.org/00e-books/IS-30_KnowledgeMgtAsia/IS-30_KnowledgeMgtAsia.pdf> [accessed 4 September 2013]

Department of Drinking Water and Sanitation, 2011. *Assessment Study of Impact and Sustainability of Nirmal Gram Puraskar.* New Delhi: Government. of India, CMS, Research House.

IRC, 2011. *Sanitation and Hygiene Practitioners' Workshops: Lessons learned from 2007 – 2011.* The Hague: IRC International Water and Sanitation Centre. Available at < http://www.irc.nl/page/75135 > [accessed 4 September 2013]

IRC, 2012. *WASH Sector Learning – Continuous Improvement for Services that Last*. [pdf] The Hague: IRC International Water and Sanitation Centre. Available at < http://www.irc.nl/page/75135 > [accessed 4 September 2013]

IRC, 2012. *For all and forever: improving sustainability, equity, monitoring in WASH. Asia sanitation and hygiene practitioners' workshop 31st January to 2nd February 2012, Dhaka*. (workshop report). The Hague: IRC International Water and Sanitation Centre. Available at < http://www.irc.nl/page/73103> [accessed 4 September 2013]

Lala, S., Nitya J., and Sivakumar, S., 2011.'Knowledge Management in the Water Sector'. *UNSECO-IHE HELP International Symposium 2011 "Building Knowledge Bridges for a Sustainable Water Future"*, Republic of Panama, 21-24 November 2011.

Lundy, M., Gottret, M.V. and Ashby, J., 2005. *Learning alliances: an approach for building multi-stakeholder innovation systems*. (ILAC brief no. 8). Rome: ILAC Institutional Learning & Change. [pdf] Available at: <http://www.cgiarilac.org/downloads/Briefs/Brief8Proof2.pdf> [accessed 4 September 2013]

Ministry of Drinking Water and Sanitation, 2011. *India Government Guidelines for setting up of Block Resource Centres (BRCs) for National Rural Drinking Water Programme (NRDWP) and Total Sanitation Campaign (TSC)*. [pdf] New Delhi: Government of India. Available at <http://www.mdws.gov.in/sites/upload_files/ddws/files/pdf/BRC_Guidelines_2.pdf> [accessed 4 September 2013]

Ministry of Drinking Water and Sanitation, 2012. *Nirmal Bharat Abhiyan Guidelines: Nirmal Gram Puraskar.* New Delhi: Government of India. [pdf] Available at < http://www.mdws.gov.in/sites/upload_files/ddws/files/pdf/NGP_Guidelines2012-ENG_0.pdf > [accessed 4 September 2013]

Ministry of Drinking Water and Sanitation, 2012. *Background Note and Agenda for National Consultation with State Ministers and State Secretaries In-charge of Rural Sanitation*. 20-21st December, 2012, Government of India. Ministry of Drinking Water & Sanitation, Government of India. [pdf] Available at <http://www.mdws.gov.in/hindi/sites/upload_files/ddwshindi/files/pdf/Revised%20Agenda-20-21dec.pdf

National Rural Drinking Water Programme, 2013. *Movement towards ensuring people's Drinking Water Security in Rural India: Guidelines – 2013*. [pdf] Ministry of Drinking Water & Sanitation, Government of India. Available at <http://mdws.gov.in/sites/upload_files/ddws/files/pdf/NRDWP_Guidelines_2013.pdf> [accessed 4 September 2013]

Nitya Jacob and Lala, S., 2011. *Consolidated Reply on Water Networks in India - Referrals, Advice.* New Delhi: United Nations Solution Exchange Water Community. Available at <ftp://ftp.solutionexchange.net.in/public/wes/cr/cr-se-wes-15041101.pdf> [accessed on 22 September 2013]

NR Management Consultants, 2012. *Sanitation sector assessment*. World Bank: Delhi.

Planning Commission, 2002. *India assessment 2002: water supply & sanitation.* A WHO-UNICEF sponsored study. Planning Commission, Government of India. [pdf] Available at <www.planningcommission.nic.in/reports/genrep/wtrsani.pdf> [accessed 4 September 2013]

Water and Sanitation Program- WSP and Government of India, 2010. *From dreams to reality: compendium of best practices in rural sanitation in India.*[pdf] New Delhi: Ministry of Rural Development, Department of Drinking Water and Sanitation. Available at <http://www.communityledtotalsanitation.org/resource/dreams-reality-compendium-best-practices-rural-sanitation-india > [accessed 4 September 2013]

SACOSAN IV, 2011. *Colombo declaration*. SACOSAN IV, 4-7 April 2011, Colombo, Sri Lanka. [pdf] Available at < http://www.wsscc.org/sites/default/files/publications/sacosaniv_colombo_declaration_2011.pdf > [accessed 4 September 2013]

Sveiby,K., 2001. "A knowledge-based theory of the firm to guide in strategy formulation", *Journal of Intellectual Capital*, Vol. 2 Issue: 4, pp.344 – 358.

TARU, 2008. *Impact Assessment of NGP Awarded GPs: Final Report*. Study commissioned by UNICEF India.[pdf] Available at <http://www.indiawaterportal.org/sites/indiawaterportal.org/files/Impact%20Assessment%20of%20Nirmal%20Gram%20Puraskar%20awarded%20panchayats_TARU_2008.pdf> [accessed 4 September 2013]

UNICEF, 2010. *Nirmal Gram Puraskar, Esteemed Award at Risk.*

WHO/UNICEF, 2010. *Joint Monitoring Programme (JMP) for Water Supply and Sanitation*. [online] Available at <http://www.wssinfo.org/data-estimates/table/> [accessed 15 September 2013]

World Bank, 2012. *Rural Sanitation in India: status, challenges and opportunities: TSC and Bank Projects' Context*. Delhi: World Bank.

Young, S., 2012. "The value of learning: understanding and measuring the impact of KM in international development". *Knowledge Management for Development Journal*, Vol. 8, Issue 1, 2012.

	Water Community, SolEx	FANSA	IWP	ISP	Hindi Water Portal	IWF	CAP-NET	SCaN	IWP (GWP)	WES-NET India
1. Information sharing										
– Collate/ assimilate	✓	✓					✓		✓	
– Synthesis	✓		✓	✓	✓	✓	✓		✓	✓
– Storage & Sharing	✓		✓	✓	✓	✓#	✓	✓	✓	✓
– Validation							✓	✓		✓
– Dissemination	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
– Receive and provide Feedback	✓	✓	✓	✓	✓	✓			✓	✓
– Disseminate technical/ non-technical solutions, protocols for the end user	✓					✓	✓			✓
– Contribute to policy	✓	✓	✓	✓	✓	✓			✓	✓
2. Knowledge Management										
– Moderated e-discussions to seek out, organize and store experiential knowledge	✓									
– Identify and develop	✓		✓	✓	✓		✓			
– Capture experiences, and best practices/ experiential knowledge	✓	✓				✓	✓	✓	✓	✓
– Distribute (as modules) partners knowledge	✓	✓	✓	✓	✓	✓	✓		✓	✓
3. Visibility, information dissemination and awareness										
Sharing Experiences and practices from/to										
– Practitioners/ End Users	✓		✓	✓	✓	✓	✓			✓
– Policy and position papers, published papers, Toolkits, manuals, material, newsletters	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
– Research papers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
– Action Research	✓	✓	✓	✓	✓	✓	✓		✓	✓
– Awareness, messaging & campaigning in Public domain		✓	✓	✓	✓	✓	✓		✓	✓
– Peer Reviews, joint research		✓				✓	✓	✓	✓	✓
4. Networking, participation, training and sharing							✓		✓	
– Alliance with partners for Knowledge sharing & better connectivity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
– Foster convergences	✓	✓	✓	✓	✓		✓	✓	✓	✓
– Forge partners linkages	✓	✓	✓	✓	✓			✓		✓
– Debate, dialogue on critical & strategic issues at various levels	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
– Bridge between Govt.-Donors- CSO-Community	✓	✓	✓	✓	✓	✓	✓		✓	✓
– Normative discussions with partners (donors, CSOs and government (India/ states)	✓		✓	✓	✓		✓		✓	✓
– Impart WASH Trainings, also as KRC							✓		✓	
5. Advocacy		✓	✓	✓	✓	✓	✓		✓	✓
– Inform policy and programmes	✓		✓	✓	✓	✓	✓		✓	✓
– Publicity		✓	✓	✓	✓	✓			✓	✓
– Voice to CSOs and community	✓	✓	✓	✓	✓	✓	✓		✓	✓
– Messages campaigning	✓	✓					✓		✓	✓
– Organizes Forum/ public forums in states/ centre	✓	✓	✓	✓	✓	✓			✓	✓
– Public Platform & discourse- With grass-root CSOs	✓	✓	✓	✓	✓	✓			✓	✓
6. Library Services										
– Members database	✓									✓
– Online repository of documents, people, organizations	✓						✓			

7. Initiative supported by (financial and in kind):										
i. Government	✓						✓	✓	✓	✓
ii. Bi-multi-lateral agencies	✓		✓	✓	✓	✓				✓
iii. UN agencies	✓		✓	✓	✓	✓	✓	✓		✓
iv. Network of Partners/ Professional alliance			✓	✓	✓	✓	✓	✓		✓
v. I-NGOs/CBOs etc.	✓		✓	✓	✓	✓	✓	✓		✓
vi. CSR/ Private									✓	
8. Membership/Users	4600 individual members		5500 subscribers		2000 subscribers; 10000 followers	500 individuals and institutions	10 universities and institutions	120 institutions/govt deptts	84 life members; 106 annual members	

FANSA-Fresh Water Action Network–South Asia; W/SP-India Wash/ sanitation Portal; IWF-India Wash Forum; I(G)WP- India/ Global Water Partnership; WASH Institute, KodaiKanal, Tamil Nadu; Centre of Excellence for Change, Chennai, Tamil Nadu; SCaN: SaciWATERs-CapNet Network.

Validation.
- Solex does not validate documents or responses. However, members react to each other's postings and point out discrepancies
- India Water Portal/Sanitation Portal/Schools Portal/Hindi Water Portal do not validate material
- Information on India Wash Forum is validated by participants at its workshops
- Saciwaters' information sharing happens at face-to-face events, and is developed by in-house and external experts
- SCaN information is validated by an in-house review team
- India Water Partnership information is not validated; it mostly comprises of information from and about members' activities

Publications.
- Solex does produce printed documents. All material is archived as PDF files
- IWP/SP/HWP do not produce printed documents.
- IWF brings out a bi-monthly newsletter and reports of the consultations it holds
- SaciWATERs has produce publications on Integrated Water Resources Management: Global Theory, Emerging Practice and Local needs; Droughts and Integrated Water Resource Management in South Asia; Floods in South Asia; Gender and Water in South Asia; Water Conflict in South Asia; Civil Society and Governance; Water and Ecosystem; Water and Health; Water Rights Asia. It has a quarterly newsletter that reports all the activities of the project, an e-journal called SAWAS that comes out periodically and is developing an open source resource library that can serve as a teaching/ learning guide on 10 modules pertaining to Water Resources Management
- SCaN have developed case studies but these have not been published so far
- India Water Partnership circulates newsletters, policy updates, conference/ workshops updates, members' projects report etc. It also circulates periodic updates to members through email. It has also brought out India Water Vision-2025, conference proceedings/ workshop proceedings, and recently started its own newslines based on completed project activities on particular thematic issues.