INVESTIGATING WATER KNOWLEDGE FLOW TO COMMUNITIES

Report to the
Water Research Commission

by

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PART 1: PROJECT REPORT

1. INTRODUCTION

Those of us who work in water resource management have found that very few knowledge/research resources are accessible to most people. This happens because resources are not disseminated properly (or at all), or because they are inappropriately technicist, or because potential readers are hampered by low education.

What is the best way to make water research accessible to as many people as possible and especially to people whose lives would be affected by the research? In the early 1980s an attempt was made to address this issue when Robert Berold edited *People's Workbook* (EDA 1981), a user-friendly book that presented basic technical information for rural people – not only on water, but also on agriculture, health, building construction, and income generation. The book included real-life interviews, and was disseminated by rural fieldworkers. Perhaps because there was nothing like it at the time, it was enormously popular.

Much has changed since the 1980s, politically and socially – today there are more resources, and more media options than printed books. Yet surprisingly little is known about which resources work best, and if so, why. This consultancy is a beginning of such an enquiry. Jane Burt interviewed thirteen 'water communicators' in different parts of the country, all of who have extensive experience working with poor people, both urban and rural, on water issues. These were followed up by two focus group meetings, which brought water communicators together.

From the interviews and group meetings it became clear that the issues were more complex than we first envisaged (See interim report, Water Research Commission Project K8/813 2009 & Workshop Report, Water Research Commission Project K8/813, 2010). What emerged was that media forms and formats were only part of the challenge of water research communication (Interim Report, Water Research Commission Project K8/813).

2. HOW THIS REPORT IS STRUCTURED

This report consists of three parts:

a) Project report
b) Focus group/workshop transcriptions
c) Interview transcriptions

The project report is a synthesis of the ideas expressed during the interviews and the workshops, related to theory when appropriate. In most cases we have preferred to keep the style conversational and accessible, although the workshop and interview transcriptions have been carefully edited. The edited transcriptions make up the bulk of the report. We also asked each person who was involved to comment on and add to the draft report.

All who participated in the workshops commented on how useful it was to be part of a broader conversation on the accessibility of research knowledge. We hope that this report will broaden this conversation even further within the Water Research Commission as well as other research institutions.

3. SUMMARY OF LEARNING POINTS

What follows is a summary of the four main 'learning points'.

LEARNING POINT 1 – BASING RESOURCES ON PRACTICE

Almost everyone interviewed felt that the way knowledge was currently being disseminated, particularly by government, was not done in a way that encouraged individuals to question their practice or consider how to adapt it. All agreed that presenting 'factual' packaged information was not enough. Learning resources work more effectively when they engaged learners with water issues as they experienced them, in their local context (Burt, J. & Berold, R., 2009).

A good example of a resource that focuses on practice is the 'HandPrint' Series developed by the Environmental Education Learning and Research Centre at Rhodes University in collaboration with the Centre of Environmental Education in India. (The theoretical underpinnings of their approach to learning and resource development are described below).

LEARNING POINT 2 – DISSEMINATING RESOURCES AND MAKING THEM ACCESSIBLE

A common complaint from those interviewed was there was no shortage of water research knowledge in South Africa, but that this knowledge is not presented in a way that is understandable to non-specialists (Burt, J., & Berold, R., 2009).

It seems that most resources do not get to their target audience. Participants said it was common to see piles of undistributed resources lying in offices (Burt, J., & Berold, R., 2009). Most participants said that more thought and more funding needed to be put into the dissemination of resources. They believed far too much funding and time is given to production of resources, compared to how they were disseminated and by whom.

One person gave an example of how one Catchment Forum member hid away resources that he was supposed to distribute to other Catchment Forum members. Another told of government officials who handed out community-targeted resources at international conferences without this information ever having reached the communities they were intended for (Interview with Lani van Vuuren) – an example of how resources can be misused as 'PR' for government departments or other institutions.

An example of a successful approach was the user-friendly report *Some, for all, Forever*, written by Tally Palmer and others (Palmer *et al*, 2002). This popular description of the concepts of the National Water Act became one of the Water Research Commission's most popular reports. Besides being a well-written and attractive-presented publication, it was backed by substantial funding for a countrywide tour for the author to introduce the booklet and its

contents to different audiences. This multiplied its effectiveness many times over. The top ten most popular reports from the Water Research Commission are the TT (Technology Transfer) reports, which are guidelines and tools rather than research reports (Interview with Lani van Vuuren).

Another example of successful resource dissemination came from a Water Research Commission project on sustainable urban drainage done by the University of Cape Town. Students put together on DVD on a number of urban drainage manuals from municipalities around the world, which were then given to South African municipalities. The research team also gave well-publicised talks on sustainable drainage in the main cities in South Africa, using photographs and diagrams of good practice and bad practice. These talks were well attended, and in some cities the venue had to be changed to a larger venue (Western Cape focus group).

LEARNING POINT 3 - THE MEDIATION OF KNOWLEDGE

The water communicators agreed that even when a target audience was literate, a learning resource was not very useful unless mediated by a local organisation or individual. A skilled mediator will re-interpret knowledge in a way that is relevant to a particular water practice and to those involved. Even a 'bad' resource can be used successfully if facilitated by a good mediator (Gauteng focus group, Burt, J. & Berold, R., 2009). The issue of mediation was one of the main themes emerging from the consultancy.

A good example of such mediation came from the project in Cape Town mentioned above. A team of researchers at University of Cape Town had been trying to address the problems of grey and black water in three informal settlements. They provided communities with the materials they needed to filter the contaminated water running into storm water drains. The only community that took up the challenge and built the drainage system was one that had been working with a local Non-Governmental Organisation, because the Non-Governmental Organisation had held workshops to explain the benefits of building the drainage system, and how to build it (Interview with Kevin Winter).

4. THE VARIOUS FORMS OF MEDIA

The water communicators gave a range of examples of how various media are currently being used:

- **"Hands on" written resources** that can be used directly and serve as support training materials. They said that written resources worked better when divided into separate booklets or pamphlets that each dealt with one issue, topic or question. There should preferably also be a trainer's booklet to help the trainer or mediator use the series for different target groups.

  An example of this kind of resource is the Share-Net "Hands on", "Beginners Guide" and "Enviro-Facts" Series, by different authors with expertise in their particular field. The booklets can be downloaded from the internet for free at www.sharenet.org.za.

- **Multimedia booklets.** These are text-based booklets but with additional media. For example, along with a booklet on how to use the resource, the mediator could also get a DVD that shows how to use the resource in a workshop, with questions to encourage dialogue and debate, or includes extra resource material in the form of a story.

  An example of this kind of resource is the Indigenous Knowledge 'Hand Print' series which comes with a DVD explaining each indigenous knowledge practice.

  Another example is a resource developed by a media company in the United Kingdom on educational software, which includes a DVD of a 15-minute clip of a skilled teacher using the software. The product consists of the software itself, a booklet on the background to the software, and a DVD explaining how the software was used as a teaching methodology (Interview with Kevin Winter).

  A further example is the DVD developed for the Drakensberg Transfrontier project. This was part of a bigger resource that consisted of fact sheets, a box of resources, a board game, and the DVD, which documented the game being played with Sesotho voice-over. All components of the resource were linked (Interview with Clare Peddie).

- **Developing resources in partnership with communities**. This is a mode of developing the resource rather than a form of media. The resource is work shopped directly with the communities concerned. This method has the advantage that it will most likely put water issues alongside other issues of local concern, such as agriculture, health and legal rights.

  Working *with* people rather than *for* people shifts the focus from addressing people's needs to supporting the development of

opportunities. It also shifts the power gradient from those who know to those who don't know. When the learning process includes the development of the resource, it is more likely that the resource will be more relevant to those involved. (Russo, V & Lotz-Sisitka, H.; 2003, p21-22). And because people feel more familiar with the material, they are more likely to use it.

Below we give two examples of resource materials being widely used by the people who developed them.

Developing materials with community members in rural Zambia

Justin Lupele researched the development of resources in collaboration with community members in the Chiawa's area in Zambia.

Members of the community first identified environmental issues that affected them, and decided to use posters because of the high levels of illiteracy in the community. The posters highlighted causes, effects and possible solutions. They were developed through participatory workshops and trialed by community members in an action research framework. Developing the posters for environmental education purposes was both a way of learning about issues and of reflecting on what action could be taken by the community (Lupele, 2008).

Lupele identified certain things for researchers to bear in mind when working with communities:

- Being accepted. There are often many social and political structures that an outsider is not aware of. Understanding these takes time and can cause unexpected tensions. Traditional leadership needs to be consulted at each stage.
- Sensitivity to language and ethnicity. Participants were encouraged to use the language they were most comfortable with, and this helped them "bring forth new innovations and share their experience" (Lupele, 2008, 91). Cultural identity influenced this choice. Participants wanted Goba and English, to appear on the posters, because Goba is a vernacular language that is not taught in schools (Lupele, 2008, 91).
- Respecting local knowledge. Participants had specific understandings of the environmental issues in their context. Their understandings of the causes and effects of these issues sometimes differed from more technical explanations. Dialogue between these different perspectives led to a deeper, shared view of the situation (Lupele, 2008, 92).
- Multi-stakeholder groups and power relations: Lupele suggests that a common mistake of development workers is to view communities as homogenous groups. People will play different roles depending on their skills, strengths and sense of power in a community.

In another example, a community-based organisation in Grahamstown, the Millennium Tree Planting Project, drew on the assistance of a local environmentalist to develop a simple, portable set of posters about indigenous trees. Sisitka writes; “This low cost learning resource… made with imagination, a cardboard box, some words and pictures has lasted 11 years. It has been in hundreds of meetings with perhaps thousands of people.” (Sisitka, 2010, 14).

These two examples show how:

- Resources do not need to be professionally produced or expensive.
- If people develop their own resources, they are more likely to use them.
- With mediation, community groups can develop their own resources that respond to their own needs.

❖ **Resources as part of a larger social movement.** An example of this is Mvula Trust’s Citizen’s Voice Project. The project developed a series of resources answering basic questions on people’s rights to water. (Interview with Victor Munnik). Councillors in local municipalities followed a 10-module training based on the resources. User platforms were created which consist of the municipality and community members. Community members were also encouraged to become actively involved in monitoring water and sanitation services.

The project was piloted in Cape Town with a high degree of success, as measured by reduced water losses and increased payment of levies. There were, however, some challenges. Some user platforms became public relations vehicles for relaying councillors' decisions, or were dominated by community facilitators representing the municipality. This led to tensions between community development workers and councillors. (de Jong, D. 2009, http://www.irc.nl/page/50474).

Resources developed for a local training programme. Resources are developed to respond to a need for training in a particular practice of water resource management or in a particular catchment area. An example is a series of six booklets developed to support a capacity-building initiative for Catchment Forums and Water Users Associations in the Olifants-Doring Water Management Area. The booklets were designed so that they could be used throughout the country. These booklets can be obtained from the DWAF Western Cape office from the Olifants-Doring Water Management Area manager.

Another example is materials developed for the Public Awareness Campaign in the Sand River Catchment. In this case, resources were seen as ‘learner support materials’ for focus group that were held with diverse water users. These workshops were followed up with joint discussion sessions about issues in the Sand Catchment (AWARD, 14 August 2011).

Although both the above examples were developed for a specific training/learning process, both are well written and easily accessible and can be adapted for other contexts without much effort.

- **Media Adverts.** Public advertisements on television, radio and in the local press which highlight the current water situation to users.

  An example from another sector was the successful campaign run by ESKOM in 2007 and 2008, which kept users updated about how much electricity was being used in South Africa and how electricity was being saved.

5. KNOWING HOW WE KNOW

Even if they do not consider it their field, water communicators and mediators need some understanding of theories of learning. Whether consciously or unconsciously, we all draw on theories, which inform the way we develop resources.

Starting with the resource itself, we can ask some basic questions. Who is the resource for? In what context will it be used? What is the best medium in which to present it? Who is most equipped to develop the resource? Should the focus be on developing a generic resource, or on specific resources for particular contexts? Will the resource just aim to inform people about a practice, or will it go further and attempt to engage people in thinking about the practice? As Derick du Toit reminds us, “These issues are not just theoretical” (Interview with Derick du Toit).

Underneath these questions is the primary question of how we know and how we learn. Educators have shown that there is never a single ‘true’ form of knowledge, which, can be discovered and assimilated. Constructivist theories propose that knowledge is constructed through language and cultural experiences. As such, learners construct knowledge that ‘fits their own experience of reality’ (Vygotsky, 1978; Berger & Luckman, 1967). This means that we learn through our interaction with others, in response to changing situations. We also learn by applying what we know and responding to what happens. Situated learning theory, which builds on constructivist learning theory, emphasizes that we learn through social practices, for example, through managing our use of water in particular ways (Lotz-Sisitka, pers comm., 2011).

This way of seeing learning is particularly relevant for environmental education. Facts alone do not lead to change. After all, most smokers know that smoking is bad for them, but this does not make them stop. Likewise most of us know that the way we treat the environment is damaging us in the long run, but we can’t stop because our lives embody so many entrenched structures. We choose rather to ignore the effects of our actions, or we believe it is too difficult to change, or we try to change but meet overwhelming obstacles. If I am environmentally conscious at home but work for a mining company that is a known water polluter, will I give up my job? What is also significant here are the options available to us to change. If we do not have adequate technology or expertise to solve problems such as a leaking dam wall, fixing them will not be easy to do (Lotz-Sisistka, pers comm., 2011). This links to Derick du Toit’s comment that ‘the poor’ cannot be expected to bear the burden of change as their options for change are limited (Interview with Derick du Toit).

Theories of knowledge are very relevant to the Water Research Commission’s work, as it is an important producer and disseminator of knowledge. In fact the Water Research Commission’s mission statement supports ‘knowledge creation, transfer and application.” (Water Research Commission, 21 June

2011). New social learning theories that consider how people learn from each other as they participate in water practices can transform the way that knowledge is thought about in water research.

Derick du Toit comments that in order to give meaning to the National Water Act, research programmes should go beyond theoretical and policy issues and focus on practical work, because "you can't make policy if you don't get involved in practice." He says that the main question we should be asking is: How can people in the water sector change their practices? To do this, he believes the Water Research Commission has to challenge its epistemology: "If they see knowledge as socially constructed, then they will adopt different methodologies." (Interview with Derick du Toit).

Du Toit's comments correspond with findings of researchers in the Environmental Learning Research Centre at Rhodes University who are also working in this area and agree that "knowledge needs to be situated in the contexts of practice" (Lotz-Sisitka, pers comm., 2011). Models of how knowledge gains meaning in this way are available and are currently being tried out in the water sector and other National Resource Management practices (Lotz-Sisitka, pers comm., 2011).

In discussing ways of learning, the participants made a number of important points:

- Simple knowledge transfer does very little to change behaviour. Yet at the same time there is a strong need for knowledge among poor communities and other people involved in water management. They want to know what is going on around them, what effects their actions have had, and what they can do about it (Gauteng focus group, Western Cape focus group).

- The best learning process is direct human-to-human interaction. (Gauteng focus group; Interviews with Wilma Strydom, Kevin Winter, Glenda Raven, Barbara Tapela).

- Knowing how to access information is as important as the information itself. Access does not only mean getting hold of resources, it also means knowing how to use them and making meaning out of what one reads (Gauteng Focus Group, example given by Victor Munnik).

- People need knowledge that is directly relevant to their context that leads them to question their own behaviour, and that of their families, communities, institutions, and societal structures such as government. They need knowledge that helps them understand their situation, for example: Why does this water taste horrible? and is this dangerous? For those developing resources or making interventions, this implies understanding each context differently (Western Cape focus group, Interviews with Derick du Toit and Ditshego Magoro).

- When developing water resources, practitioners should not hide what they don't know. Resources should encourage questioning, expose doubt, and be open about contradictions. Those of us who write resources should bear in mind that we don't know everything about what we are writing about, even if we do know some or most of it. Too often 'not knowing' is covered up by technical language that is difficult for the average person to understand (Gauteng focus group).

- Learning is not something that happens separately from processes like resource management. Resources can be very usefully developed in conjunction with water management practices. For example the process of setting up a Catchment Management Agency can be designed as a learning process (Western Cape focus group; Interviews with Derick du Toit and Willie Enright).

- It is more effective to focus on developing resources for institutions than for individuals because institutions engage with a wide variety of people and groups. This implies that institutions for their part need to have an accurate sense of the different users they serve and have the skills to be able to access the resources they will need to assist water users engage in water use and water conservation practices (Western Cape focus group; Interview with Kevin Winter).

Resources that encourage learning

Victor Munnik of Mvula Trust (Gauteng Focus Group) asked an interesting question about resources: Do we want resources to provide answers or do we want them to open up knowledge for debate and questions?

Derick du Toit of the Association for Water and Rural Development added a further focus to this issue. Water knowledge practice happens locally, he said, not at a national level. Any knowledge generated from practice on the ground should first be fed back into local practice, he argued, because that is where it belongs (Interview with Derick du Toit). Linking this up with Munnik's question, we can ask: If research knowledge is generated through conversation with practice, why not present it back to practitioners in the way it was generated?

These views are reflected in the work of Gillian Rose, who argues that "knowledge is always partial, embodied and localized". Rose's paper asks researchers to reflect on how knowledge is always marked by its origins, to resist generalising knowledge which excludes learning from other kinds of knowledge, and to accept that no knowledge can be universally applicable (Interview with Victor Munnik; Rose, 1997).

Munnik, drawing on the Russian philosopher Bhaktin, said that knowledge always has a dialogic component. Because it is produced in conversation with other knowledge, it cannot make an ultimate claim to the truth (Interview with Victor Munnik). Munnik also quoted Habermas, whose theory of knowledge is based on how people engage with it. Knowledge is never neutral, according to Habermas, so the authenticity of the speaker, his or her concern for truth, and

moral issues concerning what is right, all have implications for what is taken as knowledge by the reader (Interview with Victor Munnik, Bhakin, 1984).

Derick du Toit touched on the same point, adding that the authenticity of knowledge is not only based on who the speaker is but also on whether the knowledge is socially acceptable. He says, "Knowledge transfer is not an unproblematic concept. Knowledge is not actually transferred – rather, knowledge is the making of meaning, whether by an individual or by a collective. Meanings that get made on an individual basis are not necessarily going to help in a social field like water management. If I declare that my interpretation of a red traffic light means go, I'm going to come very short. Better to moderate my meaning in line with the society I'm living in. Likewise information does not qualify as knowledge until it is integrated into a 'daily accessed' meaning system. Otherwise it is just someone's idea. " (Interview with Derick du Toit). He adds: "A resource needs to relate to particularities of water management use. The trouble is that the use of water is an extremely diverse issue. Municipalities address water use differently to farmers. And the same users use water differently in different seasons and economic circumstances." (Interview with Derick du Toit).

Of particular importance for those compiling resources is Habermas's distinction between communicative and strategic uses of language. According to Habermas, "the strategic use of language strives for acclaim. It is manipulative because its objective is the passive acceptance of a message as intended by the sender, and it is not open to dialogic negotiation. This type of communication is often used in public relations, advertising, in corporate communication generally, and in political communication that limits democracy to gathering votes."(Habermas, 1996). In contrast, according to Munnik, language used to communicate builds understanding, because it can be tested and verified for coherence, sincerity and impartiality, which are Habermas's tests for 'communicative rationality' (Interview with Victor Munnik; Habermas, 1996).

Those of us developing resources need to ask ourselves if we are presenting knowledge to get people to believe something, or in a way that opens up knowledge to being verified and questioned. We also need to ask ourselves whether we are presenting knowledge in a way that takes into consideration that all knowledge is partial and contextual. As Derick du Toit argues, unless knowledge resonates with people's current understanding of the world, it will remain some other person's opinion.

At the same time the views and values of the world need to be challenged, particularly when it comes to water use and water management. Wals's (2007) work in socially critical social learning and environmental education addresses this issue, as we will now discuss.

Sustainability education and social learning

Environmental educators are very concerned with the question of how learning can be made more sustainable. However knowing about learning is a

complex business. We cannot isolate the learning process in our brains and examine it in a laboratory. All we can do is observe how people respond to different learning processes, and find out which ways of learning make it easier to act more sustainably.

Arjen Wals says of sustainability education that it "provides the necessary knowledge for the interpretation of the complex phenomena that shape the environment, and encourages those ethical, economic and aesthetic values which, constituting the basis of self-discipline, will further the development of conduct compatible with the preservation and improvement of the environment." (Wals, A., 2007, 36).

Following Wals, we can say a sustainable education-based resource should not only provide the knowledge needed to understand the complexity of a problem, it should also lead the person using it to consider the values and ethics of their intended action.

People make choices based on many factors – cultural, environmental, economic, social ethics, and values. Some of these factors may not even be logical, they may be emotional or faith-driven. Any knowledge we provide should encourage a questioning of all these factors. It should allow for the unknown, and allow people to apply their own sense of knowing, or as Arjen Wals puts it, to explore "ways to utilize diversity, dissonance and emergence in creating communities of learners." (Wals, A., 2007, 36).

We live in a changing world, and as soon as we seem to understand a phenomenon, something else will have changed and we will be facing an unknown again. This is how nature works too. As Wals says, "Healthy ecosystems are systems that are continuously learning." (Wals, A., 2007, 37).

Communities of learners

Any resource or presentation of knowledge should aim to support, or create, a community of learners. According to Wals, this means asking how people learn, and what they want to learn (Wals, 2007). We can also ask:

- How will these learnings be able to recognize, evaluate, and if necessary transcend or break with existing social norms, group thinking and personal bias?
- How can the dissonance created by introducing new knowledge and ways of looking at the world become a stimulating force for learning, creativity and change?
- How do we create environments conducive to this kind of learning?

(Wals, 2007, 39).

Can we provide knowledge in ways that support this kind of learning? Can we produce resources that will help people cope with the new? Doing so may require us to face conflicts within ourselves. Paul Hart (1997) points out that sustainable learning involves not only complex external phenomena but also complex inner phenomena. Challenges to our personal discourses are not so easy to recognise, because they have usually become part of our identities

(Hart, 2007). Hart asks us to view our subjectivities, our identities, as mobile rather than fixed or multiple. As he puts it: “Learning how we choose to frame and approach problems preconditions what we can learn” (Hart, 2007, p 54).

How does one go about enacting these insights in practice? Wals proposes a social learning process that is very relevant to those of us who produce resources about water (Wals, 2007, p41):

- Orientation and exploration – identifying key actors and, with them, issues or challenges that connect with their experiences and background, thereby meeting their motivation and sense of purpose
- Self-awareness – eliciting one’s own frames relevant to the issues
- Deframing or deconstructing – articulating one’s own framing and that of others through exposure to conflicting or alternative frames
- Co-creating – joint (re)constructing of ideas, prompted by the discomfort with one’s own deconstructed frames and inspired by alternative ideas provided by others
- Applying/experimenting – translating emergent ideas into collaborative actions based on newly co-created frames, and testing if they meet the challenges identified
- Reviewing – through a reflective evaluation process, assessing the degree to which issues or challenges have been addressed, including changes to the way that issues were originally framed.

This process provides a practical method for taking into account Victor Munnik’s concerns about opening up knowledge and Derick du Toit’s concerns about developing knowledge in a local context. It allows for research projects to be designed from the start to incorporate learning opportunities rather than viewing the written end product as the opportunity for learning and sharing findings (Gauteng focus group).

The open-process learning framework

As Wals (2007) mentions above, a changing environment is a healthy environment. Learning processes tend to be designed as linear processes in which knowledge is absolute and factual. This is not how the living world works – it is characterized by interaction, diversity and change. As human beings we believe our sense of control over the environment has grown, our habits and ideas become entrenched and sedimented. People today tend to experience their environment “within this capital of sedimented ideas and habits. (Lotz-Sisitka & Raven, 2001).

One such sedimented idea is that the environment is something separate from our economic and political systems. This is obviously not the case, as our lifestyle choices and values directly affect the environment and thus ourselves (Lotz-Sisitka & Raven, 2001). We need a different kind of citizen and learner – someone who can think critically and engage in real, contextual issues.

To address this challenge Rob O'Donoghue of Rhodes University has developed the familiar Action Learning framework into a framework of learning for sustainability which he calls an 'open-process framework' (Lotz-Sisitka & Raven, 2001). In the development of the 'HandPrint' series of resources, the open-process framework provides a practical, situated learning foundation for designing educational opportunities that take into consideration prior learning, learning from experience, and learning by critically reflecting on experience (Lotz-Sisitka & Raven, 2001).

The open-process framework focuses on three learning actions: finding information (what is already known), acting and reporting (what can we discover), exploring and questioning (critically reflecting for future activity) (O'Donoghue, R., 2001). A series of steering questions have also been developed to guide teachers and/or educators. These include (O'Donoghue, R., 2001):

- What do we already know? (drawing on prior learning, historical and cultural perspectives)
- Who can we contact to help?
- How can we investigate the issue in our local context?
- How can we do something about it?
- What have we learned and achieved?

Using the open-process learning framework to develop resources

Although the open-process framework has mostly been used in schools, it could be used in a variety of learning contexts. O'Donoghue has used it to develop resources that respond to the idea that we learn through activity and critically reflecting on that activity. The HandPrint series is an example of such a resource, which shifts the focus from an environmental issue to 're-imagining more sustainable livelihood practices' (O'Donoghue, R & Fox, H, 2009), where action and learning are considered to be adaptable in a changing world. Each HandPrint resource contains a case study in story form of a successful sustainability practice, as well as the 'knowledge resources' used, questions to talk about, tools to find out about local concerns, and things to try out (O'Donoghue, R. & Fox, H., 2009). The case study is specifically included to help readers make the link to theirs and others' contexts of practice to encourage them to raise questions relevant to their own practice.

Since the HandPrint series, O'Donoghue has been looking at why learners find it difficult to access learning materials, which he prefers to call knowledge resources (O'Donoghue, pers comm, June 2011). He says that educators do not take external obstructions to learning into consideration, so that knowledge is presented back to the learner in a way that is incongruent with their experience. The text is thus a de-situated understanding of a practice, and since there are no adequate links to prior learning, the learner cannot 'read' the material (Frohlich, G., 2007), even though they may be able to read the words. Particularly when learners are dealing with knowledge that

contradicts their own understanding of the world, they may not have the knowledge capital to integrate these contradictions (O'Donoghue, pers comm, June 2011*).* Victor Munnik makes a similar point when he points out how science can represent a 'fact', for example, water quality, using a test which only tests three dangerous substances, in a way that contradicts a person's experience of the quality of water (Gauteng focus group).

O'Donoghue believes one of the main forms of blockage or external obstruction to learning is the lack of attention by those who produce knowledge to heritage and a critical reading of history. For him, heritage is not the identification and preservations of certain historical practices, but the acknowledgement that all knowledge emerges from a heritage of practices (O'Donoghue, pers comm, June 2011). The dissonance between the heritage of practices for a scientist and someone not immersed in the scientific paradigm is an example.

A critical engagement with the history of a practice can help us understand our own position in relation to others and the environment, sometimes reviving a lost understanding of why the practice was established in the first place, and freeing it from our "sedimented and entrenched views and habits" (Lotz-Sisitka & Raven, 2007).

O'Donoghue also critiques what he calls 'fearful awareness': the fearful facts presented by science about the environment. He blames this for creating a helplessness whereby "people are no longer the narrators of their own practice" (O'Donoghue, pers comm, June 2011). If a person believes that experts can only provide the answers and solutions, they may no longer feel as if they are the storytellers of their own lives. To counter this, O'Donoghue's framework encourages learners to engage with practices that are within their means, even practices they are doing already. He suggests starting off with something small and achievable before embarking on more ambitious practices. This, he believes, could help to transcend the 'fearful discourse' that has become so prevalent in the environmental sector (O'Donoghue, R., pers comm., June 2011).

This approach changes the way in which resources could be developed. A first step would be to engage with a practice that has a particular history within a community. It would also mean making apparent the knowledge, both past and present that is needed to re-imagine more sustainable livelihood practices.

An example of linking current practice to a practical water project is given by Kevin Winter (Interview with Kevin Winter). He describes how a project for communities to deal with grey/contaminated water in urban informal settlements started off by engaging social anthropologists. The anthropologists looked closely at the current practices of people in these communities, which gave researchers and NGOs insight into what kinds of resources to develop (Western Cape focus group).

6. THE ROLE OF KNOWLEDGE IN A DEMOCRACY

A common theme raised by participants was how knowledge can support citizens and support democracy. There was some discussion about whether knowledge loads responsibility onto those who receive it, along the lines of "Now that you have the information, you are responsible for initiating change". This in turn raises the question of whether capacity building and research knowledge should be directed to poor communities at all. Rather than expecting communities to carry the burden to act once knowledge has been given, it was suggested that it was more effective to work with municipal managers and technical directors, and identify the institutional blockages that were stopping them from taking responsibility for the needs of their communities. (Gauteng focus group).

In particular, it was felt, capacity building should be focused on government institutions, which were likely to be the mediators of knowledge. Participants believed that Non-Governmental Organisations and Community Based Organisations could play a supportive role, or a catalysing role in this respect, but because most of their activity is project-based, their mediation is most often short term. It was government institutions, rather, that sustained practice and who have a long-term mandate to ensure that resources are managed and that services delivered according to policy and legislative requirements (Western Cape focus group; Interviews with Glenda Raven and Kevin Winter).

Knowledge is generated, packaged and distributed according to different needs and agendas – for example, journalists, politicians, community activists, researchers all need, use, and present knowledge in different ways. Some participants felt it was important to find the right channels to ensure that good factual, scientific information reaches citizens (Gauteng focus group). Lani van Vuuren from the Water Research Commission commented that the main challenge with disseminating research and resources is "getting it into the right person's hand -- the hand of the person who is passionate about it." (Interview with Lani van Vuuren).

Government departments and research organisations underestimate public communication. If a business stopped communicating with the public, it would soon see a drop in sales. However because research organisations do not rely directly on the public for their funding, they make the mistake of seeing communication as an optional extra, something to be done only if they have the time (Gauteng focus group). And even if communication is a focus, it tends to stop at the level of the 'attractive' website or publication. The actual communication is too often left to chance.

The role of water research in a democracy

Water research can never simply be an academic or scientific endeavour, particularly in South Africa, as the 1998 Water Act (RSA, 1998) decentralised and democratised the management of water, making civil society central to decision-making. With this in mind participants felt that research needed to be

diverse, covering not only scientific and policy matters but also the practical work of managing water. To support the democratic and equitable management of water, research should be founded on the transformation of practice (Interview with Derick du Toit). Likewise, institutions that generate research knowledge need to consider the way they view knowledge, their responsibility for generating useful knowledge, and how this knowledge might or might not transform practice.

Commenting on most water research, Derick du Toit said: “It’s just generating more information to go on the shelf. And even that information is part of a whole lot of stuff, which is unsynthesised. There is no sense of what it is contributing. Is it right to generate tons and tons of data, publish it, and then say I have done my job? If so, that is a very limited view of research. It’s going to do nothing to transform the way water is being managed in South Africa.” (Interview with Derick du Toit).

Knowledge is a form of power, and in a participatory democracy, citizens need knowledge in a language that has authority and yet is accessible (Gauteng Focus Group). In her interview Barbara Tapela discussed how she viewed research in a democracy. Tapela said that research should be an opportunity to engage people who are involved and affected, so that they can influence policy and practice. For her the end product, the research report, is only part of a learning process for all involved (Interview with Barbara Tapela).

The use of ‘mirror data’ as a social learning process is being developed internationally into a genre of research called ‘developmental work research’ by cultural historical activity theorists such as Yro Engestrom, Warmington and others, and is being used by Southern African environmental education researchers (Mukute, 2010; Mukute & Lotz-Sisitka, 2011; Masara, 2010). This approach to research is showing that the change processes that result from working with research knowledge are not only individual responses, but are collective forms of responses that occur in the context of practice (pers comm, Lotz-Sisitka, 2011).

Victor Munnik described in a case study how the Vaal Environmental Justice Forum decided to do something about the various dysfunctional sewage works surrounding the Vaal River and Vaal Dam. He explained how community activists decided they needed to understand the process of wastewater treatment so that they could go to local government and plant operators and speak to them in a “manner that includes technical knowledge but is also dignified and informed”. They wanted to be able to speak with authority and be taken seriously, he said (Interview with Victor Munnik), so they asked experts in various fields to come and speak to them.

Munnik himself absorbed a Water Research Commission manual of inspection guidelines and was able to teach the basics to the community activists, which enabled them to have technical discussions with officials and plant operators. His example again shows how mediation can provide people with the knowledge they need to participate in water issues (Gauteng focus group).

Popularising water knowledge

Water communicators want to make knowledge popular. One asked: “How can we make water knowledge as popular as *You* magazine?” (Gauteng focus group) Some said the water sector should learn from climate change activists about popularising issues (Gauteng focus group, Western Cape focus group). Others said the water sector should engage fully with new media such as film, cellphones and social networking websites. Opportunities should be seen in venues where people spend time waiting, such as hospitals or payout points for pensions and social welfare grants (Gauteng focus group). Another person advised to work with already established groups such as soccer clubs or other community forums rather than starting up forums specifically aimed at water (Gauteng focus group, Western Cape focus group).

Of interest here is Heila Lotz-Sisitka’s reflections on Lupele’s study (mentioned above), which involved community participants developing and disseminating their own resources. Lupele found evidence of posters being used in taverns, in clinics, and in schools, reflecting community ownership of knowledge (pers comm, Lotz-Sisitka, 2011).

Peer learning as a model for generating dialogic knowledge

The Department of Water Affairs-affiliated organisation, Water Information Network – South Africa, made an interesting input about capturing lessons learned from municipalities. Water Information Network – South Africa runs peer reviews with officials from municipalities by bringing them together around a particular theme. In this way applied knowledge is generated, which links directly to practice. There were a few disadvantages to this method, however: the local governments’ focus tended to be on the good news, emphasising what worked rather than learning from what did not work. Another limitation was that the knowledge generated this way only covers the views of the municipalities rather than those who receive municipal services (Gauteng focus group, Interview with Ditshego Marogo).

7. MEDIATING KNOWLEDGE

Mediation of knowledge was one of the most important themes to emerge from the participant workshops. Participants emphasised that while resources support learning, they are not the learning medium. Learning happens best when a real person explains or distils or translates information in a way that is relevant to people's contexts.

Wilma Strydom described how she had done research on the reception of water resource materials in rural schools in the Eastern Cape (interview with Wilma Strydom). She found there was much more receptivity if she explained the resource to teachers or, even more so, presented it herself to learners.

What is a mediator?

Vygotsky viewed learning as a process which develops from reliance on others to self-reliance and the ability to make meaning for oneself. During this process it is not enough to just provide resources: learners need to understand learning activities and make the link between what they are reading and the practical context. This is where a mediator can be so important. A mediator can be defined as anyone who is "more proactive and responsive and deliberately creates learning opportunities and deliberates them with learners." (Frohlich, 2007, p12).

McCloughlin (2002, as quoted in Frohlich, 2007, p13) suggests one way of encouraging learning is to reduce the scope for failure in a given task. This echoes O'Donoghue's suggestion to start with an easy sustainability practice so that learners can both develop confidence and reclaim their ability to act.

Any resource can be useful to a good mediator

A good mediator will access information, integrate it, direct it and make it applicable to its intended audience. He/she will be able to teach people how to read technical information and to decode it for themselves. Victor Munnik described how he had used a Water Research Commission manual on waste water treatment to empower environmental activists to make demands on their municipality: "They were not reading it, but I was reading it, and was able to use the information" (Gauteng focus group). However, he said, it was important to acknowledge that mediators themselves – whether they were councillors, extension officers, NGOs or activists – will most likely have their own agendas that will influence how they access, generate and distribute knowledge. It is important to consider how these interests coincide with or conflict with the interests of those who need to or want to use the knowledge.

Make research knowledge applicable

The public are more interested in the application of research to their daily lives than in the science behind the research. For example a scientific water quality study, even if written in simple language, is less important for a rural

community than an easy-to-read document in a mother tongue language which lists five important things to remember when you collect water (Gauteng focus group). But even with an unlikely resource, a good mediator will create meaningful opportunities for learning. To do so takes a particular skill which many researchers have not learned to cultivate in their research practice.

Acknowledge the role of mediators

Mediation often happens in an informal way, by voluntary activity, and sometimes even by chance. Unfortunately it is very seldom funded or built into programmes as a significant process in water management (Gauteng focus group). One participant suggested that the reason for this could be that our definition of knowledge tends to be restricted to a traditional one (Interview with Derick Du Toit) separated from the contexts of practice from which it is derived or to which it is to be applied.

What makes a good mediator?

Participants discussed the qualities required of a good mediator:

- Interest in the topic
- Enjoys interaction
- Can recognise quickly what people need to know in their particular circumstances
- Able to synthesise research knowledge
- Able to see how local context fits into larger structures and vice versa
- Able to see the links between research outcomes and national and local practice
- Knows how to develop trust and takes the time to get to know the people he/she will be working with
- A good mediator or trainer should first immerse themselves in the context, much like an anthropologist. This person should go further than just understanding people's needs, he/she should find out what they know already, what they currently do, and what they don't do. (Gauteng focus group; Western Cape focus group)

Some further characteristics of a mediator as identified by Weedon (1997, quoted in Frohlich, 2007 p16) include:

- Language skills
- Providing a space for discussion and debate around clearly identified topics
- Identifying concepts and making links with other concepts
- Identifying gaps in learners' knowledge and areas that they find most difficult.

A mediator cannot be expected to work without a financial incentive. Payment of mediators would acknowledge the importance of knowledge mediation work, and provide the resources needed for the mediator to do a good job (Gauteng focus group).

Recommendation: *Set up a national support organisation for mediators*

It was proposed that a national organisation with regional offices be set up to coordinate community mediation. NGOs take on many mediation roles, but their input should not be taken for granted, and ongoing work in this area needs funding and training support from the Water Research Commission or Water Affairs. The Water Research Commission for its part could appoint a full time person to act as its interface for knowledge mediation. This person would specialise in the application and use of Water Research Commission research knowledge, and be responsible for convening conferences and workshops to inform participating mediators and Non-Governmental Organisations about particular practices (interview with Victor Munnik).

Link knowledge to social action

In many rural situations, even if people know their rights and have access to information, they lack structures to ensure these rights. In such cases, knowledge can make people even more frustrated, because they become aware of a problem but lack the power to do anything about it. One way out of this dilemma is to link the sharing of knowledge to a social movement which can take effective action (Western Cape focus group, Interview with Glenda Raven). Lotz-Sisitka comments that social learning research in a range of natural resource management contexts (including water) is showing that there is a general lack of 'learning forums' where knowledge is considered in relation to practice (ELRC, 2011).

Create a local home for learning resources

A 'local home' refers to a place or person within a community where resources can be available, mediated and distributed. It could be an Non-Governmental Organisation, an extension officer, a community development forum, or a government official (Interview with Glenda Raven, Victor Munnik, and Barbara Tapela). Learning forums (referred to above) could also provide such 'mediation hubs'.

Language considerations

Participants discussed how important it was to translate written resources into languages other than English. Some observations were:

- Translating resources into African languages is not always straightforward, because local dialects can differ widely. Even so, translation is preferable to no translation. Purity of language is less important than accessibility and communication.
- Translation of technical words can be difficult, both in text and orally. A mediator should have a good understanding of the English terms for water issues, so that he/she is in a position to explain difficult and new words.

- Mixing languages is effective, particularly in a medium such as Television, but also in text. A mixture of languages allows readers to pick up meanings in at least one of the languages.
- There was some discussion on whether it was important to translate or even produce written resources at all, given that so many people do not want to read, or are illiterate. Most felt this was not a real obstacle. One comment was that it was common to find that even if only one person reads, they will read to others. Magazines are often shared this way.
- In some participants' experience, if a workshop is only held in English, the presenters of the workshop find themselves doing all the talking. They found that people were much more likely to engage and ask questions if the workshop was presented in their own language. For the same reason, resources which make use of interactive learning should be in people's first language.
- It is important to understand the social dynamics surrounding language. In the Zambian example mentioned above, participants wanted materials in both the vernacular and English, as their local language was not well known in written form (Lupele, J, 2008). Another example comes from the Eastern Cape, where an isiXhosa summary of a report on a meeting between two Catchment Forums was distributed at the meeting of the Mtata Catchment Forum. Members of this forum were made up of mostly academics and local councillors who were insulted to receive a report in Xhosa rather than in English. (Gauteng focus group; Western Cape focus group).

Recommendation: *Pilot a multiple language resource*

Participants recommended that the Water Research Commission try a multiple language experiment with five of its top resources, and also to test out the distribution and mediation of these resources, following the suggestions made in this report (Gauteng focus group).

8. MEDIA OPTIONS AND CONSTRAINTS

Written media

Written material should be easily accessible, with plentiful use of diagrams, photographs and fact boxes. Learners tend to respond more to hand-drawn diagrams than computer generated ones (Western Cape focus group, Interviews with Glenda Raven, Barbara Tapela, and Derick du Toit).

Some water communicators were pessimistic about any written materials due to the widespread lack of a reading culture. One even said : "No written communication helps at all." (Gauteng focus group) Others mentioned that many communities had no libraries, and that even where libraries did exist, teachers were not willing to use them (Interviews with Wilma Strydom and Barbara Tapela).

According to Lotz-Sisitka (Lotz-Sisitka, Pers Comm., 2011), research on literacy development shows that it is important to develop the 'vocabularies of access' necessary to use written resources; which are also important for closing the gap that exists between the 'literate' and the 'not so literate'. Vocabularies of access significantly improve the use of written text.

Recommendation: *Mediating the development of resources by water practitioners*

South Africa has many good water practitioners but most do not share their experiences because they are not skilled writers, or because the task seems too daunting (Interview with Derick du Toit). It would be useful if the Water Research Commission could provide some resources for writing coaching for those who want to document their knowledge of practice. These could take the form of small group workshops or individual meetings on conceptualising, structuring, and self-editing of text with water practitioners, as well as for others writing Water Research Commission reports.

Public media and television

Most participants felt that television was an under-used medium in the water sector, and an important area for the Water Research Commission to explore. They said small media companies should be approached to make documentaries on Water Research Commission research and on the science behind the research (Gauteng focus group).

The Netherlands broadcasts such television documentaries very successfully and has even presented stories on South Africa's water issues and on emerging farmers. One participant commented that it was ironic that South African development stories are shown in a European country but not at home.(Cape Town focus group). The power of more accessible forms of video material like YouTube should be explored.

Online media

Most participants felt that online media in rural areas would not work, as so few people had access to the technology. One said "There are two countries in South Africa – those that can access electronic media and those that can't." (Gauteng focus group) Others argued that the internet was too important to ignore, and that no matter what the difficulties, information should be put on the web for those who need it (Gauteng focus group). At the same time, they said, the water sector should make use of the many organisations and Non-Governmental Organisations that work towards the broader public having internet access (Western Cape focus group).

Resources on the internet need to be clear and concise as they are often the first level of accessing information, from which people look for documents with more depth (Gauteng focus group).

The internet is well suited for monitoring water quality, and is already provides the public with links to ongoing national data on the current state of rivers.[http://www.csir.co.za/rhp/.] Participants felt that this kind of data should be available regionally, and expanded to include evaluations of local government performance on water quality (Gauteng focus group).

It was also suggested that the Water Research Commission uses social networks such as Facebook and Twitter, or to partner with institutions that do. One way of doing so would be to send out weekly 'Did you know?" information bites, which could be linked to websites with more information. Profiles of researchers and other human-interest stories on water research would make research more attractive to the public (Gauteng focus group). The Water Research Commission should also build on research on the use of social networking sites (Chetty, 2010).

Cellphone communication

In many ways cellphones are South Africa's most important medium as they are so widespread at all levels of society. SMSs can be used to inform people about local Catchment Management Agencies conditions, or water saving, or water health. One participant suggested a 'please call me' facility for information, which could be linked to the water information organisation suggested in the box below. Cellphone companies could be approached to fund such services (Gauteng focus group, Interview with Victor Munnik).

Cell-Life, a non-profit organisation which started as a research project at the University of Cape Town, uses cellphones for the management of HIV/AIDS and other infectious diseases. Cell-Life uses SMS messages to link nurses with home-based care givers, to promote HIV testing, and to remind people to follow up in treatment (Cell-Life, 29 June 2011).

The University of North West and the University of KwaZulu-Natal media studies and communications department are doing research into the use of cellphones for development. Wildlife and Environment Society of South Africa

is also using cell phone technology in its 'Stepping up to Sustainability' education programme. (Share-net, August 2011).

Recommendation: *A rapid response organisation for water queries*

Victor Munnik, who suggested setting up an organisation specifically to respond directly to communities' questions about water issues put this concept forward. Rural people would be invited to SMS, phone, email or write to the organisation with questions. Researchers would draw on a database of frequently asked questions or extract answers from research papers, and send an immediate response followed by a printed or electronic document. The organisation would develop a database of clients and use SMSs for updates. Internships could be offered to research students for one year to gain experience (Interview with Victor Munnik).

What makes a good resource?

The discussion about the characteristics of a good resource included these observations and suggestions:

- Resource writers should be brave enough to give examples of bad practice, with diagrams and photographs, alongside examples of good practice (Western Cape focus group).
- Resources should be short and concise, with boxes being used to highlight ideas from the main text. Generous use should be made of graphics (Western Cape focus group, Interviews with Glenda Raven).
- Resources should aim for simple and easy-to-memorise messages such as "Five important things to think about when fetching water." (Gauteng focus group)
- Attention must always be given to the target audience. A resource aimed at a broad spectrum of users, for example, will be different from one that is directed to a more specific group of users (Western Cape focus group).
- Multiple publications can be generated for different audiences and different intentions, for example a particular research project could produce a short report, a long report, some technical papers, training course materials, and publicity material (Gauteng focus group).
- The need for the resource should be established through a mediated process with people working in the field (Interview with Barbara Tapela).
- DVD packs and road shows can be very effective in raising the profile of water issues (Western Cape focus group).
- For written material, short (10-20 page) booklets in a series, each on a particular aspect of water, have proved to be the most useful. It does not matter if there is overlap between booklets, as repetition will reinforce important knowledge (Western Cape focus group).
- Scientists and educators often clash about the approach to developing materials. Typically, scientists say that educators oversimplify information, while educators say that scientists do not understand how

to make knowledge accessible. The Water Research Commission should be in a position to facilitate or mediate when these tensions arise on its research projects (Western Cape focus group).

- People attending workshops and meetings like to have something tangible to take home, to remind them of key concepts and questions. Such resources should always contain a little more detail than what is presented at the workshop, so as to lead the reader towards deeper learning (Western Cape focus group).
- Because rural communities are expected to become full and equal participants in water resource management, they need a 'toolbox' resource which can provide them with what they need to know, particularly how to participate in water allocation. It could outline the research that has been done around each water practice relevant to the community, and the laws and policies affecting that practice (Gauteng focus group Western Cape focus group, Interview with Derick du Toit).
- Learning processes should be contextually relevant and linked to current events. For example, following each local government election, Water Affairs should run an introductory course for councillors where learning materials are distributed and explained (Western Cape focus group).

9. ROLE OF WATER RESEARCH COMMISSION

(This section appeared in the interim report on this project (Burt, J. & Berold, R, 2009))

Participants agreed that it was not the Water Research Commission's role to ensure that all water users have access to their research, and can make meaning from it. They did however feel that the Water Research Commission needs to reflect on the role of research knowledge in the light of the requirements of the National Water Act.

Some participants questioned the allocation of research funds (Gauteng focus group, Interview with Derick du Toit). They had heard some water users say that because the Water Research Commission receives a levy from waters users, it was obliged to generate knowledge relevant to them (Burt, J. & Berold, R., 2010, p7). Others pointed out that this would just mean that more powerful water users would be able to skew research towards their interests. They said the mandate of an organisation like the Water Research Commission was to carry out research in the interests of all citizens, and meaningfully contribute to society as a whole (Gauteng focus group). As such, the Water Research Commission could conduct research on how water knowledge is currently used, and could be further used, in South African society as a whole.

Participants proposed that a broad social focus should be built into the research funding cycle, as follows:

- *Submission of proposals:* One way to ensure social awareness at the submissions stage would be to require researchers to specify the implications of the research for society (such as local government or rural communities) as part of their application.

- *Reference groups:* Lani van Vuuren from the Water Research Commission commented that when DWAF staff used to sit on reference groups, they would go back to their departments and use the information gained through the research. However a lot of expertise has left the Department of Water Affairs and it seems that this now happens to a lesser extent. The focus of reference groups now tends to be on immediate practical issues such as when will the project be finished, and how much it is costing. Participants felt the Water Research Commission should urge reference group meetings to look at how the research is being applied, and set up partnerships with mediators who can take the research further.

- *Project outputs:* Research contracts should commit a researcher to producing an accessible resource as well as a research report. Although this is now being built into some project contracts, there was some debate about whether researchers could really be expected to do this, whether they had the skills to do so, and the funding implications for Water Research Commission if they were to ensure this would happen. The Water Research Commission could provide researchers

with access to support services including institutions that have the capacity to make research more accessible or socially practical.

- *Funding implications:* It was suggested that some funds be earmarked in project budgets to be used towards developing more user-friendly texts. If the research team could do the job themselves then these funds would be allocated to them, otherwise they would be allocated to the Water Research Commission or a contracted writer or mediation team to produce the documents. Another suggestion was that given the problems of distribution, funds should also be set aside for effective distribution in project budgets. (Burt, J., & Berold, R., 2010, p7, Gauteng focus group).

- Some participants felt that water researchers were not fulfilling their responsibilities to explain the implications of their research for the public interest, and suggested that the Water Research Commission develop a researcher's charter entitled "Research in the public interest' (Gauteng focus group).

Other participants warned one had to be careful not to overly control the process of research, which could lead to resentment by researchers feeling micro-managed or burdened by bureaucracy (Western Cape focus group).

The Water Research Commission's approach to research

Participants said that the Water Research Commission needed to re-look at the relevance of its research in relation to how useful it will be for practice:

- *Research as capacity building*. Knowledge sharing can be part of the long-term learning processes of water resource management and service delivery. Some of the Water Research Commission's research could be part of these processes, for example research in the context of building up a Catchment Management Agency, supporting practice and capacity building. In such cases the process of learning and sharing should form part of the research design (Western Cape focus group).

- *Interdisciplinary factors*. The focus of the Water Research Commission in the past was on scientific research, aimed mainly at technical specialists. Today's water management and service delivery has to take governance, civic society, and democracy into account. This may demand research methodologies unfamiliar to researchers from a formal scientific background. (Gauteng focus group, Western Cape focus group).

- *Social science*. Related to the above, when scientists try to include the social implications in their work, this often lacks depth. It was suggested that the Water Research Commission proactively engage more social science research and engage more trained social

scientists. An example already cited was the work done in the Western Cape through the University of Cape Town's Urban Water Management Research Unit, which drew strongly on social anthropologists to understand capacity needs in context, for example identifying problems that citizens could not do anything about. This had a bearing on the learning processes developed to change the situation (Gauteng focus group, Western Cape focus group). Research scientists can and should link up with social learning researchers, who focus on how learning takes place in contexts of practice.

- *Protection of researchers' intellectual freedom*. There was some concern that knowledge generated in the course of Water Research Commission research could be used for political or financial gain. Participants said that it was not a researcher's job to make political decisions around what he or she could or couldn't write, nor was it a researcher's job to protect Department of Water Affairs or carry out public relations for the government. Thus the Water Research Commission should define the public interest and protect a researcher's freedom to defend it (Gauteng focus group).

Water Research Commissions' role in the mediation of research knowledge

Most participants agreed that the Water Research Commission should not be made responsible for mediating its research to all water users. However it was suggested that the Water Research Commission could take on a more deliberate interface role, for example by proactively nurturing alliances with citizen groups who need access to knowledge (Gauteng focus group; Western Cape focus group).

Participants also suggested that access to existing research should be made easier, and in particular to make the search facility on the Water Research Commission website more user friendly. This should include a more efficient cataloguing of research information (Western Cape focus group).

10. CONCLUSION

This consultancy has shown that there are several steps between the research project and the influencing of practice. Research knowledge has to be effectively presented, and mediated. Researchers need to know how their work influences and critiques current practice, how communities are mobilised, and how implementation happens.

All these factors are influenced by our understanding of how we learn. We have to go beyond the notion of 'knowledge transfer' to a deeper understanding of the way people learn. All knowledge is linked to practice, and the challenge for water communicators is how to mediate knowledge in a way that allows for dialogue and questioning, linked to people's understanding and practice. At the same time, in order to have influence, people also need to learn the language of 'authoritative' knowledge so that they can negotiate with people and institutions that directly influence their lives.

The research also highlights the importance of the role of a mediator and the skills that mediators need to be able to both provide relevant information and, more importantly to mediate learning and action within a broader social movement.

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PART 2: FOCUS GROUP DISCUSSIONS

1. Gauteng Focus Group

4th February 2010, WATER RESEARCH COMMISSION offices

Introductions

*Derick du Toit, Association of Water and Rural Development***:** I work for the Association for Water and Rural Development near Bushbuckridge, it's a research-based Non-Governmental Organisation. We take our research and apply it to the management of natural resources, specifically water. The idea is to influence practice, with a focus on catchment management. We've chosen a boundary – the Sand River catchment – to function within, because we believe you can't address everything. We take national policy and try and make meaning out of that locally, with local people.

*Wilma Strydom, Council of Science and Industrial Research***:** I've worked with the River Health Programme, and my research has been about what does and does not work in knowledge transfer. I have a special interest in how we change people's attitudes and behaviour, and how we need to communicate in order to do that.

Marian Botha, Ripples of Forgiveness: I'm one of two women who have been travelling for the last six years around southern Africa unaided on bicycles, canoes, motorbikes and by foot, connecting water researchers with communities. We stay with these communities, we get to experience the way they live, hear their problems, and then we connect Water Affairs and other water researchers to them. We also use the Internet and multi-platform communications. We've found that all water scenarios are different. People in Jo' burg have different problems from those in Amatola, or Shoshanguve, or Winterton.

*Lani van Vuuren, Water Research Commission***:** My official title is Public Understanding of Science Officer but I'm basically a re-packer. I take those complicated Water Research Commission research reports and turn them into something else. My main function is editing the *Water Wheel* magazine, which is the Water Research Commission's research and development magazine aimed at readers in the general public readers. It has about 9 000 subscribers, and the number is growing, which is nice. I also get involved in special projects when we do other publications of a more social type, and I also do brochures and things like that.

Hlengiwe Cele, Water Research Commission: I started working for the Water Research Commission in July 2009. My main function is to disseminate information using all forms of media. I also do administration and I manage

the stakeholder relationships with Parliament, Internet stakeholders and researchers.

*Ditshego Magoro, Water Information Network***:** The Water Information Network is a water sector programme, our main objective is to share and disseminate best practices and in that way contribute to improved service delivery. I'm happy to be here because there is a gap within our programme: we target practitioners but don't have direct links with communities. If the communities who're affected are not part of it, we might not be achieving our objectives.

Jane Burt, convenor of the workshop: I've worked with communities on water issues in the Eastern Cape. We initially approached the Water Research Commission with the idea of developing a water resource publication directly for fieldworkers and communities so they could have access to the amazing goldmine of information in the Water Research Commission. But we've come to realise that the first step is to understand why a resource will really be used – or not. We're hoping this workshop will lead us in the right direction.

Sharon Pollard, Association of Water and Rural Development: I've been in the water sector for probably 15 years now, and we work both with communities and with policy makers. We do a lot of action research, so it's that learning and reflection process. I'm always struck by how unthinkingly people use the term 'awareness raising'. It's like a bad virus to me now because I don't think that it does change attitudes, as we know from the HIV sector. People use publications and posters as toilet paper. My question is: How do we make the discourse on water issues as popular as *You* magazine*?* Why is it that people are buying that magazine? How do we start the perception shift about water issues that we're starting to see in climate change issues? Somehow we're not yet managing that in the water sector in South Africa, whether national and provincial.

Victor Munnik, Mvula Trust: Although the term discourse sounds esoteric, it's a very real thing. I've got an academic interest in it – I'm working on a PhD on discourse. At Mvula Trust I work on water quality, and it's a wonderful mix of disgust and shock, and really great policies like the Green-drop Strategy, action strategies and people doing interesting work. Somebody joked that people create great works of knowledge then chuck them over a wall and hope that somebody is standing on the other side to catch them. I'm looking forward to this workshop because discourse is my absolute favourite topic.

*Wilda Basson, Council for Science and Industrial Research***:** I work in the Communications Department of the Council for Science and Industrial Research, writing up reports for Natural Resources and the Environment. I have no background in water, but I do have a background in journalism and how the media works and the role of media in society. I'm glad that Sharon mentioned *You* magazine because at the Council for Science and Industrial Research's Communications Department I've been trying to say 'We need to embrace the *Daily Sun*'. They look at me and say 'Are you crazy?' But people read the *Daily Sun* and they need this kind of information.

Robert Berold, co-convener of the workshop: I work as a freelance writer and editor, and I like rewriting technical information to make it more understandable. I started that when I was working for Environment and Development Agency in the late 1970s, and I'm still doing it whenever there's the opportunity. I worked with Tally Palmer on *Some for All Forever*, a popular book on the National Water Act was published by the Water Research Commission.

Using resources

Jane: Originally we just wanted to write a user-friendly book on water resource practice. Then the Water Research Commission said: 'How do you know that's what people need?' That is the question we are trying to answer with this project. We've interviewed several water practitioners about this, and now we want to engage with the Water Research Commission on the question of how people learn. One thing we've found out already is that even the most amazing resources don't get to the right people unless the process of distribution is mediated.

Wilma: My feeling about communication is that I don't think any written communication helps. Perhaps it will with the next generation, but not this one. For my masters research I went to rural communities to find out whether the State of Rivers report had any impact on anybody. It was quite an eye-opener. The first thing that I found was that the report wasn't used. It was still lying in the Water Research Commission storeroom and in Water Affairs' offices, not reaching people at all. So I then went in cold into communities with a questionnaire to find out how they see water conservation issues. While doing this I realised that the questionnaire was not going to work either. No matter how much they actually wanted to, filling in a questionnaire was a battle. Even when we used people who could read, to help facilitate the process, it was a struggle, although we did get answers. The sincerity was there, people wanted to help make things happen, but they were not getting there. In one rural area I got a teacher saying to me, please, I just don't want to go to the library. As for electronic media, forget about it. SMSs would have a bigger chance of working.

With schoolchildren, I had a *before* and an *after* questionnaire. I went into the schools in the beginning of the second term and had them fill in what they knew about water, so I could get a baseline. I left the posters and booklets with the schools and explained to the teachers how they could be used. I wasn't only suggesting use in the biological sciences, because in the Outcomes Based Education system there are many angles that you can come from. Initially all the teachers were very excited, maybe because they were getting new things and I was taking a day of their time away from teaching.

I arranged to come back to them in the third and fourth term. When I got back many of the teachers asked me 'What books?' But there were a few lovely teachers who were so excited, they gave me feedback on how the material had actually helped them and how much more the children understood. In

those schools I could see that the children's knowledge and understanding had just gone up.

We need to look at how schools operate these days. It appears that the children are teaching each other, it's not so much from the teacher anymore. Somebody from the University of the Western Cape said that the teachers have become mere facilitators and are no longer teaching the children. I saw that too. I asked for one of the lesson periods and I just talked to the kids. The teachers warned me beforehand that I was not going to get anywhere, because the kids were unruly and would not listen. That was not my experience at all. They were sitting there absorbing, wanting to hear, and this was despite the fact that I am not a teacher and I'm not a good speaker either. There was a craving for the knowledge they weren't getting in school. So merely giving teachers books is not going change things. Something else is needed.

Derick: In our work with the national education department we looked at how we could integrate the environment into the curriculum. If you arrive at a school to present something, teachers go, 'Oh it's time to sit in the tearoom and drink tea', or whatever. A proper planning process is needed to look at where environmental education fits in the curriculum statement and what aspects to look at. If the people presenting or developing resources are not clear about how they are interfacing with the formal curriculum statement, it goes completely wrong. Organisations like SanParks have designed fantastic materials, but they could not really be used by teachers. Kids were using them to sit on, or they ended up in the longdrop as toilet paper. It's the reality.

Knowledge transfer and mediation

Jane: The formal education system is one context. We need to ask how learning happens in other contexts.

Derick: If we are talking about how the Water Research Commission's knowledge can be used for communities then we really have to ask what is knowledge and what is knowledge transfer, as all of our discussions are going to be filtered through that understanding. We haven't really defined what we are talking about with regard to knowledge for a community context. If we talk about policy briefs for politicians we are going to have a different set of discussions.

Victor: It would be best to identify a number of typical contexts. We should aim to describe a few cross-cutting principles for different contexts that will open up the field for later research. I would like to talk about an activist context where we have used some resources. There is the need or demand for certain knowledge. And then there is the mediation process itself, I'm glad it's come up so early because I think it is the missing part, and it is also a very difficult part. It can be very resource intensive because you often need a person, a warm body that is a link between information and the people.

Jane referred earlier to the Water Research Commission research resources as a gold mine, but I would say that it's not so much a gold mine as a jewellery shop, because the information has already been refined and put in a form in which it is mobile. Actually it's not quite jewellery because with jewellery everyone can see the value of jewellery immediately, whereas research knowledge is a bit opaque. But there is a huge value in putting that knowledge together, and its knowledge that has authority and legitimacy. I must be one of the few users of the State of Rivers and the River Health reports. But then I specifically looked for them. Once you find them, there is wonderful stuff in there.

Wilda: But they are hard to read.

Victor: It depends how you read. I worked with the Olifants one while I was working with activists looking at acid mine drainage from the coal mines. They were not reading it, but I was, so I was able to use the information.

Jane: Which bring us back to the mediation of knowledge. I interviewed two University of Cape Town researchers working with urban communities. They had developed wonderful easy-to-read resources on how to do stormwater drainage, but it wasn't used. They found that the resource was only used when it was taken into the community with a Non-Governmental Organisation as mediator. This seems to be similar to other people's experiences. Our aim here is to give the Water Research Commission an idea of how to look at ways of knowing and learning, so that when resources are developed there are principles to guide them.

Victor: Let me bring in a theoretical perspective. You can't create knowledge once and then that is it. Knowledge is dynamic, as we have to change it all the time. The best knowledge is dialogical because it goes back and forth between the knowledge creator and the people who use it. There is a famous quote from Michael Baktin, a Russian, contrasting *monologue* with *dialogue.* When you act in a *monologic* way and just pass knowledge down, you deny the existence of another consciousness outside yourself, with equal rights and equal responsibilities. This links very closely with ideas of active citizens, participatory democracy, public interest. And also to taking responsibility, because taking responsibility is the same thing as taking power but just seen from a different perspective. With monologic communication we don't expect a response that might change anything in the knowledge that we have presented – so monologue is deaf to others' responses and sees itself as the ultimate word.

I'm part of a whole movement analysing citizen science, and the debates between science and society, particularly activists, which is really my background. Activists are starting to challenge the authority of science because that authority is at times so obnoxious and obstructive. What we've come up with is that science cannot be seen as a neutral black box, it cannot define answers in a monological way. Instead, science needs to attune itself to the needs and questions of citizens. In an age where science is very dominant and really determines much of what happens to us and our

environment, we cannot allow it to be passed down to an audience which is seen in one or another way as inferior to the producers of that knowledge. External criticism of science and scientific institutions is taken to imply a deficit in public understanding rather than taken as a need for generators of scientific knowledge to reflect on their own practice. If you think you are being poisoned by the water, you could find the 'scientific test' that is only testing maybe three or four of the thousand possible contaminants. It is easy for the polluter to then say that the scientific test said we didn't find anything dangerous, so your experience of that water being dangerous for your health is not valid.

Science, activism, and making waste water works functional

Victor: As activists we want to see active citizens empowered by knowledge, which actually enables us to have a participatory democracy. Our contribution to this has been a case study about a pollution fight in which public groups are portrayed as ignorant or irrational in the face of scientific progress. I think you all are aware that two thirds of sewerage works are dysfunctional. We are looking at an area in the Upper Vaal, which has a number of sewage works that are potentially and actually dysfunctional, surrounding the Vaal River and the Vaal dam. This area includes the Rietspruit catchment with three dysfunctional sewage works. We work with the Rietspruit Forum because it is a strong forum and headed by an environmental activist organisation, the Vaal Environmental Justice Association. These forums rely on volunteer participation and are kept going not by the state but by citizens. They carry public accountability through a name and shame situation. The most important thing about them is that monitoring information becomes available every three months in a public meeting.

The Green Drop Campaign started after Water Affairs put out a water quality regulation giving Green Drop certification. It consists basically of eleven criteria, which, if followed, will guarantee a functioning waste water works with quality effluent. We understand the Minister hasn't released the first evaluation but it looks like only 3% of water works in the country qualify for this. But anyway, when we looked at these 11 criteria, they also involve a public element, which invites citizens to put pressure on local government to get things right. So now we have these guidelines in public hands.

We had activists from communities literally saying we want a language for waste water, we want to understand what these water treatment works do, how they function, and what the principles are. They wanted citizens to be able to go to local government and to plant operators and speak to Water Affairs officials in a manner that included technical knowledge but was also dignified and informed. They wanted to be able to speak with equal authority and be taken seriously. They specifically didn't want 'baby language' as they called it, to use in political arguments around water quality.

So we started some training, we got a toxicologist with a PhD who explained exactly how the river works and what you would find at different testing points, where you would find clean water; that at sewage works you would find nitrates and phosphates and e-coli; and at acid mine drainage the pH would

be very low and you would find heavy metals. Then, armed with that knowledge, we insisted that Rand Water come and explain the Green Drop regulations to us, and they did. It took only a simple request and in the next meeting they were there and they took each of these categories and explained what they were and how they were important.

The whole process had been started because the activists in the forum started interrogating why is it important, and what does it mean. Once you get the code to decode this thing, then you can simply go. [*Referring to the screen*] You'll notice it is red at Rietspruit at Sebokeng, after the Sebokeng waste water works. We asked why is it red there? The explanation was: the chlorination wasn't done. Then you can check the chlorides in the river. What were the residual chlorides? Then we went into institutional explanations. This is where all the training became important, because we could now speak the language of these 11 criteria. We visited the sewage works and literally went through them one by one with the operators. But the technical issues were still a bit difficult, so this is when we got this Water Research Commission resource (Guidelines for the inspection of wastewater treatment works (Report No: TT 375/08). Which is a beautiful book *[passes it round].* It is a very brave book. It says things with photographs. But I think what was really empowering to people was a diagram on page 129 which is hand drawn, which somebody was really wise enough to leave as a hand-drawn diagram. It made us understand that we in the campaign could also draw diagrams. We can visit the Rietspruit waste water works and draw a diagram of what we see. If you break down a waste water works into processes, you'll see it's a linear process, you can understand each of them. And we did that, both from the operators talking to us then the operators walking us through.

Guidelines for the inspection of wastewater treatment works is book of inspection guidelines so it brings an activist (more or less, but not quite) to the level where you can have a discussion with the official inspector and the operator. You have the same knowledge base, which is the aspect of knowledge that is authority, which is confidence, which is beyond what is on the page. So it's politically valuable to work knowledge into a form like that. And that knowledge was actively sought after. We were going every three months to the forum, and the waste water works were not improving. We really needed to understand. We needed to understand how we could get to functioning works, which we have not achieved yet by the way.

So those 11 criteria are very powerful. It is knowledge from the department. It is official. It cannot be dismissed. We are working with the regulator. We are not a nuisance. Or rather we are a nuisance, but we are near to implementing government policy, we are helping local government get things right, things, which by law have to be right.

The Water Research Commission and the politics of knowledge

Victor: The function of mediation and the application of research knowledge is going to arise with KSA5 of the Water Research Commission. The Water Research Commission takes a levy to fulfil a function of creating knowledge in four of their key areas, but their fifth key area is not about creating knowledge but sharing knowledge. Sharing is going to need alliances. That is why it is important to make alliances with activists, you need alliances with people who are interested in what our kids are learning, and how much they are learning.

*Derick***:** You say that the Water Research Commission takes a levy, from where?

*Victor***:** From all water that is sold, all bulk water.

*Derick***:** The structure around how the money is collected to do research has an important bearing on the kind of research that is done. For example a CMA can say that charge is levied from the water user and therefore the water user has a right to determine some of the direction that that money is used for. They might say we want research that can help us manage the resource better on a water management area level. Isn't this the democratic approach?

*Victor***:** The levy comes from the 1970s and we were weren't democratic then, nor were the Catchment Management Agencies in place. But I agree with you.

*Derick***:** We have heard stakeholders, for example the Water Users Association on the Crocodile River, saying 'We are paying a hell of a lot of money for water every month. We see the bill. We see so many hundreds of thousands going towards research in the water sector, and it is going to the Water Research Commission.' So there is a political dynamic related to what knowledge is generated through that levy. Is it entirely the Water Research Commission's prerogative to decide?

Victor: The principle is that it should be in the public interest for all citizens. We have to bear in mind that the interests of Water Users Associations are relatively quite narrow and not strong enough or representative enough to carry the public interest. But otherwise I completely agree with you. If you look at our legislation and its philosophical basis, it's better to talk about the owners of the water, which is us. Water is a common resource held in custodianship by the state for present and future generations. To me this is a more promising base than the water users. As citizens we give custodianship to the state, and on our behalf they allow some people to use it, under quite a long list of preconditions. So coming back to the water levy – you can make a public interest argument that the research should be done on behalf of citizens rather than the water users or the mining companies.

*Derick***:** So research knowledge is a resource in the public interest, and the use of this resource is granted under certain conditions. But ultimately the public can control it.

*Ditshego***:** I'm just thinking as an ordinary member of the community sitting in Malamolele. I want to know when I am going to get my water. Who is going to make sure my sanitation is working? When we speak about water users, which level of water users are we talking about? Can users like us demand research that we think is suitable?

*Victor***:** Rather forget about the term 'water users', and work from the base that all the citizens own the water and it's the public interest of all the citizens. It doesn't matter who gets a chance to use the water or who uses the most. Rather go to the public interest of all the citizens and define it that way, then it definitely includes people in rural areas without water. It means we should also go to how the public interest has been defined. Since 1994 we have had many democratic policy processes to define it, starting with the Reconstruction and Development Programme, which was the basis for the 1994 elections. All the standards in the Reconstruction and Development Programme are there in the legislation, and rural people still don't actually get the water that they are entitled to. I think that is the point of departure.

*Ditshego***:** In my rural area people with no water are forced to buy from other households that own boreholes. We are all supposed to have access to a certain number of litres, but that is not a reality in rural areas. Most rural people are not aware of their water rights even though the Constitution says all of us must have access. They are not even aware that according to the Constitution they have access to a certain minimum amount of water. Is it the role of the Water Research Commission to educate them about that? Whose role is it?

*Hlengiwe***:** I also come from the rural areas. I was a teacher, and when I was teaching I never knew anything about environmental issues. There was very little information about the environment when we went to school. Now that I'm working in the water sector I see we don't do enough to access schools. When we celebrate Water Week for instance, it's just the sharing of information among ourselves. When we call for workshops we call people that we know. Our mailing lists are the people we give information to so valuable information is not reaching other people who are in need of it. If you call a meeting, the very same person who attends the meeting in January will be attending a meeting in June and in August, so the information is revolving amongst people that really don't need it much. You begin to ask yourself, is it ever reaching the people who really need it on the ground?

Derick: This is not to discount that issue, but here is another one. What do people do with that information once they have it? In the Lowveld we work with villagers who know about free basic water allocation. But that doesn't help them. They go around and around and around, going nowhere. It's more frustrating when they know their rights. They have the knowledge of certain policies, but there is an inability to actually apply it. I'm not disagreeing with

you, I'm just asking: What if you help people to be aware of the problem and they do nothing about it, because they can't?

*Lani***:** That brings us back to Victor's case study on the Vaal. I would like to know how that public grouping was formed.

*Victor***:** The forums came from around 1996 in the upper Vaal. The first one, Grootvlei, was formed because of the toxicity of mining water. Actually all the water quality problems, including Rietspruit, came because of a fight about pollution against Iscor, specifically there and in Vanderbijlpark. The Vaal Environmental Justice Alliance was formed in 2004 partly out of frustration but also because the Green Drop strategy from Water Affairs gave people an opportunity to work with the regulator . The regulator, Water Affairs, is also an activist.

*Derick***:** I haven't seen any evidence of that.

*Victor***:** We forget it, or politicians forget it or confuse us, but the government actually belongs to us and people-centred participatory democracy rests on that principle. The point of having Water Affairs as a regulator is exactly that, to look after our water resources and to make sure that people get water. That is what it is supposed to be about, and even if reality doesn't quite conform with it, that is where we are going.

*Lani***:** Ditshego, The Water Information Network –South Africa's whole function is to help build capacity in local government or share information – has it worked?

*Ditshego***:** As everyone who has worked with information or communication knows, the norm has to been produce and disseminate. As long as you have disseminated X number of newsletters, it is like you have done your job. In WIN we have tried to go further and ask how this information has helped. But I must admit that it is only at an individual level that we know that. As a programme we don't have that information.

Lani: As far as I know you capture lessons learnt from municipalities about water and sanitation and then you disseminate it to other local municipalities.

*Ditshego***:** We use different methods. One is to put together case studies that we disseminate. Another is peer-to-peer learning. I think the most effective are peer reviews where a group of water service managers from different districts come together to review one of their peers and see how they are currently doing it. This identifies the challenges and afterwards the peer group being reviewed will come up with a strategy to say this is what we are doing. In 2008 we did a peer review for Ekahlamba Municipality, and according to the feedback we get from the Ekahlamba water service manager, he says that since the review he now understands where he is going.

*Lani***:** He doesn't feel under attack?

*Ditshego***:** No, because the peer review does not set out to tell someone they are stupid. We rather emphasise that as peers we have similar challenges. So one will talk about this is what he did, what worked for him, what didn't work. Victor also participated in these peer reviews as Mvula Trust. We have experts in certain fields to come and share.

Naming and shaming and journalism

*Victor***:** We are talking about production of knowledge, production and packaging of knowledge. The Water Information Network-South Africa produces it in quite a dialogic way between consenting municipalities and practitioners. But peer review inevitably implies peer pressure, because there are professional standards for practitioners, there is the comparison with what is done internationally, there are things they can't get away with. It is an effective way of doing things, and we've done a lot of it ourselves, but I do fear that in peer reviewing there is sometimes a temptation of describing things as successes and being very diplomatic, and not naming the real idiots.

*Ditshego***:** I also realise that in some cases we don't know how the community feels, because the view we're hearing is that of the municipality. And they only tell us about the general challenges, not about other underlying issues that we never get to know about. That is a big challenge for the sector. How do we address that? Do we have the mandate to name and shame in our lessons? Or to say how badly something is managed?

*Victor***:** I think it is very important because shaming kills learning and it kills admitting your mistakes and being human. I don't think we have thought this issue through far enough.

*Wilma***:** But you can phrase it in such a way that the learning comes out without the shame. I think we all need to change our attitudes and get away from the shame words. To get to the point when someone says I have a problem, please help me. While we are looking at it as a shame issue, we will never get it because people will not admit to it. Then you can't improve.

*Ditshego***:** With us a real dilemma came with the Ekahlamba case, the drinking water quality problem there. At first the title our report was Drinking Water Quality and the Death of Babies. The intention was not to say you killed the babies, but the fact is that around 80 babies died in Ekahlamba. That was a reality. And it was during the election period. We were told hang on because if this is going to be published now, during this campaigning period, it won't work. Do you tell it as it is, or do you play by the rules?

*Lani***:** At the Water Research Commission we have had a tumultuous relationship with the Department of Water Affairs from time to time, because sometimes the results of the research we fund is not always the message that they would like to have portrayed to the public. As a public entity all of our project results should and do end up in the public domain regardless of the outcome. We feel that it is important for people to know the truth though -- not

because of naming and shaming, but to work towards a solution. We are now working on ways of informing the department of so-called controversial projects prior to their hitting the public arena so that the department can be informed and give an appropriate response.

*Wilma***:** There was this case study in the Western Cape, again with the River Health Programme. A few years ago, one of these green programmes – maybe 50/50 – brought journalists in to come and see. Water Affairs tried to make things look better. To show how they monitor river health they took the television crew first to a good river and then to a poor river, and showed them the difference. Water Affairs explained that this is how they find out that the river is not in a good state and this is what they planned to do about it. But then the television crew went off to find people who would say things about how Water Affairs wasn't doing its work. And the focus of the whole programme shifted to 'Water Affairs is not doing its work'. Meanwhile it was Water Affairs that had initiated the story in the first place.

*Jane***:** That is just bad journalism.

*Wilma***:** But that's the way it happens. When the journalists came to our offices and I told them you already know the story you want to do, so don't waste my time, I'm not going to give you information. The guy got cross with me.

*Victor***:** Some Water Affairs people do their work well and they are limited by their mandate, but the public doesn't care because they are drinking from a dirty river and the fish are dying. That is why they want to know: 'Did negligence happen or not? Can I take the company/the municipality to court? Will I have enough money to do this? Will it solve the problem?' In the Save the Vaal environment, that is what we do. But there is such a diversity of how different people are positioned in different ways, that you can't say this is right and this is wrong. It is just a boisterous game of public opinion. The press, bless them, have got three hours to do a big responsible story which includes thinking about the ethics, but the news editor starts shouting at you. So you phone your four contacts and what they give you is what you go with, and you publish.

*Wilma***:** It takes so much more effort from the journalist to do a good factual story, especially if it is scientifically based, and they don't get paid for the extra hours spent researching. So even if the newspaper does have a dedicated science or environmental section, if it doesn't sell the newspaper there is a problem to be able to carry the story forward.

Marian: There are some passionate environmental journalists who are really out there for the good of the environment. We have 47 million people who want clean water and a clean environment, so if there is someone sitting in a position who is not doing his job or not knowing how to do his job, and the public is starting to ask questions about that, then hopefully that environment-loving journo picks up that story and runs with it. If we can use the media in the right way we can get everyone together and actually start working together to solve this thing.

Wilma: Yes the media has a role, but it's not the ideal role, because they want to sell papers and they think that sensation does that. And in a sense it does, because that is why *You* and *Huisgenoot* sell well. I've stopped buying newspapers just to make a point that I don't go for the sensation: give me the facts. What is the role of the Water Research Commission in this? It comes back to our main question: Up to what point should the Water Research Commission take on the communication? And if it's only up to a certain point – maybe halfway – then who is going to take it forward? And who is going to fund that extension? Leaving it where it is now is not the answer.

The Water Research Commission's role and its limits

*Ditshego***:** On the role of the Water Research Commission, I think it has to do with the whole process of mediation. For us, the challenge is to identify the mediators and what is in it for that mediator. For example, we can tell councillors one thing and they may understand, but by the time the message gets to the community it is something else, because the councillors also have their own agendas. So whether it is the media or the ward councillor or the Non Governmental Organisation, we still have the same problem --- who is going to take that information down to the people?

*Derick***:** I totally agree. I think the role of knowledge and research is to help people to ask the right questions, not to do the job. Water Affairs has people employed to deal with technical issues. They have got to run the water treatment plants, and if they are not working then it is the public's responsibility to say, excuse me, there are standards for the treatment of water, and why are we not meeting them. Local government has got to ask those questions too. If we are talking about communities, people not in the employ of water management, then the role of research is to ask the right questions. The articles have got to be out there saying: Did you know if this happens, you can do this?

At the same time we need to be clear on what responsibilities we expect of these communities. We assume we can give them lots of knowledge and then say 'Go ahead, regulate and monitor, interact with transgressors, take people to court', when they are just poor people out there, farming and trying to survive. We can't just say 'You have the knowledge, you live in a democracy, now use it.'

*Jane***:** This issue came up in one of my interviews in Cape Town. There was a Non Governmental Organisation providing very simple ways through which urban communities could do a certain amount of storm water drainage for themselves. A lot of communities said they would not touch it. Their rationale was if they went ahead with this they would get absolutely no help from government and would be expected to sort everything out themselves. They connected having the knowledge with not getting the help they were expecting from local government.

Victor: I think we do load communities with unnecessary and burdensome tasks. We are witnessing the 'informalisation' of really important things like HIV/AIDS caregivers and village water committees. Members of water committees get R200 a month for having to manage conflict in relation to restricting the water supply. You can drink the water, but if your cousin comes from town and he washes his car he is in deep trouble. People's houses can get burnt because of illegal connections.

*Lani***:** On the other hand, some communities do take on the responsibility. Take the community of Sannieshof, they have taken the whole of the municipal services role into their own hands. We have a very good relationship with them because they have been asking for the resources they need to be able to talk with knowledge.

*Derick***:** Let's look at the social role of the researchers who are producing the resources. For much Water Research Commission research, the researchers are not fulfilling their responsibility to explain the implications of the research, for, say local government. The Water Research Commission needs to collar those researchers and say that you have produced a document that says this, so what are the implications for communities living in a rural area.

*Victor***:** The researcher should be given a clear understanding from the Water Research Commission that they are researching in the public interest. The public expects the research to say, 'These are the thousand-odd water treatment works, this is what it means, this is what the law says, this is what is dangerous to public health, and this is what can be done.' It is not the researcher's job to make those political decisions and it is also not the researcher's job to protect Water Affairs, even if the budget comes through them, or to do public relations for Water Affairs. Their job is to state clearly what the situation is. I'm not sure this is being communicated to the researchers when they start work. They should get extra reassurance and encouragement.

Lani: In the past we had, and we still have, steering committees for every project. The government's component in those steering communities used to be quite strong because we had excellent people in Water Affairs, from national down to local. But they are not there anymore, those people are now sitting in consultancies and doing their own thing, and/or going overseas or retiring. We used to rely on Water Affairs people to go back to their departments and do something with the understanding and information that they had got from being on the steering committee. Obviously that is not happening. So yes, maybe you are right, we need to push from our side.

Victor: We need a researchers' charter, maybe it could be titled *Research in the public interest*. In our work we look at some of the mining research reports. Some of them have the mining environmental managers and the PR managers editing them. The same happens at Water Research Commission and at the GeoScience Council. I would say that a large percentage of the mining environmental impact reports are censored. That is definitely not in the public interest. There are all sorts of commercial corporate interests,

specifically on pollution, that I could name. You need to define the public interest and to give that freedom to the researchers, and defend it and protect it.

Robert: How does the Water Research Commission ensure that research being done in the public interest? What happens to their resources? Given what we have heard, it's not enough to physically distribute them, so how far do the Water Research Commission's responsibilities go? Where do the Water Research Commission's boundaries end?

Lani: Let me begin by explaining how the Water Research Commission cycle works. Briefly, we call for proposals, then we review the proposals, and then, based on the thorough internal and external review of those proposals the research grants are made. These decisions are made by the executive team with outside reviewers who would, for example, recommend that particular research be done in a particular direction. Once that is decided, the research goes ahead. The end product in most cases is one or more research reports. Then the report gets disseminated.

Usually the steering committee and the researcher will have a pretty good idea about who they want the audience to be, or who they want to send it to. Then sometimes, after a bit of technical coaching, Hlengiwe or myself will repackage the report for different audiences. Hlengiwe might write a press release for the media. I might write an article for the *Water Wheel*. We also produce technical briefs which are one-page documents that are sent out to policy makers and decision makers, summarising the research and our recommendations. So it gets repackaged in different ways. Sometimes we have a conference or a workshop pertaining to that research subject and we take copies for people to take away with them.

Hlengiwe: We also have our website from which people are now able to download reports. If they are stuck, they e-mail us (info@Water Research Commission.org.za) asking for the report: this comes directly to me. People who are interested in particular reports request that these be posted to them.

Lani: So at the moment our mandate pretty much stops at the resource – producing that resource or repackaging it. We don't at this stage take the responsibility of making sure it gets to a particular audience or that that audience uses it.

Wilma: This means the information is still very much within the research community. It doesn't really go beyond there.

Lani: Well in some cases, depending on the subject matter, we'll send it to local authorities, for example, if it pertains to small water treatment plants. But we don't go and check whether it gets there, or whether they actually use it.

Hlengiwe: Just yesterday, I just did something I have not done before: I wrote an e-mail back to the people who have been making requests for reports. Most of them wrote back to say they had benefited from the report, although

some indicated that they didn't get what they expected to get out of the report. This I forwarded to the relevant research manager.

Lani: About two years ago we started what we call 'impact studies'. We look at research programmes that had run for a long time and ask questions such as: Has it made an impact? Are we doing the right thing? Are we doing it the right way? For example, we went back to research programmes on membranes, ground water, water quality, and sludge management guidelines. We find out what has happened since this research was done. Sometimes you get a good answer, sometimes not. Like with water quality, we certainly have not done enough there.

*Wilma***:** I know there is an impact study for the River Health Programme.

Lani: Yes, and that report said that the science that came out of the River Health Programme was wonderful but that it failed to change policy and to change the health of our rivers.

*Derick***:** Unless research is designed to be transformative you can't make the assumption that it is going to change things: it's information, so it's not going to transform anything unless you design it to do that.

*Wilda***:** The decanting research that Lani spoke about was conducted 40 years ago: she can show a report where they said, within a meter to half a meter, that this is going to happen and it is now happening. Which means that research can show that something is a problem, and recommend that something be done about it, but you can't implement it.

The mediation of Water Research Commission research

*Derick***:** It is unfair for us to ask the Water Research Commission to pick up the responsibility of carrying out the full mediation of their research. They try very hard to extend themselves beyond their mandate by doing the *Water Wheel.* Those are additional responsibilities that they have taken on, but I still think there are other opportunities that we need to explore. Their project cycle could include some of the social dimensions of research. For example in the call for proposals they could ask what the implications of the research are going to be for society and the economy. A researcher could also be obliged to produce a pamphlet or a media release in addition to the report.

*Lani***:** We have actually started building that into some of the contracts. In the deliverables it says, in addition to your report, you have to write at least one understandable article for the public.

*Derick***:** But it would have to be more than an abstract or an executive summary. You should be able to go further and spell out what the implications of the research are for local government or for the management of the resource.

*Ditshego***:** We have realised that once we have a research document that we can extend beyond the Water Research Commission cycle, we can take it and repackage it. We can take the most practical aspects from that research – produce it as another lesson for the Water Information Network-South Africa, for example.

Currently we are working on repackaging water quality research on the domestic storage of water. The researchers looked at the impact of drinking water quality on people who were HIV positive or had AIDS. What they found was that many rural households store water in containers, but contaminate it by the way they store it. I didn't even know this for myself. So we have decided to produce a stand-alone document from the research, but given that it is important for those households to know the implications, how are we going to do this? The research report is over a hundred pages and I have to read it about five times.

*Wilda***:** It extremely difficult to explain to people. Apparently it's because you have your own germs in the family, but the moment you go and collect tap water, you get germs from outside which could be worse than the ones you have. It is actually OK to have 'own-contaminated' water because you build up your own resistance. But how do you explain that to people?

Derick: You have to say things like 'Don't swop containers'. 'Be careful about the use of your containers.' Simple messages. 'Keep them closed, rinse them.' 'Five important things to do when you collect water'. That is what people really want to know.

*Wilda***:** The research says that you should actually have your own tap.

*Derick***:** That will certainly encourage illegal connections.

Ditshego: And you can store your water in a clay pot. Modernise the clay pot.

*Victor***:** I would like to propose something for this specific project – domestic water storage. The Water Research Commission is not responsible for the mediation, as Derick said. But think of what needs to be done at the interface once the research has been done. The interface function would be to identify all the research, and also identify who it is relevant for. Who is it going to make a difference to? What is the community of interest? It could be local government, it could be rural, people using the water and storing it, it could be health people. Make a specific effort to identify the community of interest before you release the report. I know in those proposals you have to say what it means for society, environment and economy and so on. It is quite abstract, so maybe make it more specific, even if it means the researchers need support on this. Somebody like Ditshego saying I'm analysing this report and I have come to the conclusion that it would be useful to these and these and these people.

Then as a second phase you may try to start changing the social structure around the Water Research Commission, because at the moment it is very

much research communities and academic communities and practitioner communities. Practically speaking it would mean that every time you identify communities of interest using the report you can strengthen them, in the sense that they come into the research process by identifying things that are important to them. The current way is an insider decision-making process to advance knowledge.

*Wilda***:** But Ditshego is only one person, she does not have the manpower to do that. The researchers themselves should do that, you can't rely on that one person to play this role for all the different researchers.

*Wilma***:** Just a reality check on this, we are already short of scientists in our country and now you want to take what they have to do already and spread it thinner. I'm one of the few who have got my feet in both scientific research and communication but that is only because I have a passion for both. But Heidi Snyman, the Water Research Commission's Director of Water Centred Knowledge, when she opened this meeting, said the Water Research Commission was actually looking at starting a whole new group or research area for this.

Lani **:** Yes, it involves expanding KSA5, which is our communications group.

*Derick***:** I do think at the proposal level the researchers should say: I think this work is going to be relevant for local government and the application of this work is likely to be that it will affect the stormwater in households, etc. If the researcher identifies that, it is easier for Lani to say "these are the kind of things local government may be interested in". So she sets up the relationship with SAGA or the Water Information Network –South Africa project and says, "Look there are a potentially new series of programmes coming out of the new submissions and they are all local-specific. Let's see what we can do with them."

*Lani***:** That is what I hope. I don't want to say that the other KSAs look down on us, but we are always, "Ag, you know, that is for KSA5". So maybe by emphasizing the importance of the communication...

*Derick***:** It is not less important than the science. It is an obligation of scientists in the service of the community and society to generate relevant stuff and to say how it is relevant.

*Victor***:** If we look at the history of the Water Research Commission, it is completely scientist-dominated. Not only that, there are some scientists who do the science beautifully and then they include some social science as an afterthought, but really badly. Because they are scientists they think that they can pronounce on the social implications, and sometimes it is embarrassing. Water has a scientific basis and no one will argue with that, but in the environmental sciences, natural science tends to get extended into social science without justification. This hasn't been noticed much, even though the concept transfer is often offensive. It reflects a managerial-scientific type of view which is no longer workable.

What are really needed are social scientists who know how to read science. There are a few, mainly anthropologists and sociologists. You need to make place within the Water Research Commission for them and use them.

Jane: When I interviewed Willie Enright, who is great at mediating information, he suggested that Water Research Commission steering committees could include people who are going to use the information. This arrangement would ensure that they are aware of what is happening and they can also say "If I'm going to use this information it needs to be more focused over here". They would be more engaged in the research process, or at least be able to comment on it as it is happening. If not the end users of the research, then at least mediators who will mediate the information.

Victor: I don't think it's as bleak as you suggest. It sounds likely that KSA5 will become a more strategic part of the operations, that it will be strengthened and get more staff and can undertake some of these functions, there is a movement and a desire to do that. And if it's correctly positioned, the whole organisation will see how important it is. Once researchers understand that KSA5 will get their voice heard out there, they're all going to be happy with that and I think it will have support.

Lani: I hope you're right because at the moment it is me and Hlengiwe and 400 research projects.

Derick: You can group them. They are already in themes – for example a lot of what is coming out of the Water Research Commission relates to water quality. And one can narrow it further to the water quality issues that need to be put out to non-scientists. I'm really not interested in water quality issues around, say, the amount of titanium in a particular instance. Nor are most people. Sending that kind of information out broadly falls on deaf ears.

Wilma: I also understand where Lani comes from, because if there is a funding limit, who is going to get cut? The communication people. We've been writing the communication into all our strategies, proposing 5% be made available for the communication side. Did anyone budget that 5%? No they didn't.

Victor: I understand that. If you were a business and you didn't communicate, you would go down. But if you are a parastatal it makes no difference, so there is no incentive. It feels like a moral obligation, nice to have, but not essential. If that is the dynamic maybe we should look at changing that somehow.

Wilma: We need more individuals who feel "I want to make a difference." We need to get more people passionate.

Victor: Well one small part of it is to generate an ethos of things in the public interest as being very important, so if you don't have that passion there is something wrong with you. To create that kind of atmosphere, like in the Council for Science and Industrial Research with Tony Turton for example --

with all his brashness, he was doing something in the public interest, even if it didn't work out. It's about building a culture of how intellectuals or researchers conduct themselves in the public sphere, and what our responsibility is concerning knowledge in the public sphere. Unfortunately it gets undermined by our ideas of authority, not getting into trouble, notions of "this is my job" and "this is my contract" and "this is all I need to do" to get my salary. There is far too much of a narrow money-oriented type of thinking which is also not in the public interest.

*Wilma***:** It also relates to perceptions about the role of the scientist. But I can say that at the University of Stellenbosch where I graduated now, you can't get your masters degree if you haven't done a course on communicating with the public. Which to me is great. So there is a light bulb on somewhere. How long before it becomes a critical mass and changes the culture, we don't know.

*Derick***:** I think there are some simple things that the Water Research Commission can do. For example in the project cycle where the proposal goes to the outside reviewer. That letter can say, please when you review this proposal be very clear that it is adequately addressing the implications and specifies the target audience. The Water Research Commission has the power to reject a proposal because it is not clear how it will benefit the management of water in the public interest. If this is made known to researchers, in an instant everybody will be doing it.

And another thing that I would recommend for Lani's unit: instead of reading the project report to extract information, read the project proposals because they are often great summaries of what the project is intended to do.

Wilma: And there should be a dedicated group at the Water Research Commission who can help the project team decide what the impact should be and then help them with that communication. If the researchers can prove that they have got enough capacity themselves, and they do it well, then they could claim the money budgeted for that in the end. But it is something the Water Research Commission would keep back until it has been proven.

*Victor***:** What would also be useful is a review of past Water Research Commission research that is clearly in the public interest. I actually found the water quality guidelines very useful to students who adopted them as textbooks. Instead of somebody reading a textbook they could learn their water quality stuff from there. And there may be other examples like that. I would propose such a project because it would advertise the Water Research Commission's past work in the public interest, and point to successes.

Hlengiwe: I think recently we have actually given permission to the University of Johannesburg to use our reports as their material. They're not allowed to sell them.

Disseminating research in different languages

Lani: What is the need for us to create resources in other languages?

Wilma: I want to say something about learning and language. My children were raised in Afrikaans. They were taught at school in Afrikaans. But they prefer at varsity to do their assignments in English. I ask them, why? And they say it is so much easier, because the textbooks are in English. We are not going to change the world's textbooks are we? So I have given up. For myself, if somebody asks me to do an Afrikaans presentation on a technical subject, I cannot do it. I feel ashamed halfway through because I'm using so many English words. I've seen it in the rural schools, the children can have their mother tongue up to grade 4. In grade 4 they start bringing in English. I don't know how well they really understand their mother tongue by that time, because for the rest of their life they get it in English.

For the State of the Rivers posters, we had some professionally translated into other languages. When I got to one meeting with my translation, the Water Affairs people looked at that and said 'What language is this?' I said, its isiXhosa, that's what you asked for. They said, 'No that is the textbook isiXhosa, we don't understand it.' So it's a minefield. Even in Afrikaans we have all these dialects. If I speak my Gauteng Afrikaans in the Western Cape there are some words I really don't understand that they use down there. As for the Afrikaans in the townships in the Western Cape, that is another language. We don't have 11 languages in our country, we've got 50. How do we battle this? I don't know.

Derick: We just do it.

Victor: What you say is true. I'm a student of Sotho and I find that I'm actually learning five languages, because there is "proper Sotho" and "deep Sotho" and various other things. But language is always like that. However, there is a political discussion programme on television that seems to be in many languages, I don't know the name.

Hlengiwe: It's called *Asikulume*.

Victor: What's striking about it is its accessibility. You can follow between the Sotho and the Zulu and the English, you get what is going on. And secondly, people can enter into it, they are free to participate, in different languages. So it is accessible from the point of view of both talking and hearing. It shows that linguistic correctness is also a tool of control. Broederbond Afrikaans, Beeld Afrikaans, those things were completely ridiculous. In the same way you get people who talk about keeping 'our culture' and speak a very deep Sotho – it is all power play. But if your objectives are not to get it right, but to have accessibility and possibility for all sorts of people to engage and participate, then I don't care if somebody thinks this dialect is more Pondo than Xhosa.

*Wilma***:** Yes but when you mentioned 'talking and hearing' that is interactive, it is sound. Whether reading matter should be translated is a totally different matter.

*Victor***:** I've seen people taking a magazine that we worked on, an English magazine, and the one person who can read, reads it to 10 or 20 people. It is a good way of transporting something into a place where people use it. We can't say that reading doesn't work at all, because it depends where and how it is transported into a situation.

*Ditshego***:** We can learn some lessons from the government communications department GCIS. They produce a magazine targeted at poorer people. They translate it into the 11 languages, actually 12 because they also do Braille for the blind. They do reader research to find out how it is doing. We couldn't afford that, but maybe we shouldn't be looking at reading for everyone. For example at a community level, we could provide resources to community radio stations for people to understand in their language.

Once I attended a community meeting. They were talking about why people should pay for their outstanding accounts, because the municipality was cutting people's water and electricity. The communications team that came to the meeting were local guys, they spoke Tsonga, but they could not translate the technical words. The financial words they were just saying in English. How am I going to say "tariffs" in Tsonga?

*Derick***:** 'Ama-tariff'.

*Wilma***:** I found similar issues when I did my schools questionnaire. In my first round I handed out either English or isiXhosa questionnaires. Then I found that the kids in school didn't want to take just one, they want both. So in my next round, I thought let me put the English and the other language out there, if they don't understand a question in the one language they could just refer back to the other one. That actually worked well. OK, it doubled the amount of paper, but I got better information.

Your specific target depends on where you go. If it is a more educated group, go for English. If you really want to target the community – the rural community, the people on the ground – you need to bring in other languages. But the technical terms are a problem

*Derick***:** People don't need the more technical documents in Sesotho or Xitsonga, but if we are working with rural communities we are doing them a big disservice if we drop our African languages. We must talk about domestic water storage or raising questions of water rights in their language. People say the 'ama-tariffs' kind of words, you hear them all the time, so what if it is not pure. What is more important is getting the discussion going and getting people feeling like they're part of it. If you give them the words in their language, they are going to participate. If you just talk in English, you will end up being the only person talking.

Hlengiwe: Last week a radio station, I think it was Umhlobo wa nene, called us because there had been a story in the *Herald* that Nelson Mandela Bay does not have a backup plan for the city's shortage of water. Umhlobo wa nene asked the Water Research Commission to come and explain, and we had to find a research manager who could do so in their own language. We are lucky to have a Xhosa speaking research manager, so in his private time he went to see them and explained very well.

Then there was also a call from people living near a rural water treatment system in the Eastern Cape. Again we were able to send a Xhosa speaking person. The people at that meeting were actually amazed, they hadn't understood how development used up so much water. They said please come back with this information, we are so interested, we are keen to know about agriculture too. So they were free to express themselves and ask questions and therefore to learn quickly. In my experience we don't only have a problem with rural people, even the people in Parliament, if you give them a technical document they will say this is too complicated for us, rather come and tell us what you have done.

Non-print media

Marian: All the paper and pamphlets… they really end up in the rivers. People want to hear, they want to see. Television has the biggest impact on people because it is visuals and it is sound. We have to think about using cell phones and other media.

Ditshego: It would be interesting to target 10 communities and monitor that and know you have achieved something.

Marian: In each and every community that I have been through in our country they all have their own 'sinani sinani' radio station right there. They don't listen to the national radio stations, they don't read the national newspapers. It is only the people in the cities who do that. The moment you go rural they support their own things. They listen to their African National Congress member in their area. They go to their community centre. They listen to their madala who is sitting there even though he's 92 years old. I believe if you really want to have an impact you should get communities to educate themselves by using organisations and institutions that are already in the community.

Victor: It's a very important issue – mediation and how information is shared and used – and the examples that you use rely on informal, voluntary, sommer lucky happenings. That is all beautiful but it is an extra. It is not supported, regarded, encouraged, recognized, rewarded. It is not part of the real business. Maybe that is part of the blockage. Maybe because the definition of knowledge is restricted to a research definition.

*Derick***:** How would you use cell phones in water resource management? Is it to monitor things? Is it to let people know there is something wrong with the water resource?

*Wilda***:** I know at the University of KwaZulu-Natal in their media studies and communications department they are specifically looking at how to communicate health issues. They established a whole specialist institute on that. That is something to look at.

*Victor***:** We could imagine something like water outreach offices maybe working under Water Affairs. They could be invited to Water Research Commission to share some exciting and relevant research and they then talk about it when they do their outreach work. What would be comfortable for them? What language? What format? Would they prefer to go out with videos they can show with recordings, or just attend a session and talk about it later on?

*Marian***:** In most hospital queues you spend from five to six hours waiting. People sleep in the waiting room. So while they are queuing from 4am in the morning you could have the television running a water education programme. People are queuing there in their masses and they are doing it every single month, sometimes four or five times a month. Pension queues too.

*Victor***:** Or a community theatre group like I saw in Gauteng. People explaining global warming through theatre. And there are community centres all over.

*Wilda***:** There are rules about putting videos in hospitals. I have tried and they said sorry, people come to hospitals sick they don't want any other crap.

*Derick***:** But if you approach hospitals with a Water Affairs project they might be interested. You are not advertising pots or shoes. It's a health issue.

*Wilda***:** One way to use cell phones is to link water issues to locality. Say for instance you are travelling north, you can get a SMS when you reach a certain area 'remember this is a drought area' or another awareness message. Something simple.

*Marian***:** You go to the cell phone company and make it their social responsibility.

*Victor***:** We have mentioned some media studies departments where some of this alternative media work takes place, so it would be worth contacting them and suggest that they take up some water communication research, especially if the Water Research Commission put some money into them.

Derick: For our rivers programme in the Lowveld, we have a real need for monitoring- based information to get out to people. We speak to various sectors and ask if they are aware of the issues around water quality in the Letaba River. They are so worried about how bad it is that they would rather say "I don't want to know". But if they did want to know – and I believe that

they really do – where would they go? How could they access the water quality data base at Water Affairs ? Who would fund for that to be published once a month or once a week? This relates to general awareness of water issues, because the reason that there is no ongoing debate around the current state of rivers is because people don't know the current state.

Victor: In the case of the Upper Vaal, historically Rand Water have an interest in catchment management to get clean, raw water – among other things, they pay less for treating it. They maintain a website. We can see the weather, the state of the dams, and all these reports and minutes, so it is well developed. But if you look at the rest of the country there are only a few official Catchment Management Agencies, I think it's only 2 out of 19. The sub-catchment forums are not official. Some of them have become very unhappy about the one trying to deal with the coal at the start of the Olifants. Catchment management, public participation and water quality is underfunded and under-recognised. Even with a catchment-wide CMA but there is nothing underneath, in between.

Derick: That awareness should be regionalised with a 'red light' kind of alert process. Did you know that six of the rivers in this water management area are in serious trouble. All the Catchment Management Agencies should have a media communications department. The Inkomati has such a person.

Victor: But there is the strategic plan and that gives you indicators that could be live on a website.

Marian: Not a lot of people have access to websites.

Victor: I agree, but it is a chain of communication, there are some places where the information is there, and they must be linked up until it gets to the people. The website may not talk to the village but maybe the community radio gets to the website, so you have a whole chain of communication.

Derick: Then you can list the local governments and how they are doing with their water quality. Like in Carolina: the local government guys say to us, "We are so embarrassed every time we are caught out". If the public knew they were drinking raw sewage in Carolina I don't think they would be very happy.

The need for mediation

Jane: The need for mediators seems to keep coming up. There is information in one place and it needs to get somewhere else, and there is often this big gap in the middle. Everyone around this table could probably be classified as a mediator in some way or other. So let's think about what skills we have that enable us to translate and access knowledge. There are many people who know, but just don't know how to translate that knowledge in a way that people understand. It needs a bit of self-reflection: 'How have I been mediating information? Where do I access it? What skills do I have that would

be useful for providing training or supporting people to learn how to be better mediators?'

Wilma: I think the first thing is the passion. To have the passion for what you are doing. How do you breathe the passion into someone that doesn't have it?

Derick: Pay them. That is the best way.

Jane: I'm asking us to reflect on our own practice. To take myself as an example. I could be sitting with a community group or a catchment forum, and I will realise from the discussion that they need to get hold of certain information. I'll know where to get it from, I'll go to the right Water Research Commission report or contact Water Affairs, and get the information. Then I'll present it in a form that is appropriate, maybe in drama form, or decide no, a drama won't work here, it needs to be pamphlet. These are the kinds of mediator skills that have become ingrained in us through our practice. We need ask what exactly is needed for somebody to be able to do this, if they are an extension officer or a Non Governmental Organisation worker.

Victor: An interest in the content is needed. Because you usually put in extra hours, you need to enjoy it. And you need to recognise people who would want it and the format that would work. Those are three components. Plus a drive or passion or idealism or agenda as to why you need it to happen.

Derick: In addition to that, you have to be able to organise the Water Research Commission information, think through what is regional-specific, and work out whether there are national guidelines that are applicable. And then the other thing is that the mediation needs direction and context, you can't just go and mediate in the middle of a shopping centre. You have to mediate for the development of the catchment management strategy. If the purpose is to develop water quality objectives, you have to ask what research has the Water Research Commission got that will help the Catchment Management Agency develop these. So it is trying to work out what water resources management in the public domain looks like according to the National Water Act and what research is there to support that process. If we are doing water allocation planning, what studies are there that are valuable – groundwater studies, for instance. A water allocation plan is a difficult task, people are always going to fight and there is going to be tension. They will need evidence, and the Water Research Commission is sitting on quite a lot of that evidence.

Wilma: So the mediator should be able to see the bigger picture, to know what is available and what is needed, and put them together.

Derick: That's it exactly. The bigger picture is the National Water Act. Research outside of what the National Water Act is asking is fine and useful, but our main struggle is to get the Act really operationalised.

Wilda: Maybe if we look at Non Governmental Organsiation's, they are already out there in the field doing a lot of fantastic work. Shouldn't the Water Research Commission take a more proactive role and go to these Non Governmental Organisations and say 'We want to empower you with information?' Instead of inventing a new job called water research mediator, rather go to those people that are already there and connect with them and empower them.

Victor: I support that strongly. An important part of mediation would be to identify the need or the demand of people wanting to do something with that information. These citizens or interest groups are autonomous agents and they are there for their own sake: they've got a plan. So facilitating the mediation role is as important as actually doing it. Make it so it connects easily and people know about it.

Robert: Doesn't all this imply that the Water Research Commission should have at least one person dedicated to this interface? Somebody who has got that bigger picture and can call a press conference whenever new research comes out – call the active water Non Governmental Organisations or local government people together and tell them this is happening.

Ditshego: On the issue of training, say with Non Governmental Organisations, the Water Research Commission must build capacity, run an initiative to build knowledge sharing and mediating, because it doesn't mean that by being a Non Governmental Organisation you know how to fulfil this role.

Victor: It would be interesting to do a research project starting from the village level, say Qobo in Eastern Cape, asking questions like: Where do people in the village get their information about water from? Who do they talk to? Do they talk to the ward councillor? Do they just have information amongst themselves? Do they connect? They probably have a sense that there is a central source of information about policy and rights and so on. Maybe the district has a map of the catchment and it is in the Reconstruction and Development Programme, so there are central sources of information. The question is: Can people in a village access these sources of information, and what would be the different steps they would need to go through to get the answer they are looking for? If you did it from that level you could identify who all the intermediaries are.

Wilda: In other words, turn the process around. Instead of trying to understand how knowledge from the Water Research Commission goes out there, you go to the community and say where and do they go to for their information and then try and link the two.

Wilma: The National Research Foundation had a project like that called RADUSA (Research and Development Uptake in South Africa). It would be worth exploring how it worked. It linked research and communities, both ways -- how research gets into communities and communities can influence research.

Derick: I still don't know what information or research we want communities to know about.

Victor: Well, go back to this fictitious example of Qobo. They must ensure that their village doesn't use too much water because otherwise their irrigation scheme will collapse. They should know it's their right to access productive water but what if they've got 15 illegal connections and they don't have a means of stopping that. For that problem there is information even before they ask the questions. They would need to know how to deal with that because otherwise the problem will just get bigger and bigger.

Wilma: If we are looking at Non Governmental Organisations as possible mediators, how will the Water Research Commission assist them? Non Governmental Organisations? You cannot just dump this role on them.

Derick: And they will need money, as Non Governmental Organisations are cash strapped.

Victor: Before we go any further into this, we should remind ourselves of the Water Research Commission's role and mandate. I think it is to create knowledge or to provide knowledge to help water management. What is the actual wording?

Lani: To co-ordinate and communicate water research.

Victor: So it's defined as research, not just information.

Wilma: The Water Research Commission helped fund the first set of Health of River reports, but then they said. It is not our mandate to fund this. So getting the message further out – that is the problem.

Victor: I wonder whose problem it is.

Derick: Water Affairs' problem.

Lani: Our question is: How far do we need to push before someone takes it on?

Victor: That is nicely put.

Jane: The Water Research Commission oversees research, and it can do certain things with the research, but then the role of mediating the research is up to someone else, including the logistics of taking resources somewhere. Maybe the Water Research Commission could support looking at how to develop some kind of training programme to help people work with disseminating research and what we have been calling mediation.

Victor: It sounds to me that the Water Research Commission is not going to take responsibility for the whole mediation realm but at least it can research this realm.

Jane: Yes exactly, and make it clearer, and suggest solutions.

Derick: I also think there is a role for the Water Research Commission to do some of the research synthesis needed by mediators. That would make the mediators' jobs a lot easier.

Victor: And do some research on who is likely to use it and how it can be better targeted and packaged – and used.

Jane: That we can take forward as a strong recommendation. I know the HSRC have done some research in this area.

Wilda: If you look at communication theories, the first thing you ask is who is your target audience.

Water Research Commission research and Water Resource Management

Derick: What is important here is that KSA5 is starting to oversee the dialogical processes that are going on. So from a meta-research position, this process of thinking about what we do with a national research body's work is quite an important milestone. And this is coming just at the right time, with the catchment management strategies coming on line now. The only reason we at Association of Water and Rural Development have first-hand experience is because we are in the Inkomati, which is the first Catchment Management Agency, and we have been dragged into it. The invitations have just gone out to be part of it, and all the stakeholder groups are going to be there. The local government people will be coming there with very different expectations and very different information. Some have serious misconceptions of what they can and cannot do, which brings us to deep issues about decentralisation or democratisation of water resources management.

In the regionalised forums you are going to see all the dirty laundry come out. And it is no longer "the licence was given to you 10 years ago". The emerging farmers are saying "we have the right to access the water to grow more pumpkins". The mining sector is going to be there with all its vested interests. The reality is they have got to play by the rules, they can either act as Schedule 1 or a general authorisation or whatever but they can't do whatever they like any more. But when the farmers say "We need more pumpkins", the mining sector is going to say "We are generating more revenue per ounce of gold than you are per pumpkin". It sounds trivial but it is where the arguments are going to come from.

Victor: Where is the social reserve?

Wilma: Only in the household 6000 litres.

Victor: Is that all? Is there no food security included, like for gardens?

Wilma: No.

Derick: Well you will have to argue for food security in the allocation and local government will have to argue for your allocation on your behalf. As you see, you have to know the rules and the possibilities. How do we equip people with the basics? How do we get people who are working or designing water management to at least come with the basic tools to have the discussion and use the terminology? Research needs to inform that. How to stop Bushbuck local municipality going on about developing an Integrated Development Plan which is glorious and its ambitious? You don't want to pour cold water on it, but if it oversubscribes the resource by 300 percent, there is no water to develop that Integrated Development Plan.

Wilma: Just to bring the bigger picture in, the Water Research Commission did research on the use of rainwater for growing pumpkins, so yes you can do a lot for food security with 6000 litres if you don't throw it around.

Jane: This is where this project started, people not having access to information to argue their points when it comes to official meetings. Not having the power, the authoritative language that gets their voices heard. It takes us back to where we started.

Victor: Let me give an example of a useful bit of information. If mining water is cleaned according to the 1956 law and returned clean, then it is not a consumptive use, and it should be available. That point needs to be made in those water allocation debates.

Derick: It's also a matter of being proactive. The Water Research Commission needs to go to Catchment Management Agencies when they are setting up their strategy planning workshops and tell them 'This is the research that the Water Research Commission can make available that is potentially valuable to you.' Because they will all have to develop a water conservation and demand management plan, the law demands it. Where are they going to access the information that they can use greywater for pumpkins as a strategy to reduce the overall demand on the resource?

Victor: And also proactively influence the research agenda to respond to that need. I can imagine a resource titled 'Fighting fair for water in a catchment -- a community tool kit to support the weaker and less experienced parties to level the playing field.' You would need to revise it after each fight, but that is part of the transformative agenda.

Derick: I agree. 'What you need to know to not be outmanoeuvred in water resource management. You need to know that you are entitled to a schedule one use, you are entitled to water for productive use, etc. You also need to have a critique of how the big players use water and know what arguments to use to get your fair share.

Wilma: Let's not forget the bigger picture there. If we give more of the people what they are entitled to, the ecosystem gets nothing. And if it dies then there is *really* nothing.

Derick: The law says you can't do anything without taking the reserve into consideration first. Everybody needs to know that. There are still people saying 'To hell with what is in the river, we'll just take whatever we can and if there's nothing left, that's just tough.' People need to know that you can't do that. It is against the law now.

Ditsego: Let me share the experience I've had in my own village. Each and every person there aspires to have a borehole. Those who can afford to drill are going to drill. There are 60 or 80 people who can afford to drill for water, but they are not aware of the consequences. And the local authority is not even part of what is happening there. There are consequences. Who is supposed to create that awareness at that level? People have money to drill for water which they claim as their own water, and they do as they please. There is no one that is informing them that what they are doing is wrong. I'm not going to sit here and let my mother suffer.

Derick: The law says you have to register a borehole, you can pump it under a general authorisation which is 60 litres per second or whatever. If they pump under general authorisation they don't have to have a licence. But if you add them all together the cumulative effect of that use in that municipality could way exceed what is available, which is your concern. Then the Catchment Management Agency or Water Affairs has to step in and say 'Sorry, we can register these boreholes and you have to cut their capacity.' But we are getting into things that Water Affairs should be telling people, not researchers.

Victor: Maybe research should be done on why Water Affairs is not doing it. Why is it so and how can it move from there? We research local government, why don't we research national government?

Lani: In fact we have done research on authorisation and what is happening and what is working, and made recommendations. But it is not answering the question about how far the Water Research Commission can go out of its pure research mandate. And I don't know whether we have the answer.

Conclusion

Jane: OK, let us move towards a close and try and summarise what we have come up with. We have spoken about the idea that knowledge has to be about a dialogue rather than be a message. I think we can say that we recommend a Water Research Commission research product that is aimed at people that are directly serving communities in some way. We also discussed training for such people or at least training resources. And we have also recommended a product or toolbox of resources for people who need to know how to get a fair say in water resource management.

ictor: I would add that the Water Research Commission has to produce for needs that it could reasonably anticipate, and I would encourage more in the area of citizens rights and levelling of playing fields, more products to make it easier for poor communities or communities who have not have access to water. So I would recommend a strong transformative agenda.

A final thanks to the Water Research Commission– I hope you know that the *Water Wheel* is a good magazine. It's already achieving a lot of what we are talking about, and so is the Water Information Network –South Africa. We don't want to leave you with the impression that you have not done anything. It is wonderful to have you.

Lani: And I want to say on behalf of Water Research Commission– thank you to all of you for taking a day out your time and spending it on this. It has been such a lively, enthusiastic and passionate discussion. It has given me a glimmer of hope that we are getting somewhere. A heartfelt thanks for the work that you are all doing. It is important to us.

2. Western Cape Focus Group

Institute of National Biodiversity
5th March 2010

Robert Berold: Jane's been doing interviews with 'water communicators' in different parts of the country about learning resources and research resources – asking what works best, what doesn't work. Some problems are inherent in the resources themselves, how they are written or presented and designed, other problems are problems of access – how resources are distributed and used (or not). We'd like to hear about your experiences.

Glenda Raven, World Wildlife Fund: To approach this, we need to go right back to how we think about learning. For me, learning is not something that happens separately from a process like resource management in a catchment management agency. Learning can very well happen in the setting up of the Catchment Management Agency and in such processes.

Kevin Winters, Dept of Environment and Geographical Sciences, University of Cape Town: I trained as a teacher. I lectured in education for a couple of years, actually. But none of that formal education prepared me very well for the kind of things we are doing now in community level water management. This work has led to me rethink how we learn and transfer knowledge.

Let me explain this by describing our recent work for the Water Research Commission. Our project over the last three years has been about community-based management of grey water. We've been working in peri-urban areas, informal settlements on the edges of various municipalities, none of which have sewerage. The idea has been to encourage participation from the ground up, on the assumption that people have to wait 15 to 20 years for their houses to be built. How do we build capacity in the interim so they can at least deal with two major areas that are causing difficulty in their lives, one being the health issue, and the other the environmental inequality they're facing? Stepping over faeces to get to the local tap is a typical daily experience in these areas. You just wonder how it is that there is no capacity at ground level to change those circumstances.

What we found in these settlements is that waste water is being turfed out in front of people's homes. This mixes with other organics including dysfunctional toilet systems, and flows in and around the settlement. You might ask: Why don't people do something about that? How is it possible that a highly toxic stream of water should be flowing through the settlement, and in one case, through a crèche? How can children be playing with toxic water flowing underneath their jungle gym? How could this situation have continued for seven or eight months in one particular case? Have the local authorities not seen this? Where have they vanished to? These were our questions when we began this project.

I work in an urban water management research unit at the University of Cape Town, which is made up of engineers, geomatics, environmental scientists, chemists, and social anthropologists. We started off this study with the social anthropologists. We did this because we really wanted to build capacity, so a deep understanding of the context was absolutely crucial.

Social anthropologists work in a completely contrary way from the scientific methodology I was brought up in. They just hang out and watch people. They can spend hours and days just watching, sitting under a tree (and getting paid for it!), trying to understand the situation, and this is before they even talk to people. Then they write sixty pages about something that I would only have been able to write one paragraph about.

Their insights were incredibly valuable. From that initial study we were able to see what people were doing on the ground. It turned out they were trying to arrest this flow of water past their homes. Little constructions were being made, very simple things: drains, filters, turning milk cartons upside down and pouring water into them, and so on.

Once the researchers had built up a bit of a picture as to what was going on, they ran some workshops. These were 'show and tell' types of things – books and other materials just didn't work. The workshops were held on a Saturday morning and after that people would go from neighbourhood to neighbourhood, block to block, and build demonstrations of the drainage method. Other people would see how it was done, then copy it. Often these would fail, but that was part of the research process. The researchers would come back, modify it, and ask people to try to build it on from there. It didn't always work because it needs neighbourhood coordination. You can't have a drain that works in one person's home when there is water flowing from a dysfunctional toilet nearby going into that drain. You can't have the neighbour next door connecting a pipe to her basin and sending it fifty metres down the hill into the roadway.

Grey water was only one hook into an integrated understanding of water flows within the settlement. There were bigger needs, such as: Where is the toilet? Where is the easy access to the water? Where is the drainage? Eventually grey water fell off the priority list.

So, if there is any message from that long explanation, it is – understand the context thoroughly, understand the needs of people. I support the idea of workshops, of going back to the old 'show and tell' idea. But it must be based on a clear understanding of the local social structures, the community leaders, the people who can drive the process. Until we had those street committee leaders in place, and understood exactly what was going on the ground, our ability to actually transfer any form of educational capacity was very limited. We used the resources and the materials and the people who were there in order to build the activity and the capacity. It's a method that contradicts just about everything one learns about formal education.

Glenda: A lot of what you've said reminds me of the training experience we had with the Olifants-Doring Catchment Management Agency. The trainer really took time to get know people. In the monitoring and evaluation process I spent a lot of time sitting in the back corner in the workshops and just looking at people's interactions. And I could see that the trainer had gained the people's trust. If people didn't know something they felt easy enough to ask, and they were confident in the response that came from him. In my evaluation I also immersed myself like an anthropologist, I believe that is crucial.

Kevin: Some people might question whether we really have the right to focus on slow processes that reach a limited number of people. Why should we have the luxury of time when we are faced with an enormous crisis of resource despoliation around the country? My answer to that is that building trust is fundamental. Mistrust and distrust is so prevalent in these very poor peri-urban and urban settlements, and if you don't build trust, which takes a lot of time, then nothing you do will work anyway. The fact is that people have been living there for fifteen years; no-one's been helping them.

What we are doing now is working at a slightly different level with the City of Cape Town and some other projects: working with their directors and managers trying to find these institutional blockages. The problem is they can't visit these sites adequately to really take responsibility for what they are doing. We're beginning to think that our biggest capacity building effort should be getting to understand these institutions, what the blockages are, why they can't or won't do certain things, how to educate those managers to take real responsibility for the R600 000+ salaries they are being paid.

Glenda: We found in the Olifants-Doring area that to bring in a contract trainer for a six month period achieved little. Trust does not grow over a short period of time, nor does learning. Ideally we should be working with institutions, trying to locate the capacity within the institution which will make it become sustainable.

Jane: In our Pretoria workshop it was suggested that the Water Research Commission works with mediators such as extension officers, teaching them how to access research, how to facilitate it. It was also suggested that resources developed by the Water Research Commission are framed within the idea of mediation.

Kevin: In some things I've been involved with, Non Governmental Organisations have been vital. A Non Governmental Organisation that knows what is doing, and why, can make a huge difference. Unfortunately for most Non Governmental Organisations the funding is only short term, so four years later the Non Governmental Organisations drops out, and you see how much the project relied upon them to get to where they are.

Willie Enright, WateRight Consulting: Knowledge transfer should take place through institutions, because you can't build capacity for forty million people. By institutions I mean Non Governmental Organisations, Community Based

Organisations, Water User Associations, Catchment Management Agencies, municipalities, all these different structures. Invite all of them -- the Rastafarian groups, the women farmers, and the women's groups. What are the water resources? What are their issues in relation to water resources?

For the Breede-Overberg Catchment Management Agency process bringing in all these groups and talking to them took a year in itself. We wanted everybody to tell us what their perception of water and needs were. Only then did we start capacity building, or start telling them that what they thought was bad water was actually too much salinity or a certain kind of pollution. And we put them in the context, physically. We used to have workshops every second month in the morning, then in the afternoon we would take them to a sewage plant, or to a river, next time we took them to an estuary, next time we took them to something else. The objective of the Catchment Management Agency is to identify the issues, issues become functions, functions become structures, structures become institutional arrangements that become money: is it viable? Through that, you can show them the issues and show them what they can do, what their involvement can be: I think that is where we achieved most of our successes.

The idea is to build capacity for the catchment forum or the Water User Association or the municipality. Keep it in the institution, and disseminate it further. People underestimate the capacity building involved in just being part of a meeting like a Water User Association. We now include amongst the commercial farmers also the farm workers, potential farmers, and the municipalities. They get accustomed to meeting procedures too which they then use in their Community Based Organisation meeting. Many of the people that we drew in had never presented anything in public before.

There is a lot of potential for learning through computer programs as well. With eWISA a 'municipal assistant' program was developed – this was a program to teach people how to manage a waste water treatment plant and do proper asset management. A lot of the people who are now on the waste water treatment plants are the people who used to mow the lawns, they are now in charge because everyone else left. Their first reaction is "I don't know computers". But actually they know the whole menu-driven thing from cellphones and ATMs. You put them in front of the computer they can work it. Within six months people who'd never touched a computer were running a fully fledged infrastructure asset management program.

So if you can capacitate the institutions and let them take the word further, that's how you can make a difference. We have very good examples in the southern Cape, where ordinary people living along the river are now our monitoring agents. They know when there is a pollution incident and report it. Printed resources can also be useful in capacitating institutions. After every new municipal election we do a councillor introduction course on water issues, with pamphlets specially designed for councillors. We also talk to the top municipal management, and the operational people, and the health people, the water provision people, the finance people, to get different messages to

different people. Then all of a sudden your local authority consists of twenty stakeholder groups. You have to differentiate them.

The same with farmers, there's a difference between commercial farmers getting water from an irrigation scheme, commercial farmers getting water from a river, commercial farmers getting water from groundwater. Even in the Catchment Management Agencies we separated those three groups, after a long debate about how to do it. And then there is a difference in parts of the catchment, like between the coastal area of the Gouritz and the Karoo area of the Gouritz. So you can say there are six commercial farmer groups in the Gouritz. The same with emerging farmers. The same with environmental interests, there is a difference between environmental Non Governmental Organisations and statutory environmental groups. Do you need the same thing for everybody? No, you need to break it down. It's a big challenge.

Glenda: Very often we think of capacity development as being a workshop or a meeting or some kind of formalized process, but as Willie said, just engaging people in the setting up and operationalising of the Catchment Management Agency is a capacity development process in itself. One can develop capacity through a project approach like a catchment management strategy for example.

I agree about focusing capacity building efforts on institutions, but I don't think it's sustainable to locate something like water resource management in a Non Governmental Organisation. A Non Governmental Organisation can come in as a support, to catalyse processes, but we need to keep the whole issue of sustainability uppermost in our minds, especially how we can sustain leadership. I don't think we have been very good at that. If we come in with a project approach, then we withdraw and the initiative falls flat.

The Water Research Commission really needs to look at their approach to research, and the relevance of research to real context. They need to reframe their approach so that they're not only doing research which presents findings and recommendations. Some kinds of research need to give more weight to context – like building a Catchment Management Agency, where the research is going into capacity development. This needs a reorientation of the way research is being done and its intentions.

Willie: The very scientific research is maybe the easiest kind to disseminate, because you just send it to engineers or scientists or whoever needs that information, and they take it from there. That's the way the Water Research Commission always worked in the past. I've attended two or three meetings lately on bio-membrane reactors. You just invite municipal managers or engineers to a gathering and tell them what to do. Those people take the manual and you know they are going to implement it. Those are relatively easy situations and are still perhaps the major part of the Water Research Commission research projects.

However, in the last five years they've been covering more of the social aspect as well, and here again there's a distinct difference between the big

projects and the small ones. For big projects like setting up Catchment Management Agencies, the process is more important than the document.

Jane: People at the Pretoria workshop mentioned that there are communities of knowledge in the water sector where it's the same people just passing knowledge around and around.

Glenda: Yes, it does happen that there's a recycling of ideas. At one point the environmental education community realized that we were sitting there with the same ideas going around. But as the field has grown and new people have come in, new perspectives have come in too. One needs to invite those new perspectives in, with an open mind.

Kevin: Interestingly, what I do see coming through recent Water Research Commission research projects is a multidisciplinary approach that is forcing scientists and engineers to lean much more towards the social aspects and incorporate a bigger perspective. I think that itself is really a huge capacity building for the scientists. It's a major breakthrough, because the social scientists will not tolerate things that remain in a very positivist framework. This shift in perspective will make it easier for us to transfer knowledge into a more useful way. In our project previously disadvantaged people have become our key facilitators, our key interpreters – this has been an education for the researchers that has been very enriching. Research must actually recognize there are many different questions requiring different approaches, and sometimes research methodologies that are uncomfortable (for researchers) have to be applied. We won't advance knowledge unless we step into that zone.

Robert: Let's come back to resources. There's not only the content and presentation style of the resources, but also the distribution, and how the resources are mediated or presented to the intended audience.

Kevin: So much of this has to do with the target audience. The Water Research Commission project I'm involved with is about sustainable urban drainage. We got a group of fourth year students, mainly engineering students, to do a search for engineering manuals right across the world. We were looking for manuals that showed how municipalities introduced sustainable drainage in urban areas. We collected 27 manuals that we found readable and well put together with lots of diagrams. We made CDs of the manuals and passed these around to our partners in other South African cities and all the conferences we went to, we handed them out to as many people as we could. That itself made an enormous impact, because no municipal official has the chance to go and find those kinds of resources.

But then my colleague Neil took a road show about sustainable drainage to Cape Town and Johannesburg and Durban. You would think busy officials wouldn't come to this sort of thing, but they did. He showed them pictures from different parts of the world, pictures of good practice and poor practice. Municipalities in Australia – Brisbane and Perth in particular – have policies stating "there will be no storm water from our city at all, it will be treated on the

land". The City of Cape Town has now chosen a very similar policy. It says that in new developments, 80% of the phosphorus and total suspended solids must be captured before the storm water goes into any water resource or storm water drain.

The impact of the road show was possibly because it was largely pictorial. In Johannesburg so many people signed up to come that they had to change the venue. About 200 people arrived, the venue was absolutely overflowing. They were asking us to please come back again and redo it.

Glenda: I can almost guarantee that those people wouldn't have come to those meetings if they didn't see any benefit for their work. Who is the resource intended for? – this always needs to be defined quite clearly. I would like to see the Water Research Commission doing an assessment of any topic about to be researched, and try to define the need for resource materials through a mediated process. Materials shouldn't be developed without doing this. One has to look at capacity development processes that require resource materials and see how Water Research Commission research can feed into them.

Jane: Victor Munnik made the comment at the Pretoria workshop that every proposal that goes to the Water Research Commission should be required to clearly state its target audience, its relevance to that target audience, and how the research is to be made accessible to this target audience.

Glenda: Good idea, but I would say be careful not to lock the research like that. If its parameters are too limiting, the research may be stopped from taking on a life on its own. One needs a balance between structure and flexibility.

Jane: That's a good point, because the Water Research Commission does tend to get over-structured. What about resources that you think have really worked?

Glenda: I've found that the resources that are most accessible are those that are short, concise, and easy to follow. It's nice to have text boxes that stand out from the rest of the text to highlight an idea or something significant. Graphics always work really well, and not just for people of low literacy. I find that people respond well to diagrammatic representation.

Willie: I believe in producing different forms of the same research report – one scientific and technical for when you want the detail, the other a more easy reading thing, which should be much shorter. Like now, the catchment management strategy is 130 pages, but we are bringing out a short version, 20 to 24 pages maximum, something that can at least give people a perspective of what's going on in the whole water management area. It's very valuable to produce small documents like that, even for Catchment Management Agency processes and planning processes – newsletters, for instance, they can be made very informative. Sometimes you need the thinner

one to generate interest and the person who wants more information can always get the thicker one.

Glenda: Out of the capacity development programme I've been working on, there will be several forms of documentation – a full report, then short reports on specific areas of interest, then also technical papers. We do this so that we can share these things with different audiences and with different intentions: some of them can even become course materials. As I said, the critical thing with resource materials is to understand who is going use them, and to frame them towards that use.

Willie: In the Olifants-Doring project we put out six booklets. There was a lot of overlap between them, but each one could be used as a separate document. Some people for example only want to know about wetlands. The beauty of a publication series is you can always add six more documents and it will still look like it was designed that way from the beginning. If you package everything into a bigger document and you want to add something, it doesn't fit.

Glenda: In fact the development of those particular six booklets was a very, very difficult process. The water scientists were giving the information, and the social scientists were trying to translate it. That created tension: the scientists thought the social scientists were watering down the essence of the message that needed to be communicated.

Kevin: You've mentioned using resources as course materials. So many of the research projects currently on the shelf of the Water Research Commission could be turned into extremely meaningful Grade Eleven or Grade Nine science or geography lessons. We are losing out on the educational value of that material, yet there are plenty of skilled people who could turn them into enriching documents.

Glenda: Another recommendation would be to do an audit of existing materials. I was at a meeting about two weeks ago, when there was an appeal from everybody – don't run out and develop any new materials first look at what actually exists. Sometimes it's the mediation of how the resource materials are used that's most important: one resource one can be used in different contexts to achieve different purposes.

Willie: More and more people are using web based technology, searching the internet, even with cellphones. I've found the internet works best when a document is concise, you can always go into more detail later if you want to.

Kevin: Going through the website of the Water Research Commission is only for the brave, it isn't easy to do. It should be more user-friendly.

Willie: The Water Research Commission website gives you a list of all the publications and they are categorized, but even within the category, if you don't use the right word in the heading, you will not see it. So it's classified mostly not by content it's just by title. If I know what I'm looking for, I will use

the right keywords and I'll get to the documents. But then someone else will use the wrong three keywords or the more obvious ones. So some sort of better categorization is needed to navigate around those documents. Short abstracts would work.

Glenda: Teachers, on the other hand, don't want to go looking for things that way. They want it in the textbook, they want it in the resources that are readily available.

Kevin: The area we haven't mentioned is public media and television. There are lots of really good water projects going on, and the opportunities for capturing those through good documentaries are being missed.

Willie: In the Netherlands they put a lot of programmes on their television specifically on water. They were here in November, doing a story on Catchment Management Agency development, and after a month of work they brought out a book of about 24 stories from South Africa about emerging farmers and how the capacity was built, factual people-oriented stories. That's really what we need.

Kevin: I'm really concerned that we are in trouble with our water resources in South Africa. There are some really serious situations already, and if we model a little further down the track to ten or twenty years' time, it doesn't look good at all. The water sector needs to be as much in the public eye as climate change is. I have worked in water for 20 years and I get really irritated with the fact that the climate guys are already ahead of us with a bigger profile. It's vital too that we understand the positive messages coming from our water sector. We've got some of the best water research in the world, largely due to the Water Research Commission. So there's positive and there's negative. I would really like to see the water sector more in the public eye. There are plenty of small companies geared up to do documentaries, we need to work with them.

PART 3. INTERVIEWS

1. INTERVIEW WITH BARBARA TAPELA
PLAAS, University of the Western Cape at time of interview

Interviewed in October 2008 by Jane Burt

Jane: In your experience, what is the best way to engage with rural communities about water knowledge?

Barbara: When I worked for the Department of Water Affairs, I was Education Officer in the Communications Branch and I had to run campaigns. But I first asked two questions: Which stakeholders would be best to engage with to put together information? Then once materials are compiled, who is going to drive the distribution? That's very important, because there's the old problem that information is not getting down to people. And there's another issue, which is government department coordination. In an agricultural project which uses water, say an irrigation project, you will find that the extension officers, the farmers, even high level officials from the Department of Agriculture are not aware that the Department of Water Affairs can and has to make an input.

I am involved in a project right now in Limpopo. In some of the communities there is no indication that people are aware of their water rights. Then you have communities where there is just no water at all. The municipality brings a tanker in once in two weeks, which fills two holding tanks. But because we're talking about a whole community, that's not enough even for a day, and they have to get water from the river. They are not aware that they have rights for which they can hold the municipality accountable.

Jane: This is intimidating for a researcher to hear, because it raises the question of how research is actually being used. That's why we are speaking to people with experience in transferring knowledge in different communities. What has worked? What materials have you seen people using? How do they get their information?

Barbara: I see in this book (*People's Workbook*) they took a very simple approach. I like the way they used stories in it. So I would say it does seem to have a practical use. It all depends on the users you're looking at, there are stakeholder structures in the catchment communities, and the public in general, and many agricultural extension officers under training, who don't have resources. I think schools could use this kind of book -- the drawings are so user friendly, kids would love them. Maybe somebody we can update this big book and put it into smaller packages. What you think?

Jane: I think the style was just right. But once a book like this is published there are two big challenges: how to get it to people, and locating it in some kind of institutional home that takes responsibility for updating it and makes sure that its distributed. We are hoping that the Water Research Commission

will start doing that because they have a new thrust now called Knowledge Transfer.

Barbara: As far as I know they are working hand in hand with the Global Water Partnership. Do you think they could have an institutional home in the Water Research Commission for example? You think the Water Research Commission will take it on?

Jane: Perhaps they will. The Water Research Commission has developed quite a few nice user- friendly resources, such as the four little booklets myself and other people wrote on participatory Integrated Water Resource Management. But because the Water Research Commission distribution relies on scientists and technicians who know about them, nobody knows these booklets exist. The Water Research Commission needs a parallel distribution structure for its less technical resources.

Barbara: Well I don't know about these ones, and I train a lot of water practitioners in participatory methods.

Jane: One success in distribution, though, was a booklet called *Some, For All, Forever*. That one got out there because the person who wrote the book, Tally Palmer, went around the country with a kind of roadshow and told people about it.

Barbara: I think you need to mobilise the Water Research Commission's initiative with the Global Water Partnership which aims to make water knowledge impact on policy -- not only at the policy formulation level, but also at the level of policy education. And also the International Water Management Institute, which is part of the Global Water Partnership. I'm not sure if they can provide an institutional home, but they have funding to make that possible.

Jane: What I noticed in the Kat River valley, particularly when we were determining the Ecological Reserve, was a big barrier even between researchers. The scientists who come in to set up the Ecological Reserve saw things differently from the social scientists who come in to get people involved in this process. And they didn't often state their debates and uncertainties among themselves, never mind having no dialogue with the water users. So a dialogic resource, instead of just providing facts, will aim to provide a space for people to dialogue around things that are still uncertain. One academic (Kevin Winters) said he would link a dialogic resource to common questions being asked. So let me ask you -- what kinds of questions get asked in communities where you are working?

Barbara: Well I agree -- if you're going to all the effort of developing a resource, it is better to develop it with the people who are going to use it. Then you know that there's a better chance that it will be taken up. As for the social practitioner-scientist disconnect, we also have to consider whether we on the social side are asking the right questions. Social research is not narrowly for social matters, it could be ecological research that is engaging

people. Ecologists in fact do social research merely by talking to communities but because they haven't been trained in this, the disconnect takes place. Even though the research report is presented to the community at the end of the research, the format it takes is often inaccessible. So by and large it just remains unread.

Jane: As researchers we have to ensure that information is user friendly and that it doesn't just sit in an office but actually gets disseminated. There is a whole range of stakeholders, but where is the best home for the resource locally?

Barbara: Research committees at the local level should take that responsibility ultimately. Community Development Forums have subcommittees, some specifically for water, others for agriculture, or other activities using water. In theory, Community Development Forums, are very good, but where I've worked, a lot of them have capacity problems. So how do you overcome the capacity constraints? One is often skeptical about this term "champion" but if you can get a champion, a leader, you can really drive it.

Jane: Many resources fail because nobody knows they exist. The Water Research Commission could produce booklets once every two years listing accessible resources. And then also a booklet saying how these resources can be used. Some people say it's impossible to make a generic resource for South Africa. Each situation is so different.

Barbara: If you can use the issues which are common, you can come up with some kind of general resource. Then it is up to whoever uses it to interpret and use it, but at least they will have a basis from which to start. As long as you are not saying this is a blueprint. It could be packaged differently for each situation.

Jane: There's also the view that no resources should be developed by researchers alone, that they should all be developed in partnership with the communities they are intended for.

Barbara: Well I've found that communication is always more effective if it happens right from the beginning. If you approach a Catchment Forum in such a way that you get a finger on the pulse of what drives them, find out what their key concerns are, and make that your entry point, then they will be willing. Otherwise they will go along with you to make you happy, and you don't want that. You will have that feeling that this is just like an add-on, and they don't seem to connect. Rather find out what their burning issues are, and you make that your entry point. From there you can draw them into the other issues you want to look at: water rights, or health, or agriculture.

Jane: Although none of these issues are separate...

Barbara: Exactly, but we separate them artificially by having different government departments and different laws. If you look at the laws in South

Africa, you'll find that the water law says one thing and the agriculture law says other things. I've seen it in KwaZulu-Natal, in Mpumalanga, in Limpopo, where somehow people don't get to use water because of these legal issues. There might have the right to water but they can't get it. You'll hear people say, for example, "We don't have water for drinking but there is a lot of water over there." They might not be able to articulate it but you pick up that it's a problem. How do we address our work in such a way that people feel their problems are being looked at? We have to be able to demonstrate that the resource we are developing is dealing with their problems, that there is more likelihood of access to water once the resource is developed. Sometimes it might mean you going a bit beyond the research area itself to interpret and contextualize what the problem is. And then package the research report in such a way that they see their concerns are being addressed. We call our research Water Rights in Informal Economies. We are finding out that people have got the right to use water but don't have the money to access that water, so effectively that right is non-existent. So we are looking at how to engage policy with that.

Jane: As you were talking I was thinking of a particular farmer in the Kat. He will get a licence for water but there is no way he can access it. So if we are developing a resource for someone like him, what do we say?

Barbara: Unless the resource you are developing talks to issues that are real for people like him, it will be just another thing out there. If people can see their issues on the ground covered by the research, and you package it in that way, it will more likely be used.

Jane: I like that. You present the story or case study, you say, this is what the law says, this is what research has been done about it, these are the practical things that you can do in the meantime, and this is the policy brief that has to go to the Department.

Barbara: Then you have more impact. It means your resource is engaging for change. And it's one thing for people to just read the research, but you can use it to meet the senior officials and the policy makers. In our research that's what we've done, we met with the Department of Water Affairs officials and the Water Research Commission. We met them throughout the research, and that made them sit up and take notice. We talked about policy gaps and the problems that are happening because of them. That's one way of preventing your resource from being irrelevant. You want to make sure that it addresses real problems.

Jane: So you suggest we start with the questions of the people on the ground and link that to all the research information.

Barbara: Yes. And if, when you present it to people, they say 'wow', then you know it is going to be taken up. Base it on real challenges without being too explicit. The research will say more clearly what the problem is, and your role is to bring that out.

2. INTERVIEW WITH WILLIE ENRIGHT

Department of Water Affairs at the time of interview

Interviewed in October 2008 by Jane Burt

Jane: So much research has been done on water issues, and so much of it is very useful. Yet a lot of people at the Department of Water Affairs feel that they get too much information, and they don't know how to assimilate it all. What kind of system or process can we put in place to start making the research accessible, in terms of language and technical complexity, but also in the sense of easy to find and to engage with?

Willie: You have to remember that not all research can be popularised, nor is it always necessary to do so. But I agree that there are certain things that should and can be done. We have a lot of research programmes, and we use almost all the Water Research Commissions books and research reports. Some of the more specific research we try to do within our own department. Like the course that we are busy with now, which is about irrigation systems on wine farms. It's for farm managers, people in charge of the water and waste water. Only this morning I was telling them about research that we'd done with the Water Research Commission on purification plants for wineries.

For communities, we have a lot of forums and workshops. We just had a series of six separate workshops for communities and Catchment Management forums, mainly on ecological aspects: the water law, how you care about your rivers, how you care about wetlands, how you care about estuaries.

Jane: Do you produce any written materials?

Willie: Between the Department of Water Affairs and the City of Cape Town we brought out a book on water and electricity and environment and things like that, called *The Handbook for Each House Owner*.

Jane: How was it distributed?

Willie: It was distributed to almost every household in the city, or supposed to be. The City did the distribution. We did some of the editing and writing of the stories.

Jane: Once a book like this is developed, how do you make sure people use it?

Willie: You first have to ask yourself whether it should be one book. We put out another series of smaller books. What is nice about it is that people who are only interested in Wetlands, say, can have a booklet just about that. If you read all of them, you will see some repetition, but that is probably good because it reinforces certain things. I like the concept of a smaller booklet for people with specific interest in a specific topic.

Jane: What about distribution? You can't just print something and hope it gets out there. It needs to be the other way around. And in rural communities you need a home for the resource, somewhere where people can go to find resources.

Willie: The *Smart Living Handbook on waste, energy, water and biodiversity* was fairly widely distributed and very well received. It would be interesting to check up again on how it is being used. I know teachers are using it quite widely.

Jane: What audience are you are you aiming for?

Willie: You have to ask yourself if you are aiming the resource at ordinary people or if you are trying to reach people involved in institutions. In the Department of Water Affairs we prefer to work through institutions, through Non Governmental Organisations, and rely on them to bring the knowledge down to the community level. Our normal way with Non Governmental Organisations is to hold workshops. Of course we also do media releases and such things for the general public, but when it comes to getting more detailed information to communities, we pass on a lot of booklets and brochures and pamphlets through Non Governmental Organisations and formal organisations.

We try to get Non Governmental Organisations involved in places where there are water problems, or where local people are already involved in projects. Rather than trying to reach everybody, we find it is better to target areas where people are already involved.

Jane: How much is it a responsibility of research organisations to transfer knowledge of their institution to other users?

Willie: They have a responsibility to transfer the knowledge. That's the Water Research Commission mandate. But it depends what research you talking about. I'd say 80% of water research can't be transferred at the community level, because it's meant for practitioners. For example most of the research on water quality and effluent treatment -- people working in that area, working in municipalities mainly, need that research to improve their work.

Jane: Do you think municipalities are accessing that information?

Willie: Yes, we often give them lists of Water Research Commission publications. Recently I was in a municipal meeting in which people were again querying the Water Research Commission's levy. Which led to the question: What is the Water Research Commission doing? So I elaborated a bit, explaining that the water users are actually paying for that, which is why the Water Research Commission resources are free.

One way to distribute information about water research is to show people copies of the Water Research Commissions' *Water Wheel* magazine, and then get them to subscribe. It's not too technical, and a magazine like that

can be popularised, which I know they try to do. They usually have one page on their research programmes. People who want the really detailed information can get the full research reports. I often pass that page on, especially to teachers, saying: look, this is something that you can use.

I would like to see the *Water Wheel* distributed to all the schools in South Africa, rather than waiting for people to subscribe to it. And to make sure it lands on the desk of all the municipalities, not only the municipal manager, but the technical managers and people in charge of community relations. Make sure they are put on the address list. They can always unsubscribe. You can't wait for individuals to subscribe, people just forget or don't have the time.

Jane: Surely integrated water catchment management is the one thing that has to be understood by everybody.

Willie: Definitely. General catchment management is the thing we try to popularise with our forums. This week we had combined meetings with the Breede stakeholders and Gouritz stakeholders to talk about the institutional reform or realignment of Catchment Management Agencies. Then you try to explain to them everything from alien eradication to pollution. We had a meeting with the Berg and the Olifants-Doring people together yesterday and that was a marvelous meeting. You get a hundred people there and half of them are really from the communities. For me it's heartwarming to see how they have developed over the last three or four years. They ask difficult questions, which is nice.

Jane: What kind of questions?

Willie: There was a whole discussion which started around one question on alien eradication. They know the concept already, but we put extra emphasis on the actual species, how much more water does each species really use. They linked it to job creation – How can we become involved? Can we get more projects? All sorts of discussions.

Jane: Water quality is a very topical issue at the moment.

Willie: What's interesting is that emerging farmers have taken the lead for the fight against pollution by the municipalities. Because they say "It's us who are going to lose our jobs if we can't export our wine or fruit anymore." Those people are very concerned. Yes, then we feed them information.

People scream about water quality, saying the rivers are dirty and the European Union is going to penalise them. It happened this morning. I asked them: How many of you attended the Integrated Development Plan meeting of the municipality, and fought for a budget for the waste water treatment plant? None of them had. Municipalities have those meetings and ten people turn up and those ten are fighting for extra sports grounds. Nobody is fighting for water infrastructure. For the municipalities it isn't an easy decision to choose to put roofs over the heads of people in cold weather or to upgrade the

sewerage works, but the sewerage works have to be done. There must be a balance.

At each forum, each Water User Association meeting, we try to nominate a person to interact on the local level with the municipality. Somebody to be the Integrated Development Plan co-coordinator, for example. Some of the municipalities are starting to learn that they can also benefit. If they use these water bodies, they have a captive audience. And they get input, which is what they want. Both institutions benefit by this link.

When we bring the water users together they might want to talk about types of dripper systems but we have to make sure they first have the big picture. There is always a resource protection issue, a water allocation issue, and institutional reform. I concentrate on those three things and talk around them but make them practical.

It would be nice to pass out a booklet for them at that kind of meeting. Of course the ideal target audiences are those who want to get more involved in local water management. The agribusiness people are not that active in our institutional structures. Nor is the representative of the Chamber of Business, who is there representing the big industries. Agribusiness must begin to stand up and contribute. I've told them they must actually sponsor Water User Associations, they must sponsor our forums. They can use our forums also to promote their wine if they want, but they must at least also promote community participation around certain topics.

We have about 50 active forums in the Western Cape. Some are less active than others. Some are too active, such as in the Bitou area where we see big fights going on between the environmentalists and the developers. The newspaper sees this as a big crisis. I say it is wonderful. If you don't fight around water, it means you aren't thinking. I say fight, and then sit around the table and get the best way forward. We don't want complacent people. We want people who argue about things.

Jane: You have to know your context, and then feed what needs to go into that situation.

Willie: I was involved in maybe three launches of Water Research Commission technical reports in the last year. Maybe they should not launch a research paper only once. I also don't think it's necessary for Water Research Commission to sponsor the whole event. We can get Water Affairs, or agriculture, or business to sponsor the event and just get the Water Research Commission to come down to give us a talk on it. I don't think we do enough of that. Again it's the business sector that should be sponsoring the event. Let's get 40 people there and make sure they are the right people. In those situations we can always hand out pamphlets or small booklets, and let the people really interested get the full report. You also don't want to distribute a thick report to everybody and find that they just throw it away. One can even use the *Water Wheel* -- if you distribute that quite widely and dedicate a page

to each research project, it might be just as good. You just need more people to know what is available.

Jane: Yes, to make people know that they exist. When I looked at the Water Research Commission publication list I was astounded. I've always just looked for what I was interested in, but recently I sat down and went through the entire list. It's actually amazing how much research is being done in this country.

Willie: I fight with the universities because I'm also an external examiner for MSc theses. I don't think I should just be assessing the student, I see the thesis as a resource. So I spend time checking the information. The professors say I'm doing too much. But somebody is probably going to use this as a reference document, and they will just take over the assumptions of the thesis unless shortcomings are noted. There is a lot of knowledge in theses, even if they are not always as extensive as the Water Research Commission research.

Jane: That would also be something for the *Water Wheel* or the Water Research Commission as a whole to consider because in a short summary the research would have to be presented very carefully, especially if the summary is being widely distributed and is going to be used and referenced.

Willie: Well as long as they don't pretend that they are presenting the whole document. The universities tell me that they share their research through WaterNet. Forums like that are available to universities for free, but that's not good enough. Universities are sitting on an asset which they don't even sell. The Water Research Commission research is not for free, because we pay for it through our water use. If I want something from a university, I'm prepared to pay but they don't do it.

Jane: There are thousands of Masters and PhDs that are not read except by the examiner.

Willie: If you are at that university you will get access to it maybe through the network, but it's limited because only people doing that specific study that will access it.

Jane: I see that in some of your publications you've done little case studies and stories.

Willie: In The *Smart Living Handbook* we used different writers for different sections but it was well edited to a common format, with short case studies, examples, practical things, some things I thought were common sense but actually aren't.

The *Integrated Water Resource Management Water for Growth and Development* is just a booklet of the Integrated Water Resource Management projects that we did in the Olifants-Doring, each double page describes one project. In this very short summary there is a lot of information about water

and health, water and energy, water and conservation, water and rivers, water demand. Maybe only ten people are involved in a specific project, but the knowledge may be transferred to 50 people. Sometimes we think we must transfer knowledge to 1 000 people at once, but it does not work like that. When we wrote this book there were about 27 projects, and now we are running 50 projects.

And we see results. Yesterday was amazing, there was the election of the national steering committee. The election wasn't that well organised, but eventually two of our forum members, both black women, got elected to the national steering committee. One of them was immediately put on the spot – Now tell us, you are now elected, what are your key deliverables? What do you want to achieve in the next year? That lady stood up, and I'm telling you she floored all of us. She spoke so well. And when I think how she was 4 or 5 years ago, she would not stand up in public to speak. It's amazing.

Jane: So what had happened?

Willie: Capacitating people. Little bit by little bit by little bit. We give them an opportunity to present something, to tell us what their organisation is doing. Often it's the first time they have presented anything on a computer. Sometimes it's the first time they have ever stood up and spoken to an audience outside their community. Our audience yesterday ranged from university professors to emerging farmers, people from the remote communities. I was totally overwhelmed when that lady spoke. She just gave them the answers better than what they conceived them themselves.

Jane: It always seems to be a human face that is needed to get things going. Even if we do write a pamphlet or resource how will it get to them and will it be used? Literature like that needs a mediator of information, maybe it always has to be like that.

Willie: That is very true. If somebody explained this book for 10 minutes to an audience then it will have an effect, and you can give it to them to read. But if you just hand it out cold, it won't. You must get their interest.

Jane: Glenda Raven believes we have to institutionalise that. Rather than put more money into resources, she says, we should put more money into extension officers who would then use the information.

Willie: It takes time. To put forums together is hard work. To capacitate people to fight with you takes so long that it seems almost stupid. But if you can manage to get them going and keep them going, it's worth it. I think we are at that point now in the Western Cape. I can say I have 200 people or more in the field and they are doing my work for me for no charge. That's the beauty of it. In the beginning it takes a lot of effort, long hours, but we are now reaping the benefits of stakeholder participation. But you must make sure that you keep it up.

3. INTERVIEW WITH GLENDA RAVEN

South African National Biodiversity Institute at time of interview

Interviewed October 2008 by Jane Burt

Jane: How do you develop the relationship between the water user and the catchment authority?

Glenda: I am working on the monitoring and evaluation of training in report on the Olifants-Doring Catchment Management Area and that issue keeps recurring. The only solution is the presence of a full time mediator for an ongoing long-term engagement. In the past we had Irrigation Boards that now have to change over to Water User Associations and naturally some of the old Irrigation Boards are still clinging onto power. Like in Olifants-Doring, the commercial farmers are holding onto power. They are arrogant and frustrated, and tolerate the emerging small scale farmers just for the sake of representivity. On the other side the Department of Water Affairs doesn't have credibility amongst water users, which is problematic. World Wide Fund for Nature has received funding from De Beers to train water user associations in Limpopo Province. I believe that funding should be used to pay for an extension officer, and that person should be placed in the Department of Water Affairs.

Jane: That is exactly what we have been fighting for in the Kat for the last five years.

Glenda: And resources need to be mediated too. A publication or other resource on its own is a dead thing, it needs a social learning process to enable it into use. Resources should be complimentary to the social learning process.

Jane: So we need a movement rather than resource products?

Glenda: Yes, a resource can't be an end in itself. Nor can a structure. You can just establish a Water User Association and say, that's it. It's not going to happen. We're in a changing environment and people need to develop the competence to keep pace with that change.

Throughout this report on the Olifants-Doring Catchment Management Agency I was starting to see that all of the limitations were linked to the fact that the training was contractual and short term. Everything was short term -- the kinds of engagements, the learnings, and the outcome of the training, which was to encourage participation in effective water resource management. But how do you achieve anything in two months? Even the learning outcomes – we asked people what was most significant for them in the training and they said things like "It's important to save water". Maybe awareness was raised in some way but it did nothing to internalise the thinking that says: This is our resource, we need to collaborate. That hasn't happened and it isn't going to happen in a short period, even within a year.

Jane: I worked in the Kat for ten years. It was called research and yet only 5% of my time was actually spent doing research. The rest was, like you say, acting as an extension officer, right down to the simplest things like transporting people to meetings and answering questions.

Glenda: Fortunately in the Olifants-Doring Catchment Management Agency there's not resistance to engaging with the new institutions. That's a huge plus. But there is no ongoing support for water users either, which is ultimately going to lead to resistance or apathy.

Jane: That's starting to happen with the communities I've been working with too. People saying: We have been through the processes, we have done our business plan, we have done everything the regional Department of Water Affairs said we should do, and still nothing has changed.

Glenda: The capacity in the Department of Water Affairs is definitely a limiting factor.

Jane: Coming back to resources, there is so much research available. Everything from how to build a drainage system for grey water to how to start a catchment forum. What would be the best way to get that knowledge to water users? How can the Water Research Commission make their research more accessible?

Glenda: A practical "How to" series, maybe aimed more at the small scale and subsistence farmer coupled to a learning process through extension services.

Jane: That is the audience we are thinking of. The large scale farmer can get access to information, and they often have the means to hire consultants to help him. When I was working with the Catchment Forum in the Kat, there was one person who wanted to start his own home garden. He came to me and asked very simple questions like: How am I going to get water from the river to my land if I don't have a pump. I realised at that moment that I had become the interface for the research and technical knowledge. If I was not there, how else could he find this out? So many resources are just not used. As you say, there needs to be some sort of mediator.

Glenda: Even a book is very intimidating, because small scale and subsistence farmers, at least in my experience, have a low level of literacy. But maybe the *How To* series published by Share-Net would work, or something like that. A series of booklets in an A5 format, not intimidating at all, with minimal text and maximum illustration. They could be a stand-alone resource but also used as resource material in a training framework.

Jane: When Heila Lotz-Sisitka and I first approached the Water Research Commission about accessible resources, this was about five years ago, we suggested using case study type narratives to present the Water Research Commission research. We suggested interviewing the researchers and the communities they had researched and then develop a resource around that.

Its basis would be actual people in an actual context, which would make it more accessible.

Glenda: Yes, a context, something people can relate to. Or a question and answer response to issues raised by your guy in the Kat River who wanted to bring water to his home garden. With simple questions – that would be a useful approach.

Jane: The Water Research Commission has all this research that nobody is really accessing besides other researchers. This could be another part of the Water Research Commission's process of producing knowledge. After the research report is written it could be translated into something for a non-specialised reader. Initially we were thinking of booklets or a book, but then we started wondering about other media. Should we go radio? Internet? It has to be something that can be updated because things change so fast. Books become outdated so quickly.

Glenda: For the Olifants-Doring Catchment Management Agency there was a group of technical experts, as they refer to themselves, who were supposed to review the materials and give their comment and the water scientists from the Department of Water Affairs were up in arms about the style in which these were written and that was precisely the point, was to make it accessible. We wanted to simplify the heavy technical language and make it more accessible. But there was so much uphill from these technical guys, it was a nightmare. One of the technical experts had made a presentation in one of the workshops and people were sitting there, they didn't have a bloody clue. No relevance to peoples' daily lives. We had to convene something like a mediated meeting to get it sorted out. What we ended up with is a good basis for training, and it can be used in other catchments as well. But it's still not contextualised. It's a good first basic set, but it needs more. People want to take home something, something with more illustrations and less text.

Jane: In the Kat there were two things that we had that people really used. One was a little newsletter with lots of pictures of local people, which they could relate to. The other was a set of reports that we had written to be very accessible, in A5 booklet form, with lots of line drawing illustrations of people doing things.

Glenda: Yes this reminds me of a process that we ran long ago around local materials to be used in the school curriculum. The artist drew in a fun kind of a way but it was very clear, you could see it was the people in the area we were working. It was significant to use that kind of style, much like the ones in your booklets (by Tammy Griffin). A "How To" with lots of illustrations. But even so, I still don't think any materials, even accessible materials, can work without an extension officer. So in my proposal on the Olifants-Doring Catchment Management Agency I'm making recommendations for an extension officer. I don't know if the World Wide Fund will take it up or how they will take it up. But I'm proposing that they develop a case around placing that person in the Department of Water Affairs and motivate to the Department of Water Affairs about the importance of having that presence in

the Department of Water Affairs. Hopefully it will not be turned down by the Department of Water Affairs because they really need to get their act together.

Jane: In the Kat we cannot go forward because of these capacity issues. Just having the business report done to the rules of the Department of Water Affairs template is complicated and requires so much money to do that it's impossible for the Water Users Association to do it without assistance and yet the Department of Water Affairs struggled to provide that assistance. It's a case of bureaucracy creating a standstill.

Glenda: Here even the Irrigation Boards that switched to Water User Associations, the guys that have been in there since 1961, have been expressing their frustration about that. They have university degrees and they found the difficulty of this process so frustrating.

Jane: In the Kat it's got to the stage where the Water User Association carry on without the Department of Water Affairs, they are starting to view it as a hindrance having to work with them.

Glenda: The whole issue of licensing, has that been implemented in the Kat yet?

Jane: I'm not sure what the situation is since I stopped working there.

Glenda: So they do have extension officers?

Jane: Well, different people would come and go from the regional office. One came for about 6 months, and then he vanished. Another came who had a completely different opinion about how things should be done, and he brought consultants who asked another load of questions. Then the Water Users Association never saw them again.

Glenda: Credibility. It's so important for the mediator. Shaun was excellent in this respect, he spoke the language so he could joke with people, he knew the local area as well, he managed to establish a relationship of trust very quickly. He knew his stuff, they could ask him any question and he was able to respond without hesitation. That is credibility. The problem is, in our sector, too many people think of knowledge transfer in just its technical form.

Jane: We asked the Eastern Cape Department of Water Affairs whether it would be possible to take one of the people we have been working with for the last ten years and make them an extension officer. Somebody from the area is also accountable because they live there.

Glenda: The proposal I'm writing requests that micro-projects be developed by the different geographical nodes. Each one of them includes an education component, either education for schools or education for adult water users. The suggestion I am making is that they have an extension officer in the area, someone who ideally stays there for a while, who has a career path in the

Department of Water Affairs and is being remunerated and supported. That person can then also serve in a process of "training the trainer", by working with individuals in Water User Associations. This training doesn't have to be through formal workshops, it can just be sitting around the table. But the physical presence of that person is important, I don't think we can go very far without it. The World Wildlife Fund may want to directly employ an extension officer in the area but I'm saying don't do that, rather locate that person in the Department of Water Affairs. In that way they will be supporting the growth of the capacity within the Department. Somebody needs to represent the Department of Water Affairs, the legitimate agency. That's a big thing.

Jane: Funding cycles change. Will the World Wildlife Fund sustain that funding?

Glenda: This is not a particularly small budget, so if the World Wildlife Fund were wise they could place that person there for a good period of time. Someone with a water research management background who can carry out the education training and development reporting with the backing of a mentor or institution. And the World Wildlife Fund can be that institution. They are about to appoint a head of capacity development. That head of the programme could support an extension officer, build that person's capacity, and mentor him or her into the job.

Jane: So if we develop these resources they should be developed for the extension officer kind of person.

Glenda: Yes, for that person to use. Your materials can complement the solid framework that Eureta and Lawrence have developed. Theirs is an initial set of materials which works at a broad level. If you add a contextualised set of resources then the two can complement each other.

Jane: Contextualised how?

Glenda: Well for instance, resources based on the needs of specific catchment areas. We did that at Olifants-Doring. We asked what were the key issues, and people said things like: there are irregularities in the municipality, or the commercial farmers that are over-using water. You could structure that into a profile of the key issues for each Catchment Management Agency and then develop materials to respond to that. The Water Research Commission can help to develop those resource materials.

Jane: For me it's the way to go. It can be done without huge amounts of money and institutions. The simpler the better.

Glenda: A series of little booklets that builds on other material. Some might be applicable to other contexts but some things will be quite specific to this context.

4. INTERVIEW WITH KEVIN WINTER

Department of Environmental & Geographical Sciences, University of Cape Town

Interviewed October 2008 by Jane Burt

Jane: What kind of areas have you been working in?

Kevin: Informal settlements. Places where waste water is a combination of black and grey water, ponding in areas. Places where sewage pipes that have popped their lids and are flowing through the streets. To our horror we find children playing in that water. The kids have got skin diseases and other diseases, you can see they have been exposed to this kind of water for too long. That's the context we've been working in. Often people have been living in these conditions for 10 to 15 years and they're still waiting for the government to deliver.

Jane: What is the government doing about it?

Kevin: In most of the informal settlements they are upgrading, but not for the whole settlement. It means that only one third of the people are going to be serviced with housing and plumbing. The other two thirds are going to end up higher up the slope or alongside the upgraded part. It doesn't solve the problem. All it does is to reduce the risk in the immediate area but place other people in the area at greater risk. In most cases communities are paralysed and ineffective. They will say "Yes, that is what we would like to go for" or "Yes, that system should be tried out here", but their ability to actually lead, and sustain some form of leadership, to run their own community workshops is far too much to expect. I'm not blaming them. They don't have land tenure and their day to day life is about survival

Jane: Are there any success stories?

Kevin: Well one of the most fascinating is the ex-fishers who live in Hout Bay harbour area. They're a sprawled out group of neighbours and families, who have moved into the informal settlement area because council flats in the formal area have become too small. They have reasonable level of education. They started to build these shacks that went all up the mountain and formed a whole informal settlement of their own. And they then started to use the resources of the formal settlement. They would go and borrow their ex-neighbours' water, use the bathroom, etc. Then in 2004, the City put in emergency toilets and taps in their area up on the hill. Before long, because the pipes were on the slope and quite shallowly laid, they pirated the pipes and laid their own pipes. They got so organised, and they bent the mayor's ear to such an extent, that this became her pet project. Suddenly Helen Zille has taken charge and it's really made a big difference.

DAG (Development Action Group) has been integral to this process. They run educational workshops, they demonstrate how to put tyres to shore up the slope, they hold workshops on how people can pipe and pump water to their

own houses. About 40% of the 320 households now have functioning bathrooms in their shacks. The mayor has given them the right to claim this area as communal area. Next they will get individual tenure. Now that they know tenure is coming, it's made a surprising difference. Now a tender has been put out, a contract for R1.2 million to relay and extend toilet facilities. All the grey water is going to be put into a sewer so that it stops messing up the immediate area, because a lot of the grey water is going into the storm water system which is emptying into Hout Bay and causing trouble there. Poor marine families are seeing grey water destroying their livelihood, so these guys from the civic are saying, "Please monitor this water, we are concerned that it's contaminating the species along the shoreline".

Jane: What's the difference between the Hout Bay community and other informal settlement communities?

Kevin: The Hout Bay community have some jobs and some education and civic organisation. When poverty is rife it's hard to get things done. If you don't build civic bodies to take responsibility it's also hard to get things done. And then you really do need Non Governmental Organisations to run alongside. You need a Non Governmental Organisation working hands-on, meeting on a weekly basis, running weekly workshops, providing materials, facilitating and bringing local officials with them, putting in place structures. Most of all showing that there's hope. That kind of Non Governmental Organisation is vital. The civic in Hout Bay openly acknowledges that it would not have happened without the Non Governmental Organisation's important role.

Jane: Coming to resources, is there anything that should be written for such Non Governmental Organisations?

Kevin: You first have to ask: who are you writing for? Our current project on management of grey water options in non-formal settlements is geared to the municipal extension officers. So we are writing education materials for them. You can't expect researchers, however participatory they are, to be advocates. They don't have the time and it is not their brief. You need another party to be able to handle the implementation, normally a Non Governmental Organisation. And you need to brief the Non Governmental Organisation incredibly well. Many of them would have gone into the situation in Hout Bay and messed it up by being too proactive and not understanding the process and the people. However the person who led the process, one of our ex students, was superb. In any community project there are ups and downs things get highjacked along the way. But she stuck to her principles and kept on going the right way. She networked well and drew people into the project. The facilitator's personality and training are crucial.

Jane: Can you give examples of any other successful resources you have come across?

Kevin: When I was in London I worked for a media company for a while. They took their best software publications and education software and got it to

schools. I went along with a camera crew, to the classrooms where we used the software, it was a good teacher, and we filmed the whole thing happening. They then put together a 15 minute clip of this context, how the software was developed, with a booklet on the background to the software. The video explained how the software was used as a teaching methodology because that was the focus. People had been saying I've got the software, but I don't know how it use it. Combining the visuals and the experience, actually being able to see the experience roll out, was very helpful. It may not be easy with the Water Research Commission projects, but there's no reason why it can't be done.

You always need to look at who the target audience is. Most Water Research Commission projects don't deal with poverty, they are about technical issues in an urban or industrial or agricultural context. My feeling is that unless there's a Non Governmental Organisation involved, a resource is not going to work. The Non Governmental Organisation needs to stir up the inertia. One would think the solution to a water problem is obvious: deal with it, dig a trench or a pipe, use the resources around the settlement. Yet there's a great fear, and I've even heard people express this directly: that if they did anything that showed any initiative it could compromise the possibility of better service or housing in the future. According to this logic, inertia is better because it provides a long-term signal, sometimes 20-30 years unfortunately.

Jane: In your experience how do people understand the water management stuff, and the different institutional levels associated with it?

Kevin: I'm writing a paper for the City on water and sanitation about how to get their officials to do just that. The city officials don't see water and sanitation within the bigger urban water cycle system because they are divided into various departments, so they can't help the public understand the bigger picture. Which means that when water demand management is put in place, there's no sense from public's perception as to why it's happening. Why certain things are done and not others, why there's water in our dam but we still have water restrictions -- it doesn't make sense to people. They see the dams are overflowing, the sluice gates open, the water going down the river into the sea. It's these simple questions that the public are asking in terms of managing water. We have to do a lot more work at the level of people's homes, so that the people, who are the major consumers of water, understand what it is the city wants us to do. Most people think the city is idiotic in its water management.

Jane: So how are you proposing to change that?

Kevin: The administration of the system needs to help people reflect on their water use, for example what their water use is like relative to other people in their neighbourhood. This kind of information demands more than a booklet, it demands a regular and accurate account of what's going on. You have to unravel the complexity so that it's meaningful to recipients. Households need completely different communication from what Non Governmental Organisations need. If I think about our project site now, I would like to find

better ways to explore the power of communication and real participation. Like you constantly hear people saying "Street committees -- I didn't know they existed... Meetings -- I didn't know there were meetings, no one told me anything." We think of communities as cohesive but actually people are suspicious of each other and even their neighbours.

Jane: The only time I've seen people use written stuff in the Kat River valley was when we did GIS workshops. Those GIS maps were bought into every single meeting, and those little booklets with reports and illustrations. They always came with people.

Kevin: Maps were fundamental when I worked in the Underberg as well. Maps were always there. Big colourful charts always on the table, with a story unfolding as the next part of the process is recorded there. Charts always there, updated, surveys, colour aerial photographs, contours. Information that people can appreciate, that are really useful.

Jane: People can identify themselves with maps. I witnessed an old lady understanding where she lived from the map. It changed her whole perspective on the spaces around her.

Kevin: There are no easy answers. We have to find ways to focus. Think about what we've been through in South Africa, change of regime, change to a democracy, interest in participation, people matter. Poverty is a major element of our society, so is conflict. All these things are in turmoil. How do we use these elements to enhance our education, to really improve our education?

Jane: I was looking at Water Research Commission research publication list. I'm amazed at how much has been researched. How to make it part of people's everyday lives? I don't know if you have seen this book Tally put together about the National Water Act, titled "Some, for all, forever". In some ways it is the first publication success of the Water Research Commission. It's been going out to schools. Tally did this media tour and introduced it to people.

Kevin: Yes the marketing of these things is key.

Jane: Derick and I wrote a national review as a user-friendly booklet and we didn't do a tour. I think they are just sitting in the
Kevin: Years ago we almost pulled off something which would have been a great form of communication. I was involved with Oxford University Press and had written lots of material over years, for schools. Then Maskew Miller was contacted by the National Geographic Society and they wanted to have an upbeat quiz -- an idea from America -- for schools, starting in regions and then nationally. In America this happens on an annual basis. It was upbeat in the sense that geographical places were represented in videos and screens, lots of lights and buzzing around as the teams battle to answer questions. And the questions are not just about place names but about circumstances, interpretations -- real thinking questions. There was a panel of judges who

knew the answers and evaluated responses. Participants weren't given much time to think about the situation, for example if the question was about how would you deal with water eroding a slope, they were shown a sequence of pictures of solutions and asked to identify one and say why it is appropriate, what they might have done, what might have happened, and give good reasons for it. Unfortunately the sponsor pulled out. It would have been a much more problem-solving, intelligent approach to solving life problems in the world around us than current ways of learning.

Jane: It would have been fantastic to get media like that into people's homes, actually getting them talking about water in the form of a quiz, something that would add a new level of interest.

Kevin: You need a big budget for that, something like the National Geographic Society. That's thinking big. It would change the way we asked questions. In the case of the City of Cape Town communication strategy, it's different. We first need to ask questions about how the public will know the limitations of the resource. This is difficult even for the city to come to grips with. City officials think -- We've built all these dams now so what is the problem? The resources are seen as unlimited so to speak

Jane: If we can't be right on the limit, we should be at least 15% off that limit so that we can handle the shocks...

Kevin: How are you going to educate a resident or user of water? Everyone wants to live as conveniently as possible. Social adaptation is an inconvenience, it seen as cramping my lifestyle. I can't engage with social adaptation until I know what the real issues are. That level of education is something that we haven't tapped into here at all. And that's going to be the key to the strategy.

5. INTERVIEW WITH LANI VAN VUUREN
Water Research Commission, Pretoria

Interviewed December 2008 by Jane Burt

Jane: I've worked on Water Research Commission projects for a while and it's become clear that people are not getting access to the information that they need. We find ourselves as researchers acting as a mediator or go-between, but when we leave the project there is no one to play that role, unless there is a local government or regional Water Affairs office, which is often not the case. We find that even the resources put together by the Water Research Commission for non-specialist readers have to be mediated in some way.

Lani: To package research information in a way that it is not only read, but used, remains one of our biggest challenges. A whole department (Knowledge Transfer) has been established within the Water Research Commission dedicated to these questions and we still don't have the answers. We help create the knowledge and disseminate it but we can't go to the people and talk to them about implementation. That is simply not our role. We can try and capacitate other people to do that and give them the tools, but we can't force them to use them.

One of the things we are looking at now is to publish in languages other than English, especially things that are important to get out at the local community level. We're also looking at multimedia – adding some video to the written word, and that seems to be doing quite well. We did a DVD for local councillors about how important water is for people who suffer from HIV/AIDS, a very simple ten-minute thing. That has proven very popular not only for local government but for people in the sector in general. It has shown us that you don't need a fancy documentary that costs thousands of rand. It can be a very simply video clip reinforcing what you explain in the book. This has led to the production of further DVDs, one called "Water is Life", which explains the water cycle, and another called "Water from Stone: Groundwater in South Africa", an educational DVD about groundwater.

Jane: How did you get that DVD to people?

Lani: We distributed it through our normal channels – exhibitions, workshops and that type of thing – and also via the Non Governmental Organisation that was involved in producing it. We also made a smaller-resolution version and put it on our website, so some people have come to know about it that way.

Jane: We've been finding that resources on their own are not enough. One organisation in Cape Town had produced simple resources on managing storm drain water at a community level, and they distributed them to communities. They found that none of these resources were being implemented. But when they engaged a Non Governmental Organisation to mediate the information, things happened.

Lani: We found out something similar with another recent Water Research Commission project that has finished just now. You know people are supposed to be consulted when local government provide services, but often they don't understand what the services entail. This research, it was by a company, developed a model that takes all of the services from basic housing to water to electricity and sanitation and explains it to people in a way so that they can understand what the monthly cost will be if they decided to go for a two bedroom basic house with a flush toilet and electricity and a geyser. They also found it is no good just giving people numbers, so what they did in addition was create physical box shapes, play-toy things, to represent the services. This make communication easier, but they found you still you need a person there to explain. The model is available free to municipalities.

Jane: There is also the issue of access. Communities need a local 'home' for resources. In theory this should be agricultural extension officers or regional Water Affairs offices, but that doesn't seem to be happening.

Lani: No it's not. In some communities, we find that the public library works quite well because that is where many people, especially schools, go for information. We send the Water Wheel, our general-interest journal, to public libraries. Every town (and most schools) has a library, but not poor rural communities.

Jane: One of the people we spoke to said the Water Research Commission should emulate the 'How To' booklets published by Share-Net in KwaZulu-Natal. These booklets are done in a very simple format with lots of illustrations, and are well distributed.

Lani: That is really commendable ... but we find that researchers are so relieved when their reports are done that they don't even want to think beyond the technical, scientific side. However we are trying to change that. We now ask them as part of their deliverables to do at least one popular article or some other avenue of getting their work through to stakeholders.

Jane: Now that you have a Knowledge Transfer department, how do you take research information forward after the final research report?

Lani: We just don't have the in-house resources to take on rewriting all the research in a non-specialist format. But we do it to a limited extent. We also do it through partnerships, for example with Share-Net, they develop lesson plans for schools, which have become very popular. We set aside funds to engage people to do that kind of thing. Our newly-designed website now also features a "Learning" button, where learners or teachers can access these lesson plans for Grades 0 to 12, as well as educational articles and the Water Research Commission's 'Water @ Work", which is a guide to careers in the water sector. All these materials are also available in hard copy.

Jane: What is your relationship with Department of Water Affairs? Do they read your research reports?

Lani: They only tend to read them when there is a crisis, like if there is suddenly a big media focus on water quality or climate change. We are trying to remedy this with what we call briefing notes, which sum up the research report in a one-page sheet, if necessary with recommendations for policy. We now do this for almost every report. Then if we have research results of specific importance we do a ministerial brief, if it's something that the minister should know about before everyone else does. The idea is that later we can put them on our website. People can register to have them sent to them, and then decide whether they want the full report or not.

Jane: The policy briefs are for the decision-making levels of the Department of Water Affairs, but what about the lower levels, isn't there a big information gap about research there?

Lani: Oh, absolutely. Recently we had an open day for the Department of Water Affairs employees and we extended it countrywide, because even the employees of the Department of Water Affairs do not know who the Water Research Commission is – many of them think we are a department of the Department of Water Affairs in fact. It was specifically aimed at middle management and lower. We didn't have a great turnout, only about 200 people, which is a drop in the ocean compared to everybody who works for the Department of Water Affairs. But we had quite a number of people coming from outside Gauteng, which was nice, and they were the ones who asked for research reports. They had no idea that we send their regional offices bunches of reports every month.

Jane: When I look through the Water Research Commission report lists I see how much research that has been done. I'm sure it's useful at ground level.

Lani: Yes, but sometimes young researchers tell us they can't find anything on a particular topic on our website, and we have to tell them that it's not on the website because it was done 30 years ago. People don't read books anymore – if it's not digital, people don't seem to care about it. We have digitized all of our research reports going back 40 years which can now be found on our webpage.

Our role of empowering decision-makers and policy-makers to make the right decisions for the people is not happening the way it should. When we go to exhibitions and conferences attended by local government officials, we take reports and other relevant publications, and people grab them, but they are not always used. Whereas when we have workshops with local government officials on how to engage with communities about services, the questions that came out were amazing. We go to people affected by specific research, it could be farmers or local government, and introduce the research to them. But once is not enough, we need to do more workshops. The challenge, of course, is manpower. We simply do not have enough people and our research managing staff are quite overwhelmed with research projects at present.

Jane: That's interesting, because it underlines again the importance of the mediation role. What you have learned about the packaging of information? Can you give some examples of products that have worked well?

Lani: We have a little booklet called Watermark that explains what the environmental reserve is, in a simple way that people can understand. There is very little text in it, it is mostly pictures and little quotes. But it is great, it ran out in the first two weeks and people are still asking for it years later so we are updating it.

Jane: How did it become so popular?

Lani: It was an outsourced project done by a publishing house but we sent it out through our normal channels, advertised it in the Water Wheel, and took it to exhibitions, and from there it just flew. So it must have been the way it was presented. Another very popular output has been our coffee table book on the history of water and culture in South Africa. We are also now working on a new general publication on the history of dams in South Africa, which we expect will do just as well.

Jane: That is interesting because it indicates that it is not necessarily the distribution channels that are the problem – if you have a good resource it will just take off through the normal channels.

Lani: You must get it into the right person's hands, the person who is passionate about it. We try and go through as many channels as we can. The bi-annual conference of WISA – the Water Institute of South Africa – has proven to be one of our most successful knowledge dissemination venues, because it is huge and national, I think there were 2 000 people there last year. We gave out hundreds of reports and thousands of Water Wheels, it was nice that people come looking for information. They would come and say, we've just been sitting in this session and they were talking about this Water Research Commission project, where can I find it? Of course that doesn't mean it finds its way to grassroots level.

Jane: Do you keep a record of the most popular reports?

Lani: We do we keep a top ten and interestingly enough they are all TT (Technology Transfer) reports, which are guidelines and tools rather than research reports. TT reports are usually aimed at local government – things like guidelines for water purification. One of them is a water purification guide made up of cartoons that shows the right and wrong ways of doing things, throw stuff in here and not in here, etc. That is very popular because operators can understand it immediately.

Jane: I know the TT report that Tally Palmer did about the National Water Act was also very popular.

Lani: It's still popular. People still ask for it. It has gone through quite a few print runs.

Jane: The Environmental Education and Sustainability Unit at Rhodes University are exploring the use of authentic stories. They take a story generated out of the research process and they develop learning materials around that.

Lani: Well this is the thing. People often don't realize that water is essentially about people. During Water Week we took some high school students to water sources in our immediate area. One was an OK-ish little stream in Pretoria where they fished for bugs. Then one girl said: Why should we care about this? – we can just buy water in a bottle at a local shop. We were horrified, but this is what people think, especially in cities. They don't make the connection. They're so distanced from the environment that it's shocking. We have to find a way bring them back.

Jane: It is more of a challenge in an urban setting than a rural one because at least in a rural area it is a real and visible need ...

Lani: Yes. In an urban setting people are totally disconnected. They have forgotten where water comes from...

Jane: What other kinds of book have worked well?

Lani: Well this one is Wilma Strydom's concept, which was created through the River Health Programme. We published our own little version specifically for a Water Week and she helped us put it together. The River Health Programme has province-specific ones, some of them in the local languages.

Jane: Was this also developed out of a Water Research Commission project?

Lani: It came out of the River Health Programme, of which we are one of the funders. It was designed to bring the importance of water through to children. Each river was assessed and they put out a wonderfully readable book, you could see the stretches of the river, it was great. And it was sent to the provincial departments of the Department of Water Affairs who were expected to get it to the municipalities and to show people how their stretch of river was doing, which is often not very well. When she went back to find out what they did with the books, she discovered they'd given them out at international conferences. People overseas got copies but no one in the municipality did.

Jane: And this book?

Lani: Well this one is a coffee table kind of book that we did for Water Affairs in 2005. It features all the Women in Water award winners, giving water research a human face, a nice concept I think. We use that for schools and career days, especially to encourage girls to get into the sector -- it shows them these are successful women who have achieved a lot.

6. INTERVIEW WITH WILMA STRYDOM
Council for Science and Industrial Research

Interviewed December 2008 by Jane Burt

Jane: What is your job at the Council for Science and Industrial Research?

Wilma: I'm working with the River Health Programme. I'm also doing an MSc degree on the impact of communications materials, specifically about River Health, in the Eastern Cape in the Buffalo and in the Western Cape in the Hartenbos/Klein Brak River catchments. The materials are a mainly non-verbal poster, an activity book, the State of the Rivers report and a poster summarising this report. These were given to primary schools and high schools. In my research I measured the primary school learner's (grades 1 to 3) knowledge before the materials were given to the teachers and afterwards, allowing sufficient time for the facilitators to use the materials during classroom activities.

Jane: What were the results?

Wilma: The materials were mainly used to keep the learners busy. The understanding of river ecology concepts of learners in the Hartenbos/Klein Brak catchment increased. This was also the case in some schools in the Buffalo area, but in others they have not really learned anything. It was thus very much dependent on the effort the facilitators put in. The below average learners scored the best improvements; they learned from the other learners who understood more. The learners also gained insight into why rivers should be conserved, but although the focus of the communication materials was on ecology with some human elements, their responses was mainly related to human impacts and human benefits.

Jane: Would you say it's difficult to develop resources for rural areas?

Wilma: Very difficult. Not only to develop resources, also to make sure they are used. 80% of the people I work with are illiterate. Many of the schools I've been to have very few or no resources: the children did not even have paper or pens.

One of the first problems I encountered when I started doing my research was that the materials were not being disseminated. None of the schools had the resources. When I went to the Department of Water Affairs I found 10 000 books in their storeroom. So I distributed them myself to the schools that were randomly selected.

Teachers were given the resources after the baseline study. Primary School children were given the poster and the activity book, and High School children were given the poster, the State of the River report and the poster summarising the report. Some teachers used the posters, some did not, although I found that when I briefed them on how to use the posters, they were more likely to use them. Some teachers pinned the posters on the board

in the classrooms. Posters were put up at clinics. All the places where posters were seen were places where I had personally dropped them off. I then did a baseline study with schools close to the Hartenbos and Klein Brak rivers. My aim was to find out what students knew.

When I presented the materials to the children myself, they all responded positively. Yet there was a huge difference in the children's knowledge between schools – some facilitators/teachers used the materials and others did not. I concluded that the problem was not with the children or the materials but in the way in which teachers did or didn't use them. I realised that resources can't just be left at schools.

Jane: So the problem is really about distribution, not resource development.

Wilma: Yes, all the costs go to resource development but not much thought or money goes into the distribution of materials, or considering issues such as the fact that most rural schools do not even have access to pencils and books.

I've worked in schools in both the Western Cape and the Eastern Cape. In the Western Cape the teacher would ask which children had pencils and which did not. She had a cupboard full of pencils and paper, which she would give to those who did not. Everything was collected after the class and put back in the cupboard. In the Eastern Cape, there was nothing. Yet both provinces were getting money for resources. What's happening to the resources for the Eastern Cape? Do they even reach the schools? This example shows that you have to follow the route of resources from beginning to end, to make sure they end up where they are supposed to be. Distribution strategies have to take this into account.

A lot depends on the individual teacher. It just needs one teacher to develop an interest to change things. I recently heard the Rector of the University of the Western Cape saying that teachers need to be called to be responsible. It was important that this was said, because it's not happening.

I believe that one way of introducing knowledge into a community, although not everyone agrees with me, is through the children at school. The children communicate with their parents, and the schools also communicate with parents through school meetings. Meetings like this can get a community together and knowledge can be transferred in the form of a play or presentation.

Jane: About the materials themselves, do you feel there is a need to present them differently?

Wilma: Well, even policy makers find it difficult to read technical reports. A lot can be done to make the materials more lively by combining science communication with more artistic methods of communication. Even using praise singers and drama. Community structures allow such possibilities.

But this does not mean that rural areas should not have access to written resources. I remember one man who struggled to read, but nevertheless managed to fill in my questionnaires. Then he asked if he could take home a blank questionnaire to read again, as he felt he had learned something from the questions. He was glad to have been asked for input as no one had asked him before.

It's not that resources do not get out there, but what counts is whether they are used. The launch of materials should be used to encourage access for the people who need them. For example instead of launching at a high profile event, launch the materials in the communities at community meetings. At the River Health Programme launch with the minister present, the community was invited. But they just came, took the reports, ate the food and got T-shirts.

Jane: Where should resources get housed, at a local level?

Wilma: That's an important question. All resource developers need to ask this and ask who is responsible for this. In towns, perhaps, materials can be housed at resource centres and libraries, although in rural areas there are no libraries. There are always clinics, maybe that's where resources could be accessed, but only if you educated the clinic staff about their importance. It all comes down to: will they care? Will clinics care in the way the Water Research Commission wants them to? It might be better to look for a small project or Non Governmental Organisation that has an interest in water, and house the resources with them. Whatever you do, it could mean a lot of work for somebody.

Jane: What do you think of 'how to' booklets, including a 'how to use resources' booklet?

Wilma: That's fine, it's a good idea, but real-life interaction will always be necessary. Our posters had a 'how to use' section on the back and teachers still asked me how they should use them in the classroom. The fact is -- there is no substitute for personal contact. Given that, one can look at the best media. Radio might work, because people do listen to the radio in their own language.

Indigenous language resources need people who are very good with translation. At the River Health Programme we had some resources translated by a professional translation company, but isiXhosa dialects are area-specific. The professional translators did not take this into account, and so the audience did not relate. It's also important to get a translator who understands the content and the message. When we were developing the poster, we spent hours discussing the few words that were on the poster, and how they should be translated into Xhosa. The people from the Department of Water Affairs disagreed with the people from Walter Sisulu University and the discussion went on for hours. I didn't mind, as it just meant that everyone got more committed to the resource.

Jane: How do research and development projects choose particular areas to work in?

Wilma: That is also an important question, because you find that as an area grows as a research base, it gets chosen over and over again for research because it is easy. Do researchers just pick areas that are convenient? What about the other areas that have nothing?

The RADUSA (Research and Development Uptake in South Africa) project run by the National Research Foundation (NRF) is investigating the interface between research and development uptake. One of their projects is looking at whether research is benefiting rural areas.

Jane: At the same time it's important for researchers to stay in one area and have a long-term commitment.

Wilma: Yes, communities get their hopes up, and if a project is suddenly pulled it can have horrible consequences. I know of an HIV programme which trained high school children to support care givers. Then the people working on the programme got other jobs and left. The children were left psyched up, aware of a very emotive issue and left not knowing what to do about it. When I arrived at the school, the children thought I was coming to continue their training, and they were very disappointed when they realised this was not the case.

7. INTERVIEW WITH VICTOR MUNNIK
Mvula Trust

Interviewed December 2008 by Jane Burt

Jane: We want to explore the best ways of communicating with people about water issues, and I know you've studied the transfer of knowledge in depth. What is your perspective on knowledge transfer?

Victor: It depends what you are trying to achieve. Do you want to provide answers, or do you want to open up knowledge to be debated and questioned? Because these two kinds of knowledge can conflict or disagree with each other. Knowledge comes from a knowledge creator is quite different from knowledge which is sought by somebody who wants to do something with that knowledge. The second is much preferable, and it is the kind of knowledge promoted by the Paolo Frere type of approach, it's liberatory knowledge. There may be a need for the first, and it can work if it is done skillfully and with respect, in a dialogic way. The Russian philosopher Bhaktin makes an important distinction between monologic and dialogic communication, in which he says that monologue pretends to be the ultimate word.1 So in any knowledge that is being pushed (or shall we say offered) the dialogic component is very important.

Jane: Can local knowledge or local stories be the framework around which other knowledge could hang on?

Victor: Local knowledge is crucially important and has strengths of its own (a good perspective on this is Brian Wynne's "May the Sheep Safely Graze? a reflexive view of the expert-lay knowledge divide"). Through local knowledge people can achieve a local quality and political control of knowledge creation and sharing.

Narrative frameworks are also very important. They can carry conviction because of the way they are structured, and the way they interact with our expectations of convention. But this makes them a bit risky from the point of view of checking – they can be tricky rhetorical devices that carry a lot of ideological assumptions that remain hidden -- think of how princess stories are sexist and classist…

1 Bhaktin's full quote reads: "Monologism, at its extreme, denies the existence outside itself of another consciousness with equal rights and equal responsibilities, another I with equal rights (thou). With a monologic approach (in its extreme pure form) another person remains wholly and merely an object of consciousness, and not another consciousness. No response is expected from it that could change anything in the world of my consciousness. Monologue is finalized and deaf to other's response, does not expect it and does not acknowledge in it any force. Monologue manages without the other, and therefore to some degree materializes all reality. Monologue pretends to be the ultimate word. It closes down the represented world and represented persons" (1984, pp.292-293).

Since you are doing this water communication study as a research project, it is important to theoretically position your research. You could read Habermas, and writings on 'living knowledge', science and society, and operational knowledge. Habermas developed a philosophy that argues that by entering into a discursive situation, participants implicitly undertake to strive for the conditions of an ideal speech situation, which are "…to develop… a consensual understanding of the issues under consideration, in which claims to both truth and rightness are opened to validity checking, as well as claims to the sincerity and authenticity of the speakers" [2]This position has been used to develop theories of participation and discursive democracy.

We can see Habermas's conception of knowledge functioning in everyday situations in his distinction between communicative and strategic uses of language. Strategic communication, as defined by Habermas, is communication that strives for acclaim (Habermas, 1996). It is manipulative because its objective is the passive acceptance of a message as intended by the sender, and it is not open to dialogic negotiation. This type of communication is often used in public relations, advertising, in corporate communication generally, and in political communication that limits democracy to gathering votes.

In contrast, the communicative use of language builds understanding, because it can be tested and verified for coherence, sincerity and impartiality, which are Habermas's tests for "communicative rationality". This is close to Bakhtin's notion of dialogic communication (free and willing exchange of ideas

2 Habermas 1982, 235, as quoted in Romm, 2001, 145)

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and perspective). Dialogic communication is crucial to building political power through solidarity.

Another important theoretical point of departure is that of Rose, who argues that all knowledge is partial, embodied and localised. It is always useful to keep in mind the dynamic and partial nature of all knowledge, in addition to its interestedness (its will to power). Sorry to sound a bit academic. I will list the references at the end of this interview.

Jane: We have been talking to water communicators/practitioners to find out what their most important questions were ....

Victor: I don't want to be rude, but you should rather be talking to water users. You should ask them what their main questions are, and how they are getting information, and whether this information is useful to them. Questions like: "How do you ask for information? Via phone? SMS? Do you read?" What resources did you develop at the Kat River that people are still using? People would probably access any resource that addresses their questions. How long would it take to develop a resource in response to a request?

Jane: Some people have said that what is needed for water resources is a Non Governmental Organisation dedicated to providing these resources. They argue that without this kind of backup they would not reach the people they are intended for.

Victor: Yes I agree. It would have to be a Non Governmental Organisation using a database of research information. Rural people, councillors, extension officers would be able to contact the Non Governmental Organisation via SMS, phone or email with their questions. Researchers could provide information and a 'living resource' could be developed quickly and efficiently to be sent out to the client. You could engage junior researchers in internships of a year for students coming out of university and looking for some experience.

The challenges would be high communication costs, and getting people to know about the Non Governmental Organisation and use it. Perhaps the Water Research Commission could be approached to pilot the Non Governmental Organisation and research the best way to enhance the initiative.

Jane: How would this compare with the Mvula Trust's Citizens Voice Project? As far as I know this project has developed a series of resources answering basic questions on people's rights about water and who they can contact with regard different issues...

Victor: Well the focus of the Citizens Voice is mainly urban. The resources have been launched and piloted in urban areas in the Western Cape, Gauteng and KwaZulu-Natal. Two government stakeholders are involved -- the municipalities and the Department of Water Affairs and Forestry. And it

seems to be working -- meetings are well attended. It may be possible to extend it to address more rural needs.

Jane: So you think there is a need for a new Non Governmental Organisation to distribute water resource information in rural areas?

Victor: I am not convinced that you need a parallel system to channel information. There is a system already in place which will eventually work, in time -- the system of extension officers, municipalities and local councillors. It's important to strengthen this system rather than building another one.

Jane: Do you have any views on what media would work best for water communication? 25 years ago, in the days of *People's Workbook,* there was no internet, and development issues were never presented on radio or television because the state was not interested in development. There is much more of a choice of media now.

Victor: Radio may be the way to go, as it is listened to by so many people. To working with community radio stations would be a good thing for a water communicator to do, they would strengthen the station. And then an updated web page that could be accessed by local councillors, although this would take a team to manage, and also the internet is not available in most rural areas. The Northwest University (Vaal campus) is exploring the use of cellphones.

In some campaigns electronic media is used by some participants, who then distribute it further to others who don't have access. This approach deserves a careful look.

8. INTERVIEW WITH DERICK DU TOIT

Association for Water and Rural Development

Interviewed May 2009 by Jane Burt

Jane: How does one start thinking about knowledge transfer regarding water management?

Derick: However much it irritates people, you have to ask the epistemological questions. Where is the knowledge coming from? How is the knowledge generated? How do people perceive knowledge? These issues are not just theoretical.

The Water Research Commission is by far the biggest source of water research. If the Water Research Commission does not ask these questions, it's going to continue producing technical reports, which are only useful for a limited group of people schooled in a particular technology. The readers and the writers of these reports are people who might be working on water quality or sewage treatment, people who sometime in the future may need a reference on the topic. There is a place for technically sound information and rigorous methodology, but only some people learn this way. The instruction manual for a microwave oven may be useful to some people, some of the time, but the reality is that many people with microwave ovens are never going to read the manual. I mean I really wonder how many people actually read these Water Research Commission reports.

Research on water is never solely an academic or a scientific endeavour. With democratisation and decentralisation, many water decisions have to be taken by civil society. Everyone in the country now has the right to be involved in issues that affect them, and water is one of them. There are political issues, especially in allocating water. We can't have one body or branch of government deciding that we have to allocate all the water to industry tomorrow, and then turn round and say to the farmers – sorry guys, as of next week you're not getting water. We're not in China where the government can just deploy water as a productive resource into an area that it chooses.

The Water Research Commission's real task is to give meaning to the National Water Act. It's got to explore what this means. Is priority to be given to the ecological reserve, or schedule one, or productive use, or what? To answer this we need a diverse kind of research programme, one that looks not only at the theoretical and policy issues but also at the actual practical work. You can't make policies if you don't get involved in practice. How can people in the water sector transform their practices? They have to challenge their constructions of meaning. If they see knowledge as socially constructed then they will adopt different methodologies.

Jane: How do you propose introducing people who have a more technical construction of knowledge to ideas of a social construction of knowledge?

Derick: Well, you have to go about it strategically – people just don't turn into social thinkers overnight. A lot of the Water Research Commission researchers are water engineer-type people and their views of research are strongly influenced by that kind of scientific positivist outlook. But even social researchers can be positivist – many have a social engineering view.

If the Water Research Commission carry out research programmes that do not include a social context, they will forfeit opportunities to help people learn through enquiry. They need to work research processes into collaborative enquiries with practitioners, based on real contextual situations. For instance if the research problem is to set up a dam operating rule in order to give effect to the reserve, they could do research into that, but at the same time work with the social practitioner on how to implement it. The problems are thus solved between researcher and practitioner. This requires a very different kind of focus compared to how the Water Research Commission works at the moment.

Jane: I asked someone in the Water Research Commission recently which report was read the most. Tally Palmer's little book on the Water Act (*Some, For All, Forever*) has been used a lot, but no one requests it because no one knows it exists. She said the one that was requested the most was a short manual on water and sewage that comes with a CD.

Derick: Yes, because technicians need to use it.

Jane: The same person said the Water Research Commission can't be responsible for making sure that people have access to the research they publish. The way she put it was 'Our responsibility is to researchers and government, and after that we will have to partner with organisations who will take the research further and make it more applicable to non-research people.'

Derick: That's a wrong view of knowledge. It's just generating more information to go on a shelf. And even that information is just one bit of information, part of a whole lot of stuff which is unsynthesised. There is no sense of what it is contributing to. Is it right to generate tons and tons of data, publish it, and then say I have done my job? If so, that's a very limited view of research, even if it's what most people think research is. It's going to do nothing to transform the way that water is being managed in South Africa.

A lot of problems are arising now because people have not changed their practices to be in line with the National Water Act. We are starting to find that people are being litigated against because they are in breach of the Act. They say 'I didn't know the new law, I've always done it this way.' Well you can't be ignorant in the eyes of the law. And if government creates a new law, the first thing it has to do is help the departments implementing that law to understand what it is. We found when we interviewed people in a regional office of the Department of Water Affairs, not a single person understood the ecological reserve, which is a key feature of the National Water Act.

Jane: I gather though that the Water Research Commission is exploring the possibility of producing policy briefs for national departments.

Derick: I was involved in that process in Namibia. Policy briefs are handy, but they tend to be abstracted and too shallow. They are great for introducing a new concept in water services delivery, or water pricing. But they don't address the major challenge, which is to get people to be reflective practitioners at the regional level where the management decisions are being taken. People at national level are really not involved in the day to day stuff. They can talk about regulation, but the best regulation is self-regulation on the ground, and that takes time to evolve. We are only now seeing Water User Associations beginning to regulate themselves. When the Department of Water Affairs tries to regulate, it comes down to legal issues and taking people to court, or threatening people with directives. By that time it's too late for self-regulation.

Of course we need to make sure that people who break the law don't get away with it, but it's more important to encourage the water sector to become self-regulating. Farmers should be able to decide when and how they are going to irrigate, as long as they are in line with their licensing conditions and know the framework they are working in. The Water Research Commission can help people understand these practices. They can help people use tools and help design new tools. But it's the old thing – if the only tool you have is a hammer, you see everything as a nail. If the Water Research Commission endorses methods that are narrow and inflexible, they are going to generate outcomes that are narrow and inflexible. The current Water Research Commission methodology is – collect data, summarise data, analyse data and put the result out. That methodology doesn't help people think differently or restructure interactions.

Interestingly, the Water Research Commission has been successful around water quality issues. This is because water quality treatment and water testing are empirical sciences. But the problems around water management are more challenging because of the demands on the resource. You can't solve competing interests by throwing a manual at people, or even a law. Maybe the Water Research Commission would say that is not their domain, but we then have to point out that they are asking water users such as farmers to contribute to their running costs.

Jane: So you are saying it's not sufficient to provide the information and ask the users of the information to implement it.

Derick: That only works when the person is working on a particular issue and wants to read or access specific information for their own needs. But not in other cases. Take for example the implementation of the reserve. What is entailed in putting a reserve in place? First you have to determine it, for which there are methods that the Water Research Commission can contribute to. Then once you have determined it, you have to look at the context. What is this river like? Where along this river are the problem points?

The same when it comes to restructuring dam operating rules. There we have strategic adaptive management which is an ongoing, incremental research process that has no beginning and no end. If another city comes online, the river dynamic changes and you have to adapt your dam operating rule again. Or say Maputo says we are going to take South Africa to the international court because of the amount of water coming across the border – so again things change. Research outcomes are not final. The original research report has to be scrapped and redone. The best thing you can do as a researcher is to work with the people in the real context so that they come round to a different view of what is possible, and eventually start to do things differently, more in line with what the policy frameworks are calling for.

Jane: So you would say that any kind of resource developed around water should develop in conjunction with water management practice?

Derick: I always say that. But not everybody agrees with me. In water management practice you have to do things within parameters that are not always cut and dried. Things you can do in winter you can't do in summer. During a flood you do it another way. Practices have to be very specifically adapted. Some people have a rule of thumb for the reserve, that it is 10% of the mean annual runoff. But that can't be right. If there is no water in the river or very little, 10% of the annual runoff is more than there is in the river. Most people in the field are complaining that the ecological reserve and flow durations curves are too complicated. We can't understand how to implement them. Sometimes these calculations are not based on real time they are retrospectives. Or there are not enough gauging weirs for every river, so from a practical point of view flow measurement is not even doable.

Jane: So even though the method may be rigorous, it is irresponsible because it actually creates more problems...

Derick: Yes, because how can you force the Department of Water Affairs regional offices or Catchment Management Agencies to implement a policy when there's a bolt missing on the mechanism? It's like driving a car with no bolts on one wheel. The wheel may be good but if it's not fixed in place it is going to fly off and it is going to kill you. Instead of saying let's look at that system, you try to develop technology to be able to deal with it, and so it is becoming more and more complicated. And more costly and more stressful for people out there in the field. Scientists' methods give a deeper understanding of water problems, but only in certain ways. Rather work with teams of people across broad disciplines. Some will provide scientific understanding, some social understanding, some financial. Then you are going to have a much better output.

Jane: Let's come back to how to introduce knowledge or information. We agree that we cannot expect the learning process to be taken on by people automatically.

Derick: Ja, I can't buy a medical textbook in a bookshop and learn to do heart surgery just for interest's sake.

Jane: Do you think then that a water book written specifically for non-technical people would be any different? A simple users' manual?

Derick: I don't see a problem with that. As long as people are interested in it. It would need to have fieldworker-practitioner interest. If it didn't, why would someone pick it up? Don't get me wrong, the Water Research Commission technical manuals are very useful for the technical issues. Like the engineers in water treatment plants, or the people in local government, those guys need them. They have to read them. The engineers who work in those departments have to know the standards around water quality. The other thing they can contribute is how to understand technical method. But let's not confuse technical methods with other methods – the methods for resolving conflict, the methods for allocating water, the methods for determining the reserve, the methods for taking someone to court when they violate their allocation.

Jane: Our original idea was to develop a popular water resource book, very accessible, along the lines of *People's Workbook* of the early 1980s. We wanted to work with practitioners, people who had a lot to do with water users, and help them get their ideas and information out, starting with local newspaper articles, magazine articles, local resources. And then to compile all those articles as an end product in a water book. So at the end of it there would be a three or four layered publishing. Some of the articles could go academic – we can help people develop those writing skills if necessary. So the strategy would be first get things into the public domain, then see which ones are most effective, and then the final product would be the book.

Derick: It sounds like a good thing. But let me tell you the level of writing about water, including scientific writing, is shocking. And because people are not confident about writing, they don't do it, even if they have really good ideas and real experience. For example my colleague, who works here at Association for Water and Rural Development, is not a confident writer, mainly because English is his second language. He's got many important things to do in his projects but he does not want to write because he finds it too difficult. I think you'll find a lot of people like that . Providing these services to people who are writing Water Research Commission reports as well as to fieldworkers. If my colleague was offered that facility his written outputs on this project could increase ten times. We just don't have the time to sit and do this internally because of the demand of other work.

Jane: Our idea is to put together this water book and update it every three or four years. Between editions we would work with whichever practitioners have something to offer, put them in writing workshops to develop their writing skills. So each edition would have new contributors and updated information. At the same time there would be writing skills training and layered publishing going on.

Derick: And the Water Research Commission would fund that?

Jane: We hope so. If the Water Research Commission didn't want it, we would look for a partnership with a Non Governmental Organisation that would house it and fund it.

Derick: It would be quite a sophisticated thing to manage. It would have to be funded as a long term process. It wouldn't bear fruit in the short term.

Jane: I agree, it would have to become part of a whole organisation. However when we started to present the concept of this book to the Water Research Commission they felt we should first undertake some research into knowledge transfer. Which is why I'm talking to you.

Derick: Knowledge transfer is not an unproblematic concept. Or rather, knowledge is not transferred, knowledge is the making of meaning, whether by an individual or by a collective. Meanings that get made on an individual basis are not necessarily going to help in a social field like water management. If I declare that my interpretation of a red traffic light means go, I'm going to come very short. Better to moderate my meaning in line with the society that I'm living in. Likewise information doesn't qualify as knowledge until it is integrated into 'daily accessed' meaning system. Otherwise it is just someone's idea. I wouldn't see a problem with writing a book like you are proposing, but it has to relate to particularities of water management and use. The trouble is that the use of water is an extremely diverse issue. Municipalities address water use differently to farmers. And the same users use water differently in different seasons and economic circumstances.

The Water Research Commission has to think about its mandate and how its sees knowledge. When you are such an important national body with so many funds at your disposal, you have an obligation to ask yourself those kinds of questions. You have to acknowledge that you don't qualify as an ultimate authority any longer. That rocks the whole foundation. It is a problem for any institution, including universities.

Jane: I was thinking of universities as you said that. Have any of them thought through these issues carefully?

Derick: Some international ones, yes. Like Wageningen in The Netherlands, their agricultural unit is a good example of research integrated into practice. You can get some indication of their thinking from their website. They are big on reflexivity. And they point out that you can't be reflexive about someone else's research or data. If a research document lands on your desk, you can't engage with it reflexively – the research is already done, it's too late. So if you believe in learning through reflection, you have to approach research differently from the beginning. This raises a lot of issues about method. Context is everything. Take as an example of knowledge transfer putting a whole lot of recipes on the internet. If someone does not have an oven or a stove those recipes mean nothing. If you don't have an oven then roast duck is not something you're going to try and do. But if it is how to braai boerewors on a fire, then maybe... It just shows how engagement with particular bits of information is context related.

9. INTERVIEW WITH CLARE PEDDIE
WESSA Share-Net, Howick

Interview April 2009 by Jane Burt

Jane: How does Share-Net go about distributing resources?

Clare: Mainly by word of mouth. We always go to the Environmental Education Association of Southern Africa (EEASA) annual conferences, so we share things there. Whenever there is an Eco-Schools3 workshop we put up our banner. And we get other opportunities, for example we had a phone call recently from someone in Pietermaritzburg asking if we could come down and do a presentation to the teachers at their school. In such cases we talk about resource development and how to adapt our resources to their particular needs.

Jane: Which are your most popular resources?

Clare: It changes. At one stage there was a Hands-On booklet called *Life Around the Water Hole* by Elizabeth Martins who used to work here in the Umgeni Valley. The reason it was so popular was that SANParks have a Kids in Parks programme and they bought one for every child, so of course we sold thousands. They have since developed their own learner books specific to the different national parks, such as Mapungubwe or Kruger National Park.

A lot of the Environmental Education (EE) and Outcomes Based Education (OBE) books are popular, but that is because the Rhodes Environmental Education and Sustainability Unit (EESU) buys many of them for their postgraduate courses. The Southern African Development Community Regional Environmental Education Programme (SADC-REEP) buys many of our resources to give to every participant. It's better to assess popularity by how many have been bought by individuals. A hundred individuals each buying one book is different to one company buying a hundred. I always think it's better if a person buys a book themselves than gets one as a handout, because then you can be sure they are going to use it.

Jane: So it tends to be the more big programmes that know about Share-Net's resources?

Clare: One year the Department of Environmental Affairs and Tourism bought thousands of *A Year of Special Days*, I think they bought about 10 000, which was wonderful.

It also depends on how they are promoted. For example Rhona Holmes who also works at Share-Net is a vegetarian and she gets very concerned when

3 Eco-Schools encourages schools to engage in curriculum-based action for a healthy environment. It is an internationally recognized award system that accredits schools who make a commitment to improve their schools environmental performance (www.wessa.org.za/indexphp/programs/eco-schools.html)

we have Wildlife and Environment Society of South Africa (WESSA) gatherings and everyone eats meat. So she wrote this little book called *Eating for the Earth.* It's simply just a selection of vegetarian recipes but she has put some interesting facts and quotes into it, like the carbon footprint benefits of eating one vegetarian meal a day or a week. Because it is close to her heart, she promotes it enthusiastically, so it does really well.

It was the same when Lausanne Olvitt worked here and did the *Hadeda Island* curriculum pack, she was always pulling it out and showing it to people and teachers. Now that she is gone, it only sells occasionally. We did put Hadeda Island on the internet, so you could download parts of the game and play it, as well as the song.

The most popular learning support materials are *A Year of Special Days* (which gets updated every year) and the *Envirofacts*. The fact sheets are flexible -- you can send specific ones on rhinos or raptors or cranes, or you can send a whole selection. They have been steady sellers through the years, they always sell a certain number. But there are some resources that don't do well unless, for example, someone is doing something on AIDS and then someone will buy 20 of the *AIDS Healers* booklet.

Sometimes people contact us and say -- I've done a booklet, is it useful? We look at it and assess whether or not it fits into the suite of Share-Net materials. If it does fit, we get it checked by an expert. It becomes a copyright-free resource and people who purchase that booklet can use it or are free to adapt it if need be.

Jane: Distribution is one of the things that the Water Research Commission is interested in, because they have publications that do not move.

Clare : Well we -- Share-Net and Wildlife and Environment Society of South Africa -- have worked on a few resources in partnership with the Water Research Commission and others. One of them was a series of lesson plans *Learning and teaching about water in our classrooms: A series of lesson plans from Grades R-7* (there's another one for Grades 8-12) which were published by the Water Research Commission in the form of two books. It was suggested to the Water Research Commission that if they could get the books to us in Howick, we could easily distribute them -- people want to read these books, they don't want to have to download lesson plans off the internet. We suggested to Dr Steve Mitchell that the Water Research Commission send all of them to us and we would just charge R10 for postage and packaging, and distribute them.

One of the projects we did with the SADC Regional Environmental Education Support Programme ran for three years, and resulted in a set of books being developed. Sadly these sat in Cape Town, and I don't think they ever got distributed.

Jane: I used to feel that the Water Research Commission books didn't move because of the way they were written, often the reports are very technical. But

then I was involved in producing booklets in a very readable format but those didn't move either, maybe because nobody knew about them. The Water Research Commission sees their responsibility as ending with publishing a report, and other people's responsibility to use it and get it to others. If the Water Research Commission do get involved in how the knowledge does get out there, they will want to partner with other organisations.

Clare: Well we have done this. One example is the two Water Research Commission funded books I mentioned earlier (*Learning and Teaching about Water in our Classrooms for Grades R-7*; and *Learning and Teaching about Water in our Classrooms for Grades 8-12*), which were launched last year. And then recently we just finished updating the mini-South African Scoring System (SASS). Dr Mark Graham updated the mini-SASS and I did a series of lesson plans. Every lesson led to you going to do an investigation whether you looked at the equipment for the mini-SASS or whether you actually did the mini-SASS. We did grades 5,7, 9 and 11, a series of five lessons building up towards a mini-SASS investigation.

Mark used to work for Umgeni Water for many years and now he has his own water monitoring company. He took the SASS and turned it into a form that schools could use, or in fact anyone could use – he made it much simpler. He is trying to partner with Google Earth so that a school or a person can do a mini-SASS and put that information on Google Earth, so that you can see where your river is, how it is doing, who else has done something upstream or downstream.

About three years ago I did a very quick survey of what resources are out there. I contacted everybody on the Share-Net database, probably a thousand people and organisations. I got the most amazing things back, some of which had never been published. For example South African National Biodiversity Institute (SANBI) sent me their water game. I have not made it into a Share-Net resource because it was too difficult to print, it had these cut out bits and pieces. But I have a list, even if it is a few years old. It includes a full inventory of what Rand Water have and Umgeni Water have and obviously the Share-Net suite of resources and Somerset Education and many other places.

Jane: In the Kat River catchment forum I was the mediator for information. My role was to take research and present it in a way that people could read. That could be the responsibility of a whole Non Governmental Organisation or institution – some kind of process to make sure knowledge is being used.

Clare: If it's not used, there's no point.

Jane: Exactly. And the Water Research Commission has reports on everything – information that would help people. It's unbelievable the amount of research they have produced over the years, and yet it seems to just sit there. Someone needs to find a way of getting information out. The Water Research Commission may be willing to fund partners working towards that. Share-Net could be a potential partner for distribution.

Clare: We certainly would be. Look what has happened with this biodiversity book that came out from Department of Environment and Tourism. When I first received it, I hadn't even read the whole book but it looked like it might be pretty useful, so I contacted people by email and asked who wanted them. Schools responded because in grade 7 or 9 they do a big section on biodiversity. There was a fantastic response -- and that was just from one email. This is practical hands-on stuff, even though they call it a water resource report. The two *Learning and Teaching about Water in our Classrooms* are also Water Research Commission Reports.

Jane: It is nice that the Water Research Commission is exploring different ways of putting out reports.

Clare: We field tested the water lesson plans with a couple of teachers and asked them to try them out and see if they worked. I hope it is part of a new trend of the Water Research Commission to become a bit more accessible.

Jane: What about other media besides print?

Clare: Two years ago we worked with the Maluti Drakensberg Transfrontier project between Lesotho and South Africa, which covers the whole Drakensberg, including parts of Free State, KwaZulu-Natal and the Eastern Cape. Dr Jim Taylor, director of environmental Education for the Wildlife and Environment Society of South Africa, worked on planning the theoretical educational programme and then asked us to develop resources for the programme. The people the Maluti Drakensberg Transfrontier Project Lesotho were working with included semi-literate herders and shepherds, community workers and other people. We did a range of resources, including a game, for the E-Info resource box which accompanied the environmental education programme. To demonstrate the game, they made a video, in SeSotho. You could see these hectic conditions, it was freezing and people were coming from miles around, but walking, you know, and gathering around a little cattle area with one education officer working with them. This is very different from a formal classroom.

Jane: How was it used?

Clare: For the Lesotho resources they did a road show which included the game, the fact sheets, a box of resources, and the movie. The components were linked, so for example you would see a picture of the Katse dam and then there would be a story about how people lived around it. The South African one had fact sheets in the form of cards about camping and hikers and security issues and fires. In South Africa the Wildlife and Environment Society of South Africa environmental education people went out and met with everybody and they wrote down all the concerns and then they focussed on the top 20 concerns. In Lesotho it was different, we had a meeting with six people involved in the Maluti Drakensberg Transfrontier project Lesotho who told us which 20 issues to focus on.

Jane: Coming back to schools resources, you have enviro-fact sheets and how-to books. What else is needed?

Clare: For the Northern Cape we wanted schoolchildren to learn by looking directly into their local stream or pond. Other than the plastic container and the pencils all the information they needed was a little fact sheet on water issues in the Northern Cape which we put into the series of lesson plans. We also put in something for teachers suggesting how to go through a debate, and what the debate would be all about, and we added 3 or 4 newspaper articles so the teacher didn't have to go to the library if they didn't have access to one.

Many resources say that the children should do their research in a local community library, but what if there isn't a local community library? If there's no library you have to provide six fact sheets and seven newspaper articles and photocopy them so the children can read them. That what we do --make each one kit or toolbox as complete as we can, so nobody has to go and look on the internet or in the library if they don't have access to these facilities. Those of us who provide the resources, should have already been on the internet and got the best newspaper articles we could find, or the best fact sheets. Teachers have so much to do and I'm sure it is the same with community workers – the last thing they want is adding something that is going to make them do more work.

Jane: So with your experience, what is your recommendation about translating research to the local level?

Clare: The Wildlife Environment Society of South Africa Western Cape are compiling a book, a guideline on environmental rights. It is based on a little Share-Net book, which is now outdated, and is being rewritten by the environmental law centre at the University of Cape Town. I looked through it and thought. This is complicated and I can't understand it. I need something simple. When I see someone dumping rubbish I need to know what is the best thing to do. Do you go to the person and say stop it? Do you write to your local municipality? Do you phone? Who do you phone? That's what I want to know. Laying out the legislation governing it might be interesting, but you actually need to know what to say and how to act when you see someone putting their rubbish there.

10. INTERVIEW WITH DITSHEGO MAGORO
WIN-SA, Pretoria

Interviewed February 2010 by Jane Burt

Jane: What is Water Information Network –South Africa?

Ditshego: Water Information Network –South Africa is a water sector programme. We are funded through the Masibambane programme which in turn is funded through the EU. We were founded in 2003 when the Department of Water Affairs was devising the water sector strategy framework – they put into the framework that knowledge sharing would contribute to the fast tracking of service delivery.

Documentation is our main activity. We have a quarterly newsletter which covers a wide range of issues. Then we have a lessons series, which is like case studies of best practices -- if you read between the lines, they're also about things that people should not do. And we have a fieldnote series which are two page leaflets aimed at practitioners and community fieldworkers.

Then we have a website, which is meant to be a gateway for information for the water sector. I say meant to, because in some areas what we do overlaps with what other people are doing, and we don't want to duplicate. And also because of internal challenges with infrastructure we are not able to operate the website at the level where it is supposed to be.

We also have a mailing list of about 1000 practitioners, national and regional and international so whenever we have any publications or events or if there is going to be a conference we also circulate to our members.

Jane: You also have a person to person learning programme?

Ditshego: Yes, this is done through peer reviews, and mainly limited to district water service managers. I don't know if you know about the district water services managers' forum. It's a group of water service managers from the Eastern Cape, Limpopo, KwaZulu-Natal and North West. They are all rural, so the issues are similar. We bring them together to network, and share. We can see that it is having an impact because they are all practitioners and share the same issues. If one tells another 'I don't think you are doing it right', it's more accepted, it's not like it's coming from an outsider.

We also run training sessions. For example, we identify where in the sector there is a need for sensitising people about collaboration, and then we facilitate that training. It's not us who give the training but we co-ordinate it and partner with people who train. Last year we facilitated an Integrated Water Resource Management workshop targeted at local government.

We also have learning journeys where we take a group of practitioners from Durban to Limpopo or the Eastern Cape, or a group from South Africa to Zimbabwe, or from Zimbabwe to South Africa, those kinds of initiatives.

Jane: Are training needs identified through the peer reviews?

Ditshego: Yes, the water services managers in the peer reviews decide what the gaps are. They have to come up with their plan of action. Some of their skills training, such as financial management skills, fall within the performance agreement with their municipality. It's only if they need training on something related to water knowledge, that we facilitate that knowledge. But if they need to know about something else, we can request the people who know about that to come and talk to them.

Jane: So your main focus with that peer group then is making sure they have the knowledge to be able to do the job?

Ditshego: Yes, for example we monitor their business plan to make sure it is implemented. If we find any gaps there, we organise training through the municipality. For water sector gaps, we set up whatever training is needed. The water services people have to realise that they can't deliver a service unless they know how much they have. If they don't know, we facilitate interaction to take place between them and water resource management. It might be a workshop, it might be a training course, it might be a conference, or it might just be a discussion

Jane: It sounds amazing, like forming a community of learning.

Ditshego: Yes. Last year we participated in a Lessons Learnt workshop for civil society which all the Non Governmental Organisations and Community Based Organisations dealing with water participated. We all went to Limpopo because in Limpopo six Non Government Organisations have come together as a consortium funded by the Irish Aid. Instead of Irish Aid giving one Non Government Organisation R1 million and another R2 million, they said: bring yourself together, and use this programme to strengthen each other. So the approach is holistic. One NGO specialises in training, one in nutrition, one in sanitation and community water supply, one in home-based care and HIV. So you will find that in the Elim area, for example, there may be some households that don't have toilets. They will identify the need and go to the consortium. The sanitation Non Governmental Organisation, Tsogang Water and Sanitation , will say OK, we will train you how to do it. And then the community might say we also want to do something about food security, then you have Tlhavhama Training Initiative which is specializing in food gardens.

Jane: It makes so much sense. The only surprise is funders have not done it like that before.

Ditshego: Yes, but there are not many funders out there who are willing to provide that kind of holistic support. But even if a group of Non Governmental

Organisations don't find a single funder they could still come together and address issues without competition among themselves. There is no point to competing, you are there for the same reason and you can only strengthen each other if you work together.

Jane: How do you approach the Lessons Learned case studies? Do you just get to know a community and write up the case study?

Ditshego: No, for most of them we have reference groups who assist us in shaping the content. Like the Ukhahlamba area in the Eastern Cape for example. The need for documenting this was not identified by us, it was identified by the Water Sector Forum in Eastern Cape, who asked us to help them document the lesson. We did that at a national level, and we drew on a group of experts on water quality to guide that process. With the one we are doing on Infrastructure Asset Management, we are using that kind of approach. So it's much more than just engaging a consultant to go and write the lesson.

Jane: It brings the practitioners together too.

Ditshego: Yes, the topic hubs are each driven by a group of practitioners through reference groups. Even if the actual report is written up by a consultant we still have this group of people who have specialist interest in the subject.

Jane: I've been reading about learning theories, how learning works best when it is a conversation. It seems like both the peer group reviews and the reference groups could be seen as communities of learning, and they can feed off each other. I guess putting the Lessons Learned document together is a learning process in itself.

Ditshego: When we started with the Northern Cape we were looking at documentation of infrastructure asset management. Neither we nor the reference group had ever done this before, but we were going there to engage the stakeholders in the Northern Cape to provide inputs to the draft lesson and to evaluate the lesson. We found a number of practitioners wanted to continue the discussion, so it was not a matter of documenting and disseminating it, and then end of story. If we just document it and disseminate it, some will read it and others will not read it. But if we go there with a draft and then we engage the people concerned, they can tell us their lessons and their experiences.

Jane: So when the final product comes out there is a sense of ownership.

Ditshego: Yes exactly. You want the key stakeholders in the process to be there. That's why it takes us quite a long time to produce a lesson. And there will be different municipalities coming together in that workshop. Maybe two or three will be doing well, but the rest might not be doing well. People don't want to be the one not doing well. So there will be pressure, but not direct pressure.

Jane: Even if it takes 8 months, it must be worth it because the amount of learning that happens. The learning that has happened in putting the resource together will probably be more than the learning that happens from the written resource itself. Your idea of developing a resource with a reference group seems like a very useful model for the Water Research Commission to look at.

Ditshego: Well they are interested, because they are funding the project. I'm happy to say that the final draft of the second lesson will be available next week, and then it will be followed by another workshop with the reference group. When we review the process we can also invite other people to assist us in peer reviewing. So it is achievable.

And the Lessons Learned case studies do serve as a PR function for municipalities, because they don't speak with a criticizing or shaming tone. So the municipality wants to have copies of the document. For example, the City of Johannesburg, we did a Lesson for them, two years back. Every time there is something related to that topic they want more copies. We give them the electronic version and they reprint it for themselves.

Jane: Is the focus of Water Information Network local government as a whole or water services in particular?

Ditshego: In the past Water Information Network-South Africa focused on water services. We are now moving towards water resources management and water services.

Jane: What were the other challenges with the Lesson document that you did with the reference group?

Ditshego: Sometimes service providers are not open, so we may need to spend a lot of time dealing with their misunderstandings about what they are supposed to do. This happened in this recent assessment as there was inadequate asset infrastructure management. It was time-consuming for some members of the reference group because those who had knowledge about infrastructure asset management had to end up writing something for the service provider so that they could manage their assets properly. It was a learning journey for everyone.

Jane: In the water sector, knowledge is so often recycled to the same few people in the same places. How does WIN break out of this?

Ditshego: We reach other practitioners who aren't part of the water sector. Like recently, we disseminated information from the Dept of Social Development – we also work with them since they have a programme on population, environment and development. We sent that brochure out on our mailing list and about 10 people responded who were not from the water sector, they are more on the periphery. And we also reach people who are not on central water sector mailing lists. Like if we go to a municipality in

Mafikeng, we get the database of stakeholders there. When there is a workshop in Limpopo, we are able to reach people there.

I like meeting people and networking with people. Before joining the Water Information Network I was working in Limpopo at a national community training institute. If the director was unable to attend meetings or workshops he would ask me. I would always be willing to go. One of the stakeholders asked me once: why is it only you and your boss who are always coming to Pretoria? Where are the other people?

We are all working in the water sector, even if you are an administrator. If you are exposed to information, you shouldn't keep it in your office. You must feel the need to want to know about something. Those who have information and knowledge will recognize it and share it with you. But if you don't show any interest the information will just sit there. You have to get out of the office. It's a privilege to have a job where you can get out. How else are you going to know what's happening around you?

It's all about networks. If you've met someone working for the Water Research Commission then you know you can send her an email to go look in the publications if there is anything. Members of the public have access to these papers, but how does anyone know unless they network?