Ethnographic research methods to better understand household water practices

Report on research testing the use of a non-interventionist and participatory ethnographic tool to understand rural water practices for regulatory purposes.

Report to the
Water Research Commission

by

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This report is supplemented with a DVD *Ethnographic research methods to better understand household water practices* (**WRC REPORT TT 517/12**).

Executive summary

1. BACKGROUND/RATIONALE FOR THE STUDY

In his 2009 State of the Nation address, President Jacob Zuma emphasised that the fight against poverty remains the cornerstone of his government's focus. As long as communities are without clean water, proper sanitation and decent shelter the government would continue to engage in the battle against poverty. Rural development was stressed and an aim was set to provide universal access to basic water by 2014. Furthermore the president urged the rural communities of South Africa to tell the government about their basic needs.

It is, for several valid reasons, a challenge to obtain valid reliable data from rural populations. Research instruments are often not suitable for use amongst rural communities because of their design. The problem with data collection may be further impaired by the fact that many rural people are functionally illiterate. Open communication and the collection of data may be seriously impaired, critical information or detail may be overlooked leading to outcomes may be superficial or incomplete in nature.

A critical gap exists in South Africa regarding the status quo of water supply and use in rural communities, whether they are served by a local authority or not. Information surrounding challenges, availability, supply or lack of supply, water scarcity, management in times of draught and other water related is issues are largely absent. This lack of information leads imminently to an inability by the incumbent powers to address problems. The government remains incapacitated to deliver on its goal to provide basic water to all.

2. OBJECTIVES

The objective of the study was:

- To gain a better understanding of the practices of water in rural South Africa;
- To determine innovative management arrangements relating to water at family and neighborhood level; and
- To produce a film report based on the outcomes of the ethnographic research.
- Theoretically, this approach was developed from the insights and methodologies of ethnographic research, participatory video, Participatory Rural Appraisal (PRA) and community-led action research.

In the search for an innovative methodology to meet the first objective, the function of the visual methodology of the research evolved to develop a tool that would improve understanding of rural water practices by empowering a rural community to visually record and reflect on their own practices.

The tool that was developed was based on non-interventionist participatory video theory. The following principles were followed:

- Different visual perspectives on the water practices of a rural community were obtained;

- Members of the community were trained to use a video camera and to record their own insider footage, i.e. a participatory approach were followed;
- The tool was multi-faceted, giving the community different perspectives on their own practices. Insider and outsider perspectives complemented each other, which the researchers hypothesized added to the validity and reliability of the findings;
- The tool was non-interventionist, not imposing any outsider suppositions about "problem" and "solution"; and
- The tool gave a rural community a unique "voice'': to observe, interpret and reflect on their own water practices. As such, it offered new learning experiences for the participating community and stakeholders in the water sector.

  It was not the objective of the study to make a visual inventory of water practices in the community. However, film footage could be used to compile such an inventory as the data disks that are available on request from the Water Research Commission, illustrates.

The methodology entailed that three residents of a community recorded (on film) practices relating to water from 12 households in the community; recording at each household was done over a two day period. Afterwards the footage was categorized and shown to the community to determine whether they regarded the film as a true reflection of their behavior. During viewing, the community debated not only the footage, but also possible solutions to their problems with water. They also instructed the researchers to edit the footage according to specific criteria to allow them to use the film to illustrate their problems to authorities.

The focus of the study was on developing the tool and its use in one community. The actions that the tool would trigger in other communities with different circumstances and practices will still have to be explored.

The research methodology was not contrastive; it did not compare the use of the tool with PRA methods or any other methods of ethnographic research. No conclusions can therefore be made as to whether this tool is better than other research methods.

3. PRESENTATION OF THE FINDINGS

Since the visual component formed the basis of the study, presentation of the findings is in a visual format. The DVDs illustrates the participatory, non-interventionist approach using the report…..WRC…… is available from the WRC.

These DVDs present the background to the study, the research process, the different insider-outsider perspectives and the outcomes of the ethnovisual tool.

4. THE RELEVANCE OF THE ETHNOVISUAL TOOL FOR REGULARITY PURPOSES

The quality of the information gained from the this study combined with the high levels of interaction with and contribution by the community created during the process, strongly indicate that the tool could potentially contribute, from a regulatory point of view, in

creating a starting point for a conversation between local government and residents. It was evident in the study in Sekakene that residents felt they had been given a voice, which they did not have when they had to rely on written and verbal communication alone.

Most encouragingly, 'the voice' was not only regarded to serve as evidence of the problematic water situation, but also to communicate how they could potentially be part of the solution.

5. THE ETHNOVISUAL TOOL AS PART OF A PARTICIPATORY NON-INTERVENTIONIST APPROACH

Potential solutions were not suggested to residents by the researchers and they had to decide on their own strategies. Researchers avoided manipulating residents in a certain direction and remained wilfully non-interventionist. The process of filming, viewing and discussing the film footage no doubt contributed to the generating and shaping of solutions that may well in future improve the quality of life in the village.

6. USE OF THE ETHNOVISUAL TOOL FOR FUTURE STUDIES IN RURAL COMMUNITIES

This study has clearly shown that the ethno-visual tool can be used in a participatory non-interventionist manner in rural communities. The study was innovative in that it was non-interventionist, allowing rural people the opportunity to examine their problems through their own eyes and using their own perspective. The use of different perspectives, both from insiders and outsiders to the community broadened the scope of the study. Apart from the film footage, other material collected was graphically and visually provided to the elders in the community, allowing for debate on a level previously unknown to them.

Although further development and/or shaping of the tool may be required to fit the profiles and problems of specific communities, it is envisaged that the ethno-visual tool would have substantial value in similar situations in other communities, specifically to contribute to the discourse on community led participation. It would also allow for comparison of the use of the tool with other participatory rural research methods

Contents

Author's Note

As agreed upfront, the visual or film reports form the focal point of the feedback on this research study. This written report provides an executive summary of the main findings to complement and support the film reports. It also provides in-depth discussion on the first phases of the project, i.e. the literature study, the chosen research methodology and more specifically the effectiveness of the use of the ethno-visual tool and process followed.

There are four DVD outputs, categorised as follows:

DVD 1 Demonstrating the application of the ethnovisual tool

- Introduction
- Demonstrating the application of the ethnovisual tool
  - ❖ Practices Leading to contamination
  - ❖ New insights on contamination pathways
  - ❖ Evidence of the absence of practices
- Participation of community
- Context Films
  - ❖ Film 1: Commissioned by elders
  - ❖ Film 2: Insiders / Outsiders' film
  - ❖ Film 3: Researcher's film

DVD 2 Research report, narrated by the project leader

- Background to study
- The research process
- Illustration of the water situation
- Capacity building
- Giving rural communities a voice
- Evaluating the ethno-visual tool
- DVD Extras
  - ❖ Researcher's Film
  - ❖ Film commissioned by elders

DVD 3 Data disk of categorised footage

- Water Sources
- Water storage
- Water disposal

DVD 4 Data disk of categorised footage

- Cleaning house
- Laundry
- Food preparation
- Personal Hygiene
- Drinking water

Outputs DVD 1 and 2 form part of the DVD. Outputs 3 and 4 are available from the WRC on request.

1. PROBLEM STATEMENT

1.1 BACKGROUND TO THE STUDY

This study was aimed to test the viability of an ethnographic participative technique, i.e. the use of a video camera, to do research about water related issues in rural communities. In addition it may inform communication and education campaigns aimed at effective water management. Due to the nature of exploratory research, it was predicted that other unexpected outcomes could present themselves.

The study was a response to the call in developmental discourse that indigenous household water practices and innovations should be taken into consideration in development interventions and solutions for rural water problems.

1.2 HYPOTHESIS

It was hypothesised that an ethno-visual research tool which investigates management arrangements relating to water family and neighbourhood level in a non-interventionist and participatory manner, is more efficient for regulatory purposes than other rapid ethnographic approaches.

It was furthermore hypothesised that, due to the participatory nature of the approach, the tool will give rural households a unique voice to observe, interpret and reflect on their own water practices, thereby responding to President Zuma's call for rural people to tell Government about their basic needs. As such it offers a new learning experience for the participating community and stakeholders in the water sector.

2. OBJECTIVES

Two primary objectives for the study were defined and agreed:

- to gain an in-depth qualitative understanding of water management practices* in deep rural South Africa, (including innovative management arrangements at family and neighbourhood level from the perspective of rural people); and

- to test the suitability and effectiveness of the ethno-visual tool supported by interviews and interaction with the community, as a research methodology and approach in determining honest and accurate information to guide and support future strategies and development.

As such, learnings from the literature review were introduced into the research methodology for this project.

(* It must be noted that, in the initial phases of the study, 'sanitation practices' were included. However, it was decided on recommendation to focus exclusively on water practices. The study therefore primarily focussed on **household water and hygiene practices**.)

3. INTRODUCTION TO ETHNO-VISUAL RESEARCH STUDY

3.1 LITERATURE REVIEW

Prior to developing the hypothesis, a literature study was conducted.

In summary the literature study focussed on existing research relating to how the global water crisis impacted on rural populations, leaving them vulnerable in this regard. In addition the study explored the achievement of rural development goals, research for rural development, ethnographic research, and flowing from that, rapid ethnography and the use of video as a technique in rapid ethnographic research.

The detailed literature review follows in section 4 of this document.

3.2 CONCEPT DEVELOPMENT

3.2.1. Concept based on the literature review

For a study that aims to reveal household practices and not to change them, participatory video in the ethnographic tradition seemed to be the most appropriate research tool. Furthermore, participatory ethnographic video has not been used in South Africa for this purpose.

Based on the literature review, the following was envisaged:

This study followed on the tradition of participatory ethnographic film, i.e. it aims to give a non-interventionist view of rural water practices. We argue that the aim of this study is to learn from rural water practices; therefore the study will not explore the necessity for, or the value of, change in the researched community. Any action for change that is initiated by the research will need to come from the community itself or from the institution that interprets the video for that purpose.

The study will merely give a visual tool to a rural community to capture, analyse, interpret and present their household water practices from their own perspectives. Community analysis and interpretation will also be filmed and included in the final video products.

The subjective perspective of the insiders will be complemented with the subjective perspective of an outsider researcher. This will be done with a video on local water practices from the subjective perspective of the outsider researcher.
The community will get the opportunity to interrogate, analyse and interpret the outsider perspective against their own perspectives. As such, the insider (households) and the outsider perspectives can generate debate and learning about their own practices.

The research design will include training of community members in filming and editing techniques. This capacity building could be used to establish a small business in the community. Participatory ethnographic film has not been used in South Africa in water

research. The specific methodology of complementing insider perspectives with an outsider perspective is also new, as far as could be established, in ethnographic research.

3.2.2. Research methodology proposed after the literature review

The research required the involvement of community members to investigate water practices at household level in a rural community – from resource to individual use – from their perspective. Community researchers were required to capture their research findings on film (photographs and video).

The community researchers and the researched households were involved on the following levels:

- Training: community researchers were trained in basic photography and the use of a video camera, using the PV Handbook of Lunch & Lunch (2006) as basis;
- Production: community researchers took photographs and made a videos of water-related practices in their own households (filming household practices and editing footage), based on an agreed framework of observation; and
- Analysis and interpretation: the visual material was screened at public meetings and both the community and the researchers got the opportunity to interrogate and interpret the visual material.

The reliability of the methodology was be demonstrated by replicating the research in 12 households in the same community.

In order to complement the subjectivity of the insider observers, an outsider perspective was added to enhance the validity of the methodology. After the participatory videos were made, the research team spend time with each household to interview participants and take video footage of practices and edited these into a film. The outsider perspective was also shown at the public screenings and discussed with the community.

3.3 PHASES OF THE RESEARCH

The study was undertaken in the following phases:

- Phase 1: – The literature review (see above)
- Phase 2: – Selection of a community

The following selection criteria applied:

- Accessibility (a rural community was selected where people were amenable);
- Water challenges;

For the researched households the following selection criteria were applied:

- Access (willingness to participate and a person who could be trained in filming techniques);
- Different generations (babies, children and grandparents); and
- Similar household income.

- **Phase 3 – First visit**
  - Contact with traditional leaders and community structures to get their permission and buy-in was established;
  - A meeting with the community was held to inform them of the research project;
  - Contact with the municipality was established and get their buy- in.
  - Information from the IDP and WSDP on the community and its water situation were sourced;
  - The research design and schedule were finalised; and
  - The two research households for the pilot study and community producer(s) were selected.

- **Phase 4: – Production of participatory films**

  During the pilot phase of the research the following steps were followed:

  - Local participation was solicited:
    - ❖ Local manager was briefed about responsibilities;
    - ❖ Camera operator was trained; and
    - ❖ Residents were recruited to be filmed.

  - Filming took place;
  - Tapes were digitized and viewed;
  - Further training was provided to the camera operator regarding:
    - ❖ Use of the camera;
    - ❖ Appropriate content to film.

  - Pilot phase editing was done; and
  - Rough cut film material was shown to those involved in the project to confirm validity of the content. Discussion was encouraged at this phase.

  The filming of the final project was conducted as follows:

  - Recruitment of ten more households to be filmed was done;
  - Two more camera operators were recruited and trained;
  - A moderator to lead discussions in the local language, Sepedi, was recruited and trained;
  - A local person to take on the tasks of editing and directing the footage was recruited and trained;
  - An experienced director /editor to oversee the editing process was appointed;
  - Rough cuts of households were completed and respondents viewed these two at a time, i.e. one whose household was on the footage and another who was from another area in the same village.

- **Phase 5: – Produce outsider film**

  Members of the research team visited the researched households, conducted interviews with members and took film footage. The footage was edited into a short film.

- **Phase 6: – Community screening**

  The four films were screened to the community. The screening is facilitated by a member of the community who is not living in the community. The meeting was videotaped, edited and integrated into the films.

3.4 Consolidating the literature review and the ethno-visual tool

The literature review summarized the implications for the ethnovisual tool as follows:

This study was a response to the call in development discourse that indigenous household water practices and innovations should be taken into consideration in development interventions and solutions for rural water problems.

For a study that aims to reveal household practices and not to change them, participatory video in the ethnographic tradition seems to be the most appropriate research tool. Furthermore, participatory ethnographic video has not been used in South Africa for this purpose.

This study followed on the tradition of participatory ethnographic film, in other words, it aimed to give a non-interventionist view of rural water practices. We argue that the aim of this study is to learn from rural water practices; therefore the study did not explore the necessity for, or the value of, change in the researched community. Any action for change that is initiated by the research will need to come from the community itself or from the institution that interprets the video for that purpose.

The study merely gave a visual tool to a rural community to capture, analyse, interpret and present their household water practices from their own perspectives. Community analysis and interpretation will also be filmed and included in the final video products.

The subjective perspective of the insiders was be complemented with the subjective perspective of an outsider researcher. This will be done with a video on local water and sanitation practices from the subjective perspective of the outsider researcher.

The community got the opportunity to interrogate, analyse and interpret the outsider perspective against their own perspectives. As such, the insider (households) and the outsider perspectives can generate debate and learning about their own practices.

The research design included training of community members in filming and editing techniques. This capacity building could be used to establish a small business in the community.

Participatory ethnographic film has not been used in South Africa in water research. The *specific methodology of complementing insider perspectives with an outsider perspective is also new, as far as could be established, in ethnographic research.*

4. LITERATURE REVIEW

Using ethnographic research to better understand water and sanitation practices in rural South Africa

4.1. The problem

The world is projected to face a freshwater crisis, particularly in developing countries (UNESCO-World water Assessment Programme (WWAP), 2003).

According to UN estimates of 24/2/2005, the world population is expected to increase with 2.6 billion over the next 40 years, reaching 9.1 billion by 2050 (UN, 2005). "Over 90 percent of population growth is expected to occur in poor regions in developing countries, and particularly among rural communities that depend on subsistence agriculture" (Varghese, 2007). The International Water Management Institute predicts that there will not be enough freshwater to meet the needs of the world's population and rural populations will suffer the most (Consultative Group on International agricultural Research (CGIAR) , 2006).

In 2004, 1.1 billion people worldwide lacked access to a reliable source of safe water and 2.3 billion lacked access to improved sanitation (World Bank, 2008). The current water backlogs in access to water and sanitation that rural populations suffer are in many cases the result of the over-use and pollution of existing water resources, for example depleted aquifers, polluted rivers, contaminated groundwater, saline or water logged land. "Today's water crisis is exacerbated by the resource intensive lifestyles supported by a globalized economy. 12 percent of the world's population uses 85 percent of its water." (Varghese, 2007, p. 2)

As more food is needed, irrigation intensifies. Varghese (2007) points out that several studies have recorded the negative impact of intensive irrigation on water quality (salinity ingress, higher field erosion rates and high chemical residues in water) and decreased availability for domestic use and subsistence farming. Export, fibre and fuel crops are often more lucrative than staple food crops, with the result that governments encourage them. Varghese (2007) cites the example of the international flower trade in Colombia, which causes water stress among local populations. China is another example: in order "to feed the voracious global consumer market, China has transformed its entire economy, massively diverting water use from communities and local farming to its burgeoning industrial sector… millions of Chinese farmers have found their local wells pumped dry" (Barlow, 2000).

4.2 The goals

Millennium development goals (MDGs)

The Millennium Development Goals aim to achieve by 2015, using 1990 as a benchmark, the following:

- Halve the proportion of people living in extreme poverty and hunger
- Halve the proportion of people without access to safe drinking water (with sanitation added at the World Summit on Sustainable Development, 2002)
- Achieve universal primary education

- Empower women and promote equity between women and men
- Reduce under-five mortality by two-thirds
- Reduce maternal mortality by three-quarters
- Reverse the spread of killer diseases, especially HIV/AIDS and malaria
- Ensure environmental sustainability
- Develop a global partnership for development, with targets for aid, trade and debt relief. (DWAF, 2004, p. 16)

The water and sanitation-related MDGs cut across all seven the other development goals. It is widely recognised that access to safe water and sanitation, in rural areas particularly, alleviates poverty, empowers women, reduces mortality and reverses the spread of waterborne diseases; thus serving development and universal education goals. Sustainable water and wastewater treatment is part and parcel of environmental sustainability.

Ethical goals

In 1999, the Sub- Commission for Ethics in Freshwater Use (as a sub-division of the Commission of Ethics in Science and Technology (COMEST) identified a number of fundamental principles, which could also be described as ethical goals:

- Human dignity;
- Participation for all individuals, especially the poor;
- Solidarity of upstream and downstream users;
- Human equality;
- Common good;
- Stewardship, which respects wise use of water;
- Transparency and universal access to information;
- Inclusiveness, including minorities, the poor and other disadvantaged persons;
- Empowerment. (Brelet & Selborne, 2004)

Partnerships and focus on local level solutions are identified in the same publication as practices necessary for success.

Improved vs. unimproved water and sanitation

The Strategic Framework for Water Services (DWAF, 2003) defines basic water and sanitation, in terms of which improved versus unimproved access is measured, as follows:

basic water supply facility	*(revised)* The infrastructure necessary to supply 25 litres of potable water per person per day supplied within 200 metres of a household and with a minimum flow of 10 litres per minute (in the case of communal water points) or 6 000 litres of potable water supplied per formal connection per month (in the case of yard or house connections).
basic water supply service	*(revised)* The provision of a basic water supply facility, the sustainable operation of the facility (available for at least 350 days per year and not interrupted for more than 48 consecutive hours per incident) and the communication of good water-use, hygiene and related practices.
basic sanitation facility	*(revised)* The infrastructure necessary to provide a sanitation service which is safe, reliable, private, protected from the weather, ventilated, keeps smells to the minimum, is easy to keep clean, minimises the risk of the spread of sanitation-related diseases by facilitating the appropriate control of disease carrying flies and pests, and enables safe and appropriate treatment and/or removal of human waste and wastewater in an environmentally sound manner.
basic sanitation service	*(revised)* The provision of a basic sanitation facility which is easily accessible to a household, the sustainable operation of the facility, including the safe removal of human waste and wastewater from the premises where this is appropriate and necessary, and the communication of good sanitation, hygiene and related practices.

The UN Human Development Report on domestic water use (2006) illustrates that the goal of "improved" or basic water and sanitation as defined as above may be less clear-cut than it seems:

"Improved" and "unimproved" water—an illusory border between clean and dirty

In most rich countries the phrase "access to water" has a simple and widely understood meaning. Almost everybody has access to a tap in their house that is connected to a network maintained by a utility. Utilities are charged with maintaining the network and meeting water quality standards—and they are authorized to charge a stipulated price for the service that they provide. In the world's poorest countries "access to water" means something very different.

The language of international data gathering can sometimes obscure the way poor households access water. International statistics draw a distinction between "improved" and "unimproved" access. Improved encompasses three dimensions of water security: quality, proximity and quantity. For international reporting purposes people are classified as enjoying access to water if they have available at least 20 litres a day of clean water from a source less than 1 kilometre from their home. Technology broadly defines whether the source meets the criteria of being improved. In-house connections, standpipes, pumps and protected wells are all defined as improved. Water acquired from vendors and water trucks, along with water drawn from streams or unprotected wells, is not.

The distinction between improved and unimproved is clear-cut and convenient for international reporting purposes. It is also a deeply misleading guide to reality on the ground. In the real world of water-insecure households the simple border between improved and unimproved water is illusory. For millions of poor households, daily water use patterns combine recourse to improved and unimproved water.
(UNDP, 2006, pp. 82-83)

Changing goals in a changing environment

The Millennium Development Goals and the ethical goals have been defined within a particular world view and a particular context.
As the context changes, new perspectives on these goals arise. We give a few examples.

Shifting goal posts

Projected figures for 2025 (UN FAO, 1995)indicate that the availability of water per capita in Africa will decrease as a result of increasing urban populations, economic development such as mining and tourism and pollution (UNEP & WRC, 2008, p. 8).

Political instability, wars, rapid urbanisation, foreign debt, HIV/AIDS, collectively constrain growth and development and affect water demand and supply and sanitation.

4.3 The effect of climate change

Climate change affects national and international water supply goals as prolonged droughts and floods create new water supply problems.

The report of UNEP & the WRC (UNEP & WRC, 2008) cites several research studies that have investigated the vulnerability of Southern Africa to climate change. Southern Africa is drought-prone and rainfall is uneven, which in turn affects the availability of groundwater, the main source of rural water.

4.4 The effect of globalisation: new rurality

Cleveringa, Klay & Cohen (2009) state that globalization has led to, what is called, "a new rurality". They define "new rurality" in the following terms:

In many rural locations – in addition to the current food, fuel and fertilizer crises – natural resources, including water, are already limiting production. In addition, increasing prices for basic food items will affect the nutrition of those sectors of poor people who are net food buyers.

Changes in livelihood strategies, the climate, governance and agricultural water management, create uncertainty and risk and are likely to have a disproportionate impact on poor rural people and their ability to access and make good use of limited water supplies.

4.4.1 Livelihood strategies are changing.

Most poor rural households are not well prepared to cope with the new, market-related incentives. Farming is often only a part of their livelihood system, frequently left to women, who must secure the survival of children and

aged family members. This is leading to a feminization of agriculture, particularly in sub-Saharan Africa, and has grave consequences for choices and interventions. However, changing markets bring new opportunities. Rural markets are being infiltrated by large, often international, agribusiness companies, which control value chains from the primary producer to the final consumer. New niche markets are developing for agricultural products such as fruit, vegetables, nuts, flowers, fish, shrimp and spices, but they depend on water and investment in water management. The 'winners' are found in central locations close to airports and among resource-rich rural households. The 'losers' are in remote areas and have sparse resources.

4.4.2 The climate is changing.

Predictions suggest that rainfall will be more variable and unpredictable, and this will inevitably impact crop yield and quality. Natural disasters – especially drought and flooding – are already increasing in severity. Poor rural people are the most vulnerable, without the means to protect themselves or to cope with the consequences of disasters. Climate change will also deplete and degrade natural resources, as will population growth, commercialization and inappropriate use. Natural resources, in particular water, will become the limiting factor. This may lead to resource based conflicts and the further spread of unsustainable resource management practices.

4.4.3 Governance is changing.

Most countries are developing policies that decentralize power, functions and resources. However, many governments are reluctant to implement these policies because rural communities lack capacity, and governance fails once responsibilities are devolved. NGOs are supporting community-based organizations, but these groupings alone are not in a position to provide the services their members require unless they are backed up by reliable governmental or private service providers.

4.4.4 Agricultural water management is changing.

Attention is focused on making better use of what is available, rather than trying to develop new resources, which are becoming prohibitively expensive in terms of financial, social and environmental costs.

This means:

- increased water productivity, i.e. 'more crop per drop';
- use of 'green water' (rainfed agriculture), rather than 'blue water' (irrigated agriculture);
- new institutional arrangements that centralize responsibility for water regulation, decentralize management responsibility and increase user ownership and participation;

- new arrangements for safeguarding access to water, such as long-term tenure security for poor and disadvantaged groups, particularly women;
- management of unpredictable water availability and water-related hazards using soil and water conservation practices, improved drought resistance of crops, and adoption of weather insurance schemes.

4.5 New technologies

The solution landscape changes as new technologies become available.
The IFC report (Safe Water for all: Harnessing the Private Sector to reach the underserved, 2009) cites numerous case studies of new water purification technologies. In 2009, the silver winner in the Australian Design Awards was Solaqua, a solar powered water disinfection unit to be used in rural sub-Saharan Africa (Solaqua uses solar power to purify water, 2009).

Communication technology is also rapidly changing. It is predicted that internet penetration via cellphone technology will increase dramatically in Africa, India and China (Fergussen, 2010), which will affect the ability of both the public and private sectors to educate, entertain or market and sell new products to rural populations.

4.5.1 New market trends

In a presentation at the South African Market Research Association in June 2010, Fergussen (2010) of TNS International highlighted five key global trends in emerging markets:

- A growing pride in cultural identity;
- Health is equalled to wealth;
- Social and environmental conscience ('greening');
- Rural growth and development ("Bottom of the Pyramid (BoP) is seen as the next BIG opportunity"); and
- Exponential increase in access to the internet via cellphone technology ("the new prosumers").

These trends would have direct implications for rural water and sanitation.

4.6 How to achieve these goals: lessons learnt

4.6.1 Many approaches, many failures

Despite large investments in the rural water sector, backlogs are persisting, as demand continues to exceed supply, for reasons mentioned in 3.4 above.

4.7 Technology

There is an abundance of literature that cites technologies that have been piloted in rural communities as solutions for improved water and sanitation; some have been successfully scaled up, others unsuccessfully.

A report of the International Finance Corporation, a member of the World Bank (Safe Water for all: Harnessing the Private Sector to reach the underserved, 2009) cites a number of safe-water technologies, business models, and financing strategies that can significantly impact Base of the Pyramid markets in developing countries, if they can be appropriately scaled up.

Successful technologies are sometimes area-specific. For example, Atervia, an organisation founded in 1996 in Ecuador (Pitkin, 2005) has developed a water purification system that uses a native water lily species to filter and purify polluted water for agricultural uses

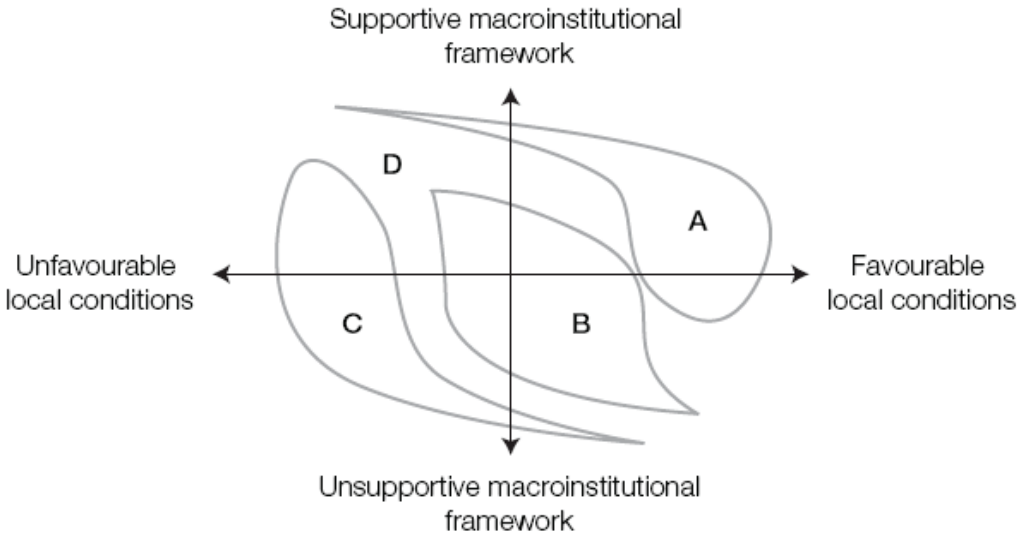
Successful rural marketing and distribution are affected by factors such as seasonality, transport, infrastructure, and culture (International Finance Corporation, 2009).

4.8 Governance

Best ethical practice (Brelet & Selborne, 2004, p. 7) emphasises partnerships and focus at the local level as critical factors for the successful implementation of technological solutions. In addition, the regulatory responsibility and accountability, governance based on shared values, a strong community involvement, including women, and a strong sense of ownership are necessary to ensure a successful technology.

Participatory approaches do not always yield positive results as it requires a community that is stable and self-supportive. Huppert (Cleveringa, Kay, & Cohen, 2009) examines the enormous variety of institutional arrangements that makes it difficult, if not impossible, to transfer lessons from one situation to another. He has developed a model that guides interventions, called Strategic Institutional Positioning (SIP). The diagram below visualises different institutional contexts in which water management interventions can occur.

Figure 2
Visualizing the different institutional contexts for AWM interventions



4.9 Power relationships

Cleveringa et al (2009) points out that power asymmetry is one of the main challenges in institutional and organisational development. "Power is the determinant of development processes." (Cleveringa, Kay, & Cohen, 2009, p. no page no)

Interventions in developing countries rarely address asymmetry of power purposefully, as it is either too 'political' or too 'complex'. Understanding the power dynamics embedded in socio-cultural and socio-political processes already brings one halfway in targeting poor rural men and women. In tandem with eradicating extreme poverty and hunger (Millennium Development Goal 1), poor rural people need a broad-spectrum empowering mechanism.

Although institutional, organizational and policy change is a complex task, whose outcome is unpredictable (Lobo 2008:80), not attempting such change in a power-polarized environment is likely to compound the plight of poor rural people and marginalize them further.

(Lobo, C. 2008. Institutional and organizational analysis for pro-poor change: Meeting IFAD's millennium challenge. A sourcebook. Rome: IFAD, www.ifad.org/english/institutions/sourcebook.pdf. Date of access: 11 Aug 2010)

4.10 Goals and world view

From the above it is evident that rural water and sanitation interventions, and also the interpretation of the research results from this study, will always be underpinned by a particular world view and goal.

4.10.1 A holistic approach

As pressures on natural resources increase, there is globally a new appreciation for the lifestyle of people living outside the Western modern development paradigm and for the interdependencies that exist in human interaction with the natural world. "In indigenous communities, humans are not traditionally regarded as separate from their natural environment, but as another part of the same highly complex 'metasystem': Nature." (Brelet & Selborne, 2004, p. 11).

4.10.2 New water cultures – towards a holistic approach to water resource management

In the context of a holistic approach to water resource management and water use, new water cultures have emerged that question the validity of water for growth and development as the exclusive driver for water resource management. Two examples are given below.

Large parts of Spain are arid. In the 20th century, hydraulic public works and the transformation of dry lands into irrigated ones were perceived as a means to develop the country economically and socially. "Powerful technology and public funding allowed for the construction of hundreds of irrigation and hydroelectric reservoirs and a few out-of-basin diversions". "Joaquín Costa saw water management as "a sublimation of the economic policy, through the agricultural policy" (Costa, 1998). He supported the construction of the already projected

dams and canals. Those works would allow the irrigated area to grow from 1,2 million hectares to 2 million hectares, in a predominantly agricultural country of nearly 18 million people at that time." Dams became the symbols of progress and development. Many historical villages were submerged under dams. Economic development came together with what has been described as "the Spanish Hydrologic Holocaust" (Torrecilla & Martinez-Gil, 2005). Coupled with unsustainable urban and tourist development, water pollution and negative environmental impact increased.

In reaction, the New Culture of Water, a social and scientific movement, was founded. The movement follows an ecosystemic approach to water resource management, also considering spiritual and ethical relationships with water.

"A river is not just a mere resource for human beings, but might also be a significant part of their territorial identity and their natural history, its management surpass technical discussions alone and comes into moral debate." (Torrecilla & Martinez-Gil, 2005, p. 17).

In Japan, ancient water traditions and the biodiversity of Lake Biwa, one of the most ancient lakes of the world, was protected and restored, through the dialogue between and collective interventions of water users, politicians, administrative authorities and water managers (Brelet & Selborne, 2004).

4.10.3 Implications

Initially engineering and natural sciences have dominated solutions to address the projected water crisis (UNESCO, 2007). The work of UNESCO's International Hydrological Programme (IHP) has gradually extended to include communities and societies, institutions, indigenous knowledge, education, stakeholder participation, culture and power relationships. Yet it was felt that the larger cultural context was still missing in water resource management.

In 2007, UNESCO-IHP launched its Water and Cultural Diversity project. The project's Concept Paper highlights cultural diversity as the "missing link that can make the concept of IWRM operational". According to the Concept Paper (UNESCO, 2007, p. 1), "a large gap is the lack of integration of cultural factors in water resource management and policies, which can be addressed by a comprehensive and systematic assessment of research and case studies on the topic of water and cultural diversity".

This research study aims to make a contribution to a better understanding of rural water and sanitation practices n South Africa, as they relate to culture.

4.11 Water and sanitation culture

Definition

In this project we will use the term "culture" as defined in UNESCO'S Declaration on Cultural Diversity (UNESCO, 2002): "a set of spiritual, material, intellectual and emotional features of society or a social group, which encompasses, in addition to art and literature, lifestyles, ways of living together, value systems, traditions and beliefs".

Rural water and sanitation practices – culturally entrenched

“Without understanding and considering the cultural aspects of water problems, no sustainable solution can be found” (UNESCO, 2007a).

Erskine (Erskine, 2010) quotes Fenda Akiwumi, the Sierra Leone hydrologist and environmental geographer: "Water resources management issues are as much cultural as they are technical…Water scientists need to broaden their knowledge base to encompass a variety of relevant disciplines such as history, sociology and anthropology. And the views of indigenous and rural people must be balanced with the methodologies based on modern development techniques…It is critical that we understand that people view water in different ways."

"Culture, including religion, clearly influences how people perceive and manage a natural resource such as water." (UNESCO, 2007a)

Water is entrenched in many aspects of rural culture; similarly, culture permeates all aspects of rural populations' interaction with water.

Cultural identity and water

The UNESCO IHP Project Paper ((UNESCO, 2007, p. 3) quotes several examples of cultures where people define their very existence in terms of freshwater ecosystems, e.g. native Canadians along the Fraser River ("the salmon, and the Fraser River, define who we are").

Throughout human history, water has not only been a source of life. It has also been revered in culture for its connection to spirituality and aesthetics. Water has been associated in many cultures with metaphysical qualities of well-being: water cleanses, absolves, purifies, soothes, harmonises (Torrecilla & Martínez-Gil, 2005**)**.

In local Sotho culture, "ritual practices are predominantly concerned with the weather, the vicissitudes of the seasonal cycle, and, especially the rain-making powers of certain individuals. It is well known that rain, in all civilizations, is a symbol of fertility. Thus, adolescent girls and young women, as mediators of the association between water and fertility, can be relied upon to bring the clouds and torrential downpours. The characteristic Sesotho explanation that babies come from the river is clearly an allusion to the water of the womb, and the river is generally recognized as a metaphor of the womb. Also, the onset of menarche involves rituals having to do with the drawing and pouring of water, another clear allusion to the beginning of fertility" (Murray, 1980).

Culture of water resource management

Traditionally, the Xhosa people kept rivers clean and flowing by using natural pollutants such as excess soil for buildings, limestone for painting and reeds for roofs, baskets and water filters. (Mabho & Mafany, 2007). This culture was revolutionised since water is supplied.

Cow dung, in combination with firewood, is traditionally used as fuel. Ash is put into pit latrines to absorb liquid sewage and to inhibit infiltration into groundwater.

Culture of water use

Multiple use

Rural water schemes, which in many instances are planned for a single use, such as domestic use, irrigation or livestock, are always used for multiple purposes (World Water Forum, Mexico 2006/FT 4.25, 2006).

Water services that provide for single use in poor rural areas do not meet multiple water needs and leads to scheme damage, allocation problems and eventually the collapse of the scheme (World Water Forum, Mexico 2006/FT 4.25, 2006). Scaling up multiple-use water services multiplies the benefits. It has furthermore been found that multiple use water services "improve more dimensions of wellbeing; are gender equitable by design; enhance willingness and ability to pay; enhance water productivity and 'use per drop'; are owned by communities; address multiple health issues in an integrated way; and ensure sustainable and equitable water use; at no or low incremental costs" (World Water Forum, Mexico 2006/FT 4.25, 2006).

In many rural communities, small-scale productive activities are used to increase income. Many of these activities depend on the availability of water. In South Africa, the NGO association, AWARD, is working with the Bushbuckridge LM to scale up domestic water supply to make provision for small-scale productive activities (World Water Forum, Mexico 2006/FT 4.25, 2006).

The tables below illustrate water use patterns in two rural communities (UNDP, 2006):

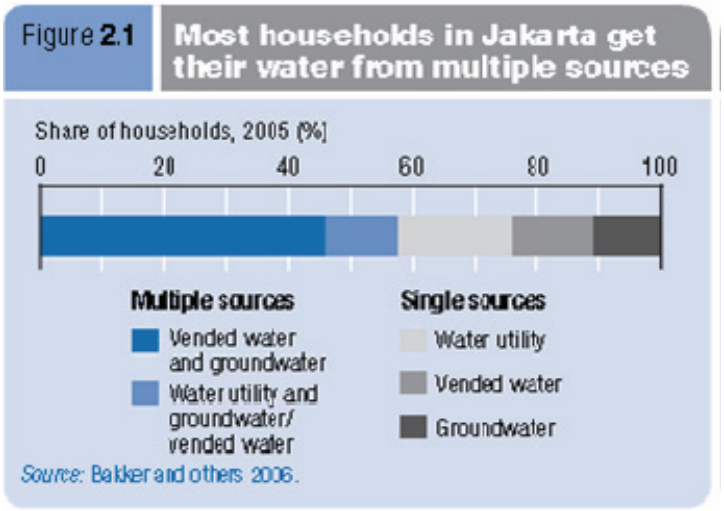
Research in Cebu, Philippines, found five patterns of water use among households not connected to the main water network (See table below) In urban slums and rural villages poor households might draw water from a protected well or standpipe for part of the year but then be forced to draw water from rivers or streams during the dry season. The configuration of water used in any one day will depend on factors ranging from price to availability to perceptions of quality.

Table 21 Cebu, Philippines: patterns of water use among households not connected to the main water network

Main source of water	Share of population (%)	Main use	Comments
Type 1 Vendors	4	All purposes (drinking, cooking, washing)	Most of these users live in isolated areas and have no other choice available
Type 2 Public well	34	All purposes	—
Type 3 Well	15	About half use it for all purposes	About half use it for nonpotable purposes only and get drinking water from a neighbour connected to the water system
Type 4 Public standpipe	8	Two-thirds use it for all purposes	One-third reserve it for drinking, using water from a public well for washing and laundry. A few occasionally buy water from a neighbour connected to the water system.
Type 5 Neighbour connected to water system	38	About half use it for all purposes	About half use it only for drinking and cooking, relying on a public well for other purposes.

Source: Verdeil 2003a.

Household surveys show that almost two in every three people in Jakarta use multiple sources of water, including shallow and deep wells (both protected and unprotected), standpipes (improved) and water vendors (unimproved). The three most frequently cited combinations were groundwater and vendors, utility and groundwater, and utility and vendors (see figure below).



What emerges from research across a large group of countries is that patterns of water use are far more complex and dynamic than the static picture presented in global reporting systems. Real-life patterns constantly adjust to take into account concerns of water quality, proximity, price and reliability. In many countries income is a strong predictor both of access to improved water and of the type of technology used to collect water. (UNDP, 2006)

In arid and semi-arid rural areas, such as most of South Africa, groundwater is the main source of water supply for communities. Some communities get their water directly from covered or uncovered boreholes or wells. In others, water is drawn from a borehole by a diesel pump or windmill into a reservoir (covered or uncovered cement dam) and from the reservoir the water is delivered to standpipes. Groundwater is usually delivered to households without purification. Humans and livestock often share groundwater.
The prevalence of enteric pathogens that cause infection and disease is usually associated with surface water, i.e. polluted rivers and streams. However, a study by Momba, Malakate & Theron (2006) of rural groundwater supplies in the Nkonkobe area in rural Eastern Cape, found a significant presence of enteric pathogens in the groundwater that makes up the main water source of these communities. The surface water in the area was less contaminated.

Water conservation

Tanner (2010) challenges attempts by governments and donor organisations to supply large quantities of water to communities in arid regions. In dry Eastern Africa, essential water use quantities are significantly less than the current domestic use for various reasons:

- Minimal intake is rare: "The El-Molo, a small tribal group living on Lake Rudolf, northern Kenya where the only water is heavily saline, takes in so little fluid that an adult found it difficult to fill a test tube with urine in a day."
- "Most eating does not require cooking with much water";
- "Brick making is traditionally usually done when rain water is available";

- "The idea of personal cleanliness is socially initiated and not related closely to hygiene";
- "Water-borne sanitation is a double waste of both water and excreta which could be used as fertiliser"
- "Water is not used everywhere as a source of enjoyment. The East African coastal people do not use the sea for pleasure"

The culture of water use in these regions is based on the reality of regular dryness instead of the possibility of regular seasonal rains. For example, Sukuma communities in north-western Tanzania have developed a downhill grazing movement, only allowing grazing in valleys late in the dry season when the hill slopes have completely dried out. Rainfall is irregular in the rain season; the Sukuma has adapted to this irregularity: they plant their crops in intervals and in downhill strips over different ecosystems.

Tanner (2010:161) argues that the supply-driven provision of water to these communities by government as a result of political pressure is per se not sustainable. The dry East African regions have neither the water resources nor the financial resources to sustain larger than traditional quantities of water per capita.

Surface water depends on irregular rainfall and indeed regular droughts, which suggests that the water table may well be a similarly limited resource. If existing boreholes were properly maintained, the over use of water would probably lower the existing water table, which does not hold large reserves as a result of millennia of low rainfall.

Once a state comes into existence with a voting electorate, it takes on obligations to provide for the needs of their citizens which are derived from the mythology of development and the politics of comparative envy based on mass media advertising, obviously wealthy tourists imported television serials and the life styles of their own national elites…If water is a scarce commodity in proportionate terms to national population size, then to provide additional supplies by mechanical means may be an error in long-term planning...

A study of a village in the Sahel region of north-eastern Nigeria in 1996 showed that the proportion of households that use less than 150 litres per household per day (the minimum daily requirement recommended by the WHO) ranges from 29% during the rainy season to 67% during the dry season. Most households would rather use water of poor quality extracted closer to the home than walk long distances for better quality water. (Nyong & Kanaroglou, 1999)

Water use and religion

Water is of major importance in Islam. Water is considered as a blessing and a gift from Allah (Mohamed, date unknown). It enjoys special importance for its use in *wudu* (ablution that is, washing before prayer) and *ghusl* (bathing). (UNESCO, 2007a)

Islam imposes no restrictions on trading water. Water resources in Islam are public property (state property or public domain) and most Muslim countries that have passed recent water legislation have declared all water to be part of the state or public domain.

(UNESCO, 2007a)). Therefore, if a user, large or small, possesses a water use permit or concession, he may trade this water to another user, large or small, if the water administration, which is the trustee for public water, so allows.

Muslim women play an important role in conserving water at home and in society. They can convey knowledge, attitudes, and practices that promote conservation, pollution prevention, and sustainable consumption. (UNESCO, 2007a)

In Christianity, water is used for baptism. During the Kumbh Mela festival in India, Hindus bathe in the holy river Ganges (UNESCO, 2007). In Bali, water temples, control the flow of water for irrigation (Lansing, 2007, as quoted in UNESCO, 2007).

The UNESCO IHP concept paper quotes examples of religious beliefs or world views that have influenced water conservation in Africa (Toulmin et al, 1996), Asia (Ulluwishewa, 1994) and native America (Flanagan and Laituri, 2004) (UNESCO, 2007, p. 5).

Water use and ceremony

Water is associated with ceremony in many cultures all over the world.

Tlhagale (2010) cites the Zulu traditional ritual of of *Ukuthelelana amanzi*" (to wash each other's hands):

When kinsmen are at loggerheads, a third party is called in to mediate. He or she invites them to cool the heat of anger or hatred. The divided two would be seated opposite each other. Water mixed with ash and traditional medicine would be given to each person to wash his hands. Each would then be given a chance to air their complaints or concerns. The mediator summarizes the statements of each person and asks them whether they are willing to forgive and forget. Each then takes a mouthful of water mixed with ash and spits it over his left shoulder. Thereafter the two drink beer from the same calabash. This is the communion of purification. Meat or beer is used. Such a ritual can be adapted and limited to the washing of hands. The symbolic cooling effect of water points to a spiritual disposition of reconciliation.

Living with HIV/AIDS

WaterAid Tanzania (Water and sanitation for people living with HIV and AIDS: Exlporing the challenges., 2009) gives an overview of the specific water uses associated with the needs of people living with HIV/AIDS (PLHIV) in rural areas of Africa:

For people living with HIV and AIDS, staying healthy is particularly important. Water and sanitation related diseases, such as diarrheal and various types of skin diseases are among the most common opportunistic infections.

If a mother is HIV positive, there is a risk that she may transmit the virus to her baby through breastfeeding, even if the child is born HIV negative. The 'obvious' solution would be not to breastfeed the child, though this relies on the availability of clean water.

Whether breast feeding or not, clean water is crucial for infant feeding and HIV positive babies need to be protected even more from unsafe water because it will weaken their resistance and shorten their lives.

The majority of AIDS patients are being cared for within their local communities, often by trained volunteers: this is called home-based care. Because of the importance of staying healthy, hygiene education must be one element of training for care takers.

Access to sustainable water sources near household reduces the time and effort spent looking for water by families taking care of people living with HIV and AIDS. The time spent can be invested productively by the families for other tasks.

Most of the time the caregivers in household are girls, women, and children, mainly because of the gender constructs and socially defined roles in traditional Tanzanian culture. Time spent in fetching water in case of the unavailability of water may affect taking care of PLHIV, hence reducing the time they would otherwise spend on other tasks around the household. This can also impact on children's education, leading to dropouts especially for girls.

People living with HIV and AIDS reported that they require an increased quantity of water since becoming HIV positive. Accessing this water is made harder by the difficult economic situation that they are facing. Their increased need for water was for washing rather than for drinking or bathing. These discussions also revealed that these increases were only partly due to an increase in the use of water by PLHIV themselves -much of the increase was suggested to be the result of other household members taking extra care over cleaning clothes and household cleanliness in general.

However, in the case of PLHIV, unclean latrine facilities are even more of a problem than for other households, due to the need to reduce the risk of opportunistic infections, many of which can be spread when latrines are of a poor standard.

The argument is often heard in the water sector that rural communities in particular have their own mechanisms for ensuring that vulnerable groups have easier access to water supply – through free water being provided to the elderly and disabled for example. This study, however, found very little evidence of such mechanisms providing support to PLHIV to access clean and safe water.

Storage

Rural communities use traditionally a wide range of water storage vessels, some more safe than others. In modern times, plastic containers have become popular storage vessels.

Potgieter et al (2009) undertook a study to compare the safety of traditional water storage vessels and CDC safe containers. The study found that the CDC safe container as a single intervention is not very effective in reducing the risk associated with waterborne diseases. The study also found that "appropriate hygiene practices were not

practiced due to financial burdens on the family, different cultural beliefs and the lack of adequate sanitation and water infrastructures".

The culture of water quality

How aware are rural communities of water quality and are they prepared to implement measures that will improve water quality?

Faniran (1986) undertook a study of the perception of water quality among rural communities in South-Western Nigeria. It was found that these people are knowledgeable about water quality and the implications for health, and they are eager to use opportunities to improve their water quality.

Culture of water infrastructure O & M

Many water and sanitation projects in developing countries fail because of inadequate operation and maintenance of large-scale, donor-funded water and sanitation schemes. In contrast, small water schemes, owned and operated by communities, are mostly well maintained.

A water profile of Nigeria (FAO, 2008) outlines the structure of the irrigation sub-sector in Nigeria in 2004. Private small-scale schemes and improved fadamas are utilised 100%, whereas government and private sector schemes, promoting pumps and tubewells and funded by the World Bank are only utilised between 0 and 55%.

Costs recovered vary from scheme to scheme, but in any case cover only a fraction of the O&M costs. Nigeria has no culture of maintenance, certainly in the public sector, and it has been shown that small-scale individual farming schemes are successful and maintained when they are farmer-owned and individually operated. Of the larger schemes, few are operable and all are beset with O&M problems including the supply of and access to spare parts… Farmer-owned and operated small pump schemes, mostly of the fadama type, continue to expand. With the simplicity of their technology, easily manageable infrastructure and relatively low costs of development and operation, these schemes will increasingly play a catalytic role in rural development.

Culture of sanitation practices

The management of human and animal waste is often culture specific. In Indonesia, 40% of domestic water is used for sanitation purposes. A pilot project on dry sanitation found that respondents refused to use the toilet paper provided, because it was perceived to be insufficient to clean (Sintawardani & Astuti, 2007).

In India, open defecation is a common practice in rural areas. In South Africa, most rural communities use some kind of toilet structure.

The introduction of new technologies could meet with local resistance if these cultural practices are not taken into consideration. The promotion of new waste management practices could also have unforeseen negative effects as an example from China illustrates.

China never developed a wastewater treatment infrastructure because human and animal manure was recycled over centuries (Manci, 2010). The change in treating manure as waste instead of a resource has resulted in extensive water pollution across the country.

Locally, Phaswana-Mafuya (2006a,2006b,2006c and 2005) undertook a study of safe hygiene practices in rural communities in the Eastern Cape. A number of cultural factors that inhibit safe hygiene practices were identified.

Culture of water governance

"Governance covers the manner in which power is balanced in the administration of a country. It embraces the traditions and institutions by which authority is exercised" (Brelet & Selborne, 2004, p. 9)

The UNESCO IHP Concept Paper quotes several examples of rural social and political institutions that govern the management and use of water (UNESCO, 2007, p. 4): *Agrawal's examination of indigenous participatory institutions ruling drinking water supply in India (1993); case studies of local institutions for managing water resources focusing on small-scale irrigation systems presented in Mabry (1996); the various "rules" on water allocation and rights in indigenous farmer-managed irrigation systems discussed by Adams et al (1997); community institutions of indigenous water resources management, namely, tank irrigation systems in South India analysed by Mosse (1997); rules of water allocation within an indigenous irrigation system in Tanzania described in Gillingham 91999); principles of social organization that govern irrigation systems in the Andes described by Trawick (2001)…*

The United Nations Development Report (UNDP, 2006) points out that community governance structures, rather than municipal water services providers, are often gatekeepers for boreholes and hand pumps. *The accountability of these bodies and the strength of community water user associations influence coverage. (UNDP, 2006, p. 87)*

In recent years, the balance of private and public sector involvement in water has been vigorously debated. *Some argue that increased private sector involvement is an automatic route to more and better services per dollar, along with greater accountability and transparency. Others claim that water is an essential public good and that the human right to water is fundamentally at odds with market (UNDP, 2006, p. 88)*

Evidence concludes that there are advantages and disadvantages to both approaches. *Private involvement is not the bright line between success and failure in water provision. Nor is it a guarantor of market efficiency. The weakness of public providers in many countries is clearly part of the problem in water provision. The source of that weakness varies, though poor governance and the infrastructure decay caused by underinvestment are recurrent themes. (UNDP, 2006, p. 89)*

Much of the water that public utilities provide is unaccounted for, either because it leaks out of pipes that have not been maintained or because of defective billing systems. Low

revenue in turn fuels a vicious cycle of deteriorating assets, water losses, low revenue collection, low investment and further infrastructure deterioration. (UNDP 2006, p. 89)

There is growing recognition that the special problems facing rural areas and the pivotal role of local communities in service provision raise distinctive institutional challenges. Communities will not cooperate in maintaining water technologies they consider inappropriate or irrelevant to local needs. Nor, as history shows, will they act as implementation agents for policies drawn up by remote, unaccountable and opaque planning bodies. Community power can be a catalyst for accelerated progress—but a responsive governance system is required to make anything happen. (UNDP, 2006, p. 102)

The principles of user ownership and participation have been applied successfully in rural water and sanitation projects. For example:
"Peru's national strategy for conserving the country's natural resources functions on two levels: centralized responsibility for regulation at the macro level is focused on watershed planning, and decentralized management responsibilities, user ownership and participation at the micro level developing and sustaining peoples' livelihoods. This duality represents a shift from traditional supply-driven services to an approach that empowers farmers as the motivators of development.

This is the very essence of three IFAD-funded projects, the first of which began in 1993 in the south-eastern and south-central regions of Peru. Most of the country's poor rural people live in this area, where natural resources have deteriorated to a critical level. Project staff did not ask what problems farmers had, but rather what they wanted to do and how they wished to do it – and each subsequent project effectively applied lessons learned in the previous project" (IFAD, 1993).

Participatory approaches are not always relevant in all contexts. Huppert, quoted in (Cleveringa, Kay, & Cohen, 2009, p. 17) visualises four different institutional contexts for interventions. He cites an example from Haiti where local structures are "practically non-existent". Participatory and self-organised interventions in such circumstances are a waste of time. However, continuous external interventions have empowered local residents to continue producing crops.

Water and rural economic culture

Poor households with limited or no access to the formal network get their water from several sources. These sources include rivers and streams, a variety of vendors such as water truckers, private standpipe operators, water kiosk operators and agents delivering water. "While the debate continues over public or private water provision, in the real world poor households are already operating in highly commercialized private water markets— markets that deliver (often poor quality) water at exceptionally high prices." (UNDP, 2006, p. 84)

The United Nations report on Water for Human Consumption (UNDP, 2006) highlights market structures and institutional rules that affect water insecurity. It also highlights the underlying market structures that result in poor people paying far more for their water than the wealthy.

People get access to water through exchange in the form of payments (to utilities, informal providers or water associations), legal claims on providers and their own labour (collecting and carrying water from streams and rivers or digging wells, for example). Whether households can meet their basic need for clean water depends partly on their own resources and partly on how public policy shapes access to infrastructure and water through investment decisions, pricing policies and legislation governing providers. (UNDP, 2006, p. 81)

Culture of gender

In rural communities, water-related activities are usually the responsibility of women as the quotes below illustrate:

"In Africa, women do 90% of the work gathering water and word, for the household and for food preparation." (Varghese, 2007, p. 1)

"Women are not only careful users of water in domestic and farm-based production but also care takers of water sources, custodians of water-related knowledge and well versed in techniques for storage and re-use." (Varghese, 2007, p. 1)

Time to fetch and clean water and the impact on economic activity, therefore, also affect women most.

4.12 Implications for study

In his 2009 State of the Nation address (Zuma, 2009), President Jacob Zuma reiterated that the fight against poverty remains the cornerstone of his government's focus. As long as there are communities without clean water, decent shelter or proper sanitation, this battle has not been won.

The State of the Nation (Zuma, 2009) addresses also emphasised rural development, turning the right of people in the rural areas to electricity, clean water and proper sanitation into reality in order to achieve the goal of providing universal access to basic water and sanitation by 2014.

President Zuma urged people in the rural areas to start preparing to tell government about the things that they need urgently.

The Water Research Commission of South Africa has made a significant contribution to water and sanitation solutions by supporting and funding strategic research projects. In 2008, the WRC defined the main challenge concerning water and sanitation provision as: "Accelerating new service delivery while maintaining existing ageing infrastructure, education surrounding sanitation and hygiene issues as well as sustainable solutions."

Mr Jay Bhagwan (Van Vuuren, 2008) of the WRC was quoted as saying: 'Our research is providing much needed knowledge and technologies which will assist municipalities in making strategic and informed decisions against the myriad of challenges which exist and will emerge in the future'.

Non-governmental organisations have also made significant contributions to improve water and sanitation awareness and hygiene. In 2002 the South African Government together with the United Nations Supply and Sanitation Collaborative Council launched the International Water (WASH) campaign in South Africa.

Outcomes sought in public communication campaigns are, typically, awareness, attitude change, or behavioural change. Although large amounts of money are spent on public communication campaigns, "many mass media campaigns proceed in the absence of a research foundation" (Rice & Atkins, 2000, p. 125). There is often no pre-campaign research that investigates the issues and solutions that already exist in target populations. Nor is evidence sought of how many members of the target public read the publications or listened to the radio messages, understood them, believed them, or changed their attitude or behaviour as a result of them. This will only become known through evaluation research.

Since water and sanitation practices are culture-specific and often include ingenious approaches to very specific challenges, such as water scarcity, transporting water over long distances, an irregular water supply, or full pit latrines, an understanding of the culture of water and sanitation practices in rural environments will broaden our knowledge base and assist government and other institutions to find practical and acceptable solutions to water and sanitation supply.

4.13 Ethnographic research, using documentary films to illustrate results

What is ethnographic research?

Ethnographic research is a method of observing human interaction in their social settings while performing normal activities. The researcher thus observes the people in their own cultural context (Burke & Kirk, 2001). This method seems very appropriate as the observation of people in their natural settings, performing their normal tasks relating to water and sanitation, will provide an accurate view of their culture of use.

According to Spradley (1979:3), ethnography is "the work of describing a culture". The goal of ethnographic research is "to understand another way of life from the native point of view".

Although this approach is commonly used by anthropologists to study exotic cultures and primitive societies, Spradley (1979: iv) suggests that it is a useful tool for "understanding how other people see their experience". He (1979:3) emphasizes, however, that "rather than *studying people,* ethnography means *learning from people*".

Ethnographic research has broad implications for many fields. (Spradley, 1979)
Another definition is from (Hall, 1996?)*:*
Ethnography is two things: (1) the fundamental research method of cultural anthropology, and (2) the written text produced to report ethnographic research results. *Ethnography as method seeks to answer central anthropological questions concerning the ways of life of living human beings. Ethnographic questions generally concern the link between culture and behaviour and/or how cultural processes develop*

over time. The data base for ethnographies is usually extensive description of the details of social life or cultural phenomena in a small number of cases.

In order to answer their research questions and gather research material, ethnographers (sometimes called fieldworkers) often live among the people they are studying, or at least spend a considerable amount of time with them. While there, ethnographers engage in ***"participant observation"****, which means that they participate as much as possible in local daily life (everything from important ceremonies and rituals to ordinary things like meal preparation and consumption) while also carefully observing everything they can about it. Through this, ethnographers seek to gain what is called an* ***"emic" perspective****, or the* ***"native's point(s) of view"*** *without imposing their own conceptual frameworks. The emic world view, which may be quite different from the* ***"etic", or outsider's perspective*** *on local life, is a unique and critical part of anthropology. Through the participant observation method, ethnographers record detailed field notes, conduct interviews based on open-ended questions, and gather whatever site documents might be available in the setting as data.*

Anthropologists have long since acknowledged that ***ethnographic research is not objective research at all****. The following are some of the reasons for this conclusion:*

Ethnography is an interpretive endeavour *undertaken by human beings with multiple and varied commitments which can and do affect how the research is done and reported. We all have backgrounds, biographies, and identities which affect what questions we ask and what we learn in the field, how our informants let us in to their lives, and how our own interpretive lenses work.*

Not all fieldsites are "foreign" for ethnographers in the same way*. Some ethnographers are native to the communities in which they study, whereas some enter as complete strangers with no obvious common ground. Even though they may learn somewhat different things, both kinds of researchers are legitimately able to undertake ethnographic research.*

Ethnography is not replicable *research (like many kinds of science).*

Ethnography is not based on large numbers of cases *(like quantitative research).*

How can any research done under such circumstances, which is not even pretending to be objective, have any worth at all? In other words, how can we claim ***ethnographic insight*** *into cultural practices? What is the basis of* ***ethnographic authority*** *under these conditions? Anthropologists have seriously considered these charges, and concluded that there are several ways in which insight and authority in ethnographic research can be persuasively claimed:*

Anthropologists generally subscribe to some form of ***cultural relativism****, meaning that we believe that there is no one standpoint from which to judge all cultures and ways of*

being in the world. Because of this, we are conditioned to see ***various perspectives as "positioned"*** *(Abu-Lughod 1991), and the* ***things that we learn in the field as "partial truths"*** *(Clifford 1986). Therefore, there is not one single truth in a research situation to be uncovered; there are many.*

Ethnographers are expected to be ***"reflexive"*** *in their work, which means that we should provide our readers with a brief, clear picture of how the research we have done has been or could have been affected by what we bring to it. This can take the form of revealing details of our own experience or background to readers up front.*

Ethnographers should have more than one way to show how we arrived at the conclusions of our research; we expect to have a collection of fieldnotes, interviews, and site documents (where possible) which work together to support our claims. This is called ***triangulation****.*

Ethnographic research takes place ***in depth and over a great deal of time****, often months or years for professional ethnographers. Ethnographic conclusions are, therefore, arrived at only after lengthy consideration.*

Sanjek (1990) recommends that readers and writers of ethnography focus on what he calls ***the "validity" of ethnography****. In this way, we can judge the clarity with which decisions regarding the application of theory to data are explained as well as follow ways in which events in the text are persuasively linked in making the conclusions presented there.*

References

Abu-Lughod, Lila
1991 "Writing Against Culture" In Recapturing Anthropology: Working in the Present, Richard G. Fox, ed. Pp. 137-162. Santa Fe, NM: School of American Research Press.

Clifford, James
1986a. "Introduction: Partial Truths" In Writing Culture: the Poetics and Politics of Ethnography, James Clifford and George E. Marcus, eds. Pp. 1-26. Berkeley: University of California Press.

Sanjek, Roger
1990 "On Ethnographic Validity" In Fieldnotes: The Making of Anthropology. Pp. 385-418. Ithaca: Cornell University Press.

Ethics

The American Anthropological Association's statement on professional ethics (American Anthropological Association, 1998) is considered standard for ethical ethnographic research. This document will be used as the basis of ethical considerations in this study.

Another ''research'' approach that is in vogue at the moment, is to capture respondents on film to give clients the opportunity to truly understand their customers.

The challenge of ethnographic research is to observe truthfully, yet participate enough to understand the observations. ''*The answer is to combine observation with skilled participation; then the insights start to flow. Getting to the core of decision makers and distilling a personality type from patterns of emotions and behaviour creates insights for both creative and marketing''* (Anon, 2009).

The proposed research project will apply the methodologies of qualitative ethnographic research with the objective to shed new light on the user culture of water and sanitation management at family and neighbourhood level in rural South Africa. This information will assist government municipalities and other organisations to make strategic and informed decisions on sanitation delivery.

Rural fieldwork, particularly the travelling, is proportionately so expensive that the most should be made from each visit to a rural area – a two hour group discussion does not justify the expense, but full day explorations do. Ethnographic research, especially in rural areas, has therefore become quite popular in South Africa in recent years.

This study proposes ethnographic visits that will include individual interviews and mini focus group discussions which will be videotaped and edited into a documentary film. The film will be used to illustrate the research findings.

4.14 Proposed framework for ethnographic research

The following will be used as guiding questions for the ethnographic research that this study undertakes in rural communities.

Overview of the community

1. How many people?
2. Housing?
3. Income, schools, age groups
4. Social structure: tribal, etc
5. Health status? Prone to diarrheal diseases? HIV/Aids?
6. Medical facilities, clinic
7. Animals, agriculture (other users of water?)

Safe water

Resource management

1. What is the source(s) of water in the community? How much water? For how many people?
2. What is the distance from the source to the point of use?
3. How safe if the source? Clear, no smell, taste, pathogen-free, no harmful chemicals? (GET SAMPLE)
4. How sustainable is the source? Drought prone?

5. For what purposes is the source used? Human consumption? Animals? Agriculture? Other (e.g. mining?)
6. Who controls the source? Who decides how much water may each user get?
7. Who gets preference? On what basis?
8. Who maintains the source?
9. Do people pay for water? How much? Who sells water? How much are people prepared to pay for water?

Distribution

1. How is water distributed from the source to the point of use?
2. Who controls distribution?
3. Do people pay for distribution?
4. How safe is distribution?
5. What are the risk factors?
6. How do rural people/households use the available water and sanitation infrastructure?

Point of use

1. How is water stored at the point of use?
2. How safe is storage?
3. Are people aware that water should be safely stored and used?
4. What measures do people take to ensure safe water?
5. What measures do people take to save water?
6. What do individuals/households do when water is not available (finished)?
7. What is rural individual's/households' culture regarding water for cooking, cleaning and gardening?
8. What are the priority areas for the use of available water?
9. Are there any gender differences in the culture of water?
10. What is the level of awareness of safe water? What is the local value proposition of clean and safe water?
11. How do individuals/households dispose of grey water?
12. Do people sell water?
13. What water purification methods do rural people/households use?
14. What are people/households' culture regarding hygiene practises including hand washing, cleaning of cooking areas, boiling of water before consumption?
15. What are rural people/household's priorities towards general household water use versus water for sanitation?

Role of local government

1. What is the role of the municipality in the provision of safe water?
2. Has the community received any education and training in the use of safe water?

Sanitation

Infrastructure

1. What sanitation infrastructure do the people have?
2. What sanitation infrastructure do they actually use? Are there any discrepancies?
3. What is the extent of open defecation? Who in the community practice open defecation?
4. Who cleans toilets?
5. How are they cleaned?
6. Who maintains toilets? Are they maintained?
7. What is the awareness of hygiene?
8. Are there hand washing facilities available close to toilets?
9. Do people use them?
10. Do people wash their hands before they prepare food? Or after they have changed nappies or worked with animals?
11. Gender differences?
12. Does safe sanitation have any economic value? Do people pay for improved sanitation/ Are they prepared to pay for improved sanitation?
13. What is the local value proposition of a clean and safe sanitation facility?
14. What is the culture regarding the use of toilet paper?

Hygiene

1. How do individuals/households clean toilets?
2. What water purification methods do rural people/households use?
3. What are people/households' culture regarding hygiene practises including hand washing, cleaning of cooking areas, boiling of water before consumption?
4. What are rural people/household's priorities towards general household water use versus water for sanitation?

Knowledge and education

1. What are the sources of knowledge regarding water and sanitation hygiene?
2. Are rural people/households aware of the WASH campaign?
3. Where do rural people/households get information/education regarding water and sanitation use?
4. What do rural parents teach their children about water?

5. CASE STUDY: APPLICATION OF THE METHODOLOGY

5.1 INTRODUCTION

In order to develop the ethnovisual tool and evaluate its potential application, the community of Sekakene was chosen to conduct a pilot study.

5.2 THE VILLAGE OF SEKAKENE IN CONTEXT

Sekakene is one of 37 villages of the Molemole Local Municipality (LM). Molemole is one of five municipalities which form the Capricorn District Municipality (DM). Capricorn DM is the Water. Services Authority and Molemole LM is the Water Services Provider.
The **Capricorn DM** face many challenges in terms of water, as illustrated in the Water Services National Information System on the DWA website, accessed in November 2010:

- Total population: 0.63 million
- Households: 0.15 million
- Total below RDP water: 0.12 million
- No formal water infrastructure: 26 751
- Households below RDP Water: 27 807
- Household no formal water Infrastructure: 6 371

The challenges that the **Molemole LM** face are similar to those of the Capricorn DM. The provincial profile of WSA Service Levels Summary of the Molemole LM is as follows:

- Settlements: 37
- Total population: 105 578
- Households: 28 243
- Total below RDP water: 10 844
- Total no formal water infrastructure: 4 517
- Total below RDP Sanitation: 35 558
- Households below RDP Water: 2 899
- Households no formal water Infrastructure: 1 208
- Households below RDP Sanitation: 9 513

In the Molemole Social Development Framework (p.31-33) the water resource profile, service and infrastructure situation is described as follows:

Molemole Local Municipality
Existing Services Level
The Table below indicates the existing water services which are below RDP standards.

Census 2001 Water Infrastructure	
Piped into dwelling	*4%*
Piped into yard	*42%*
Standpipe <200m from dwelling	*12%*
Standpipe >200m from dwelling	*17%*
Open Water	*1%*
Other	*9%*
% Below RDP	***43%***

Water Resource Profile

The water demand and supply estimates is provided in the Table below:

Year	***2006***	***2011***	***2021***
Population (Excl. Farming)	*124 590*	*131 881*	*144 587*
Water Demand (aadd-kl/d)	*9 722*	*13 551*	*18 840*
Local Sources (kl/d)	*12 327*	*19 384*	*24 997*

The assessment is as follows:

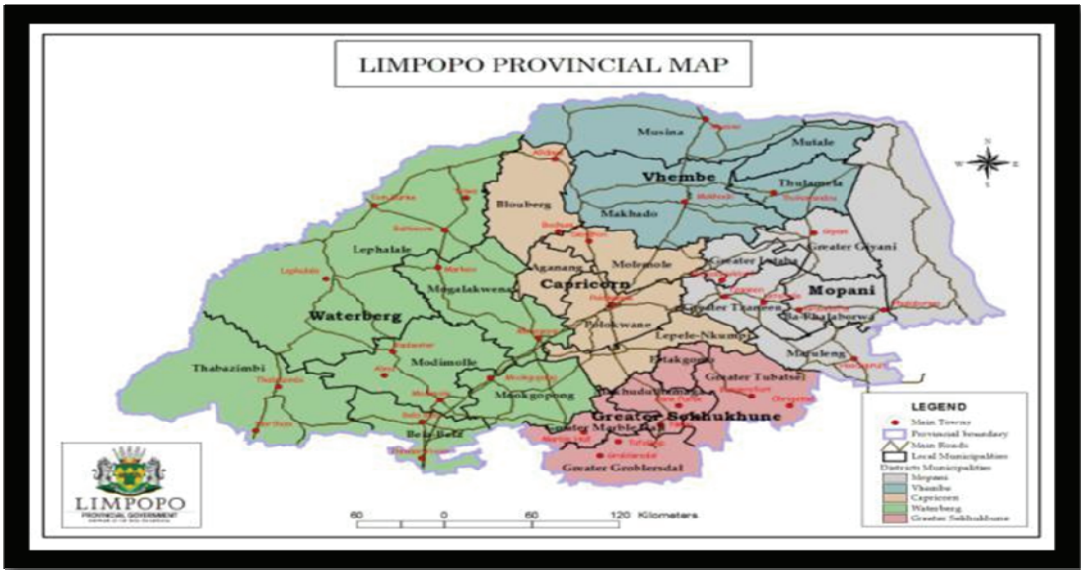
- *Molemole relies entirely on groundwater for its water supply for primary and agricultural use.*
- *The following factors influence groundwater utilization:*
  - *Borehole supplies are directly abstracted into the supply system i.e. relates to summer peak flow (150% annual daily average).*
  - *Poor quality (classes 3 and 4) boreholes occur even close to acceptable quality boreholes. This also affects the utilization potential of groundwater. If good quality or surface water is available, and blending does not occur people will or should not use the poor quality water.*
  - *Information on groundwater yield and aerial potential is scarce and in many cases contradictory.*
  - *Yield assurance is generally unknown. Long term assurance in relation to surface water supplies where a design norm of 98% (1 in 50 year recurrence) does not exist in the case of groundwater.*
  - *Groundwater equipping is normally of lesser standard than surface pumping installations. This results in high maintenance and changes, the latter not necessarily in harmony with the yield characteristics. If groundwater installations had to be comparable with surface water pump stations, 50% to 100% standby is needed.*
  - *Stock watering is only in exceptional cases included in the treated water supply system. In almost all cases stock watering relies on dedicated borehole supplies when open water supplies do not exist.*
  - *Conclusion: Taking the above factors in consideration, the design (available) yield from groundwater installations should not exceed 30%, keeping also in mind that abstraction equates to summer peak flow.*
  - *Boreholes are not normally equipped with prime movers if the yield is below 1.0l/s/24h. The daily yield of such is therefore 86kl.*

Water Conservation and Demand Management

Poor management of water supply services are experienced resulting in high losses and high water use. The present water use exceeds the supply due to excessive losses, informal connections, wastage and high consumption. The establishment of a dedicated water conservation and demand management pro programme is required.

5.2.1 Location of Sekakene

The Molemole LM is one of five municipalities that fall under the Capricorn DM. Sekakene is one of the 37 settlements in the Molemole LM. The municipality is divided into 13 wards; Sekakene is in ward 7. The village is located 50 km North of Polokwane, 4 km west of the N1 road going towards Louis Trichardt. The GPS coordinates are S23°27.511E29°40.842



5.2.2 Demographics of Sekanene in context

The Molemole LM's demographic profile is as follows: (extracts from *Molemole Municipality Integrated Development plan 2010/2011,*

	2001	***2007***
Population	*109 445*	*100 404*
Number of households	*28 923*	*27 887*
Race: number of black residents	*107 618*	*99 765*
No formal education	*24%*	*15,6%*
Some primary education	*32,8%*	*30,9%*

Table 4

Dependency ratio

Age	*Number*	*Percentage*
Children 0-19	*52 486*	*53%*
Youth 20-34	*19 922*	*20%*
Middle Age 35-64	*20 774*	*21%*
Elderly 65+	*6 030*	*6%*
Total	*100 404*	*100%*

" ..about 59% is dependent on the income of others." (p26)
"Majority of population, about 75%, survives on a monthly income of less than R1 300 per month." (p 28)
"The statistics show a significant increase in the number of people living below the breadline." (p 28)
"About 69% of the (potentially) economically active population is unemployed. … The high levels of unemployment suggest that the LM should make provision for high number of indigent and free basic services." (p 30)

The councillor in 2010, Nico Pohotona, estimates that the population of the village is about between 1600-2000 households; he estimates that these households have the same average number of people per household as Molemole, namely 3.9.

5.2.3. Water situation in Sekakene

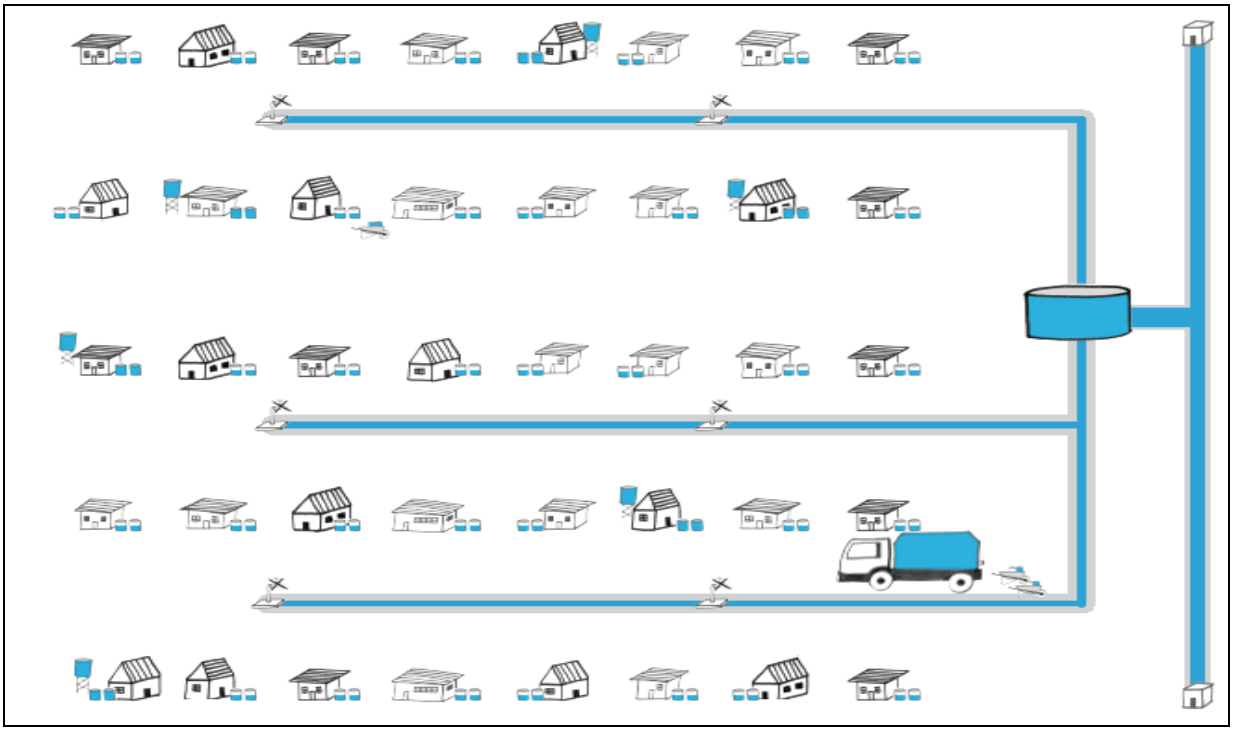
At the time of the research, the following was the water situation in the community:

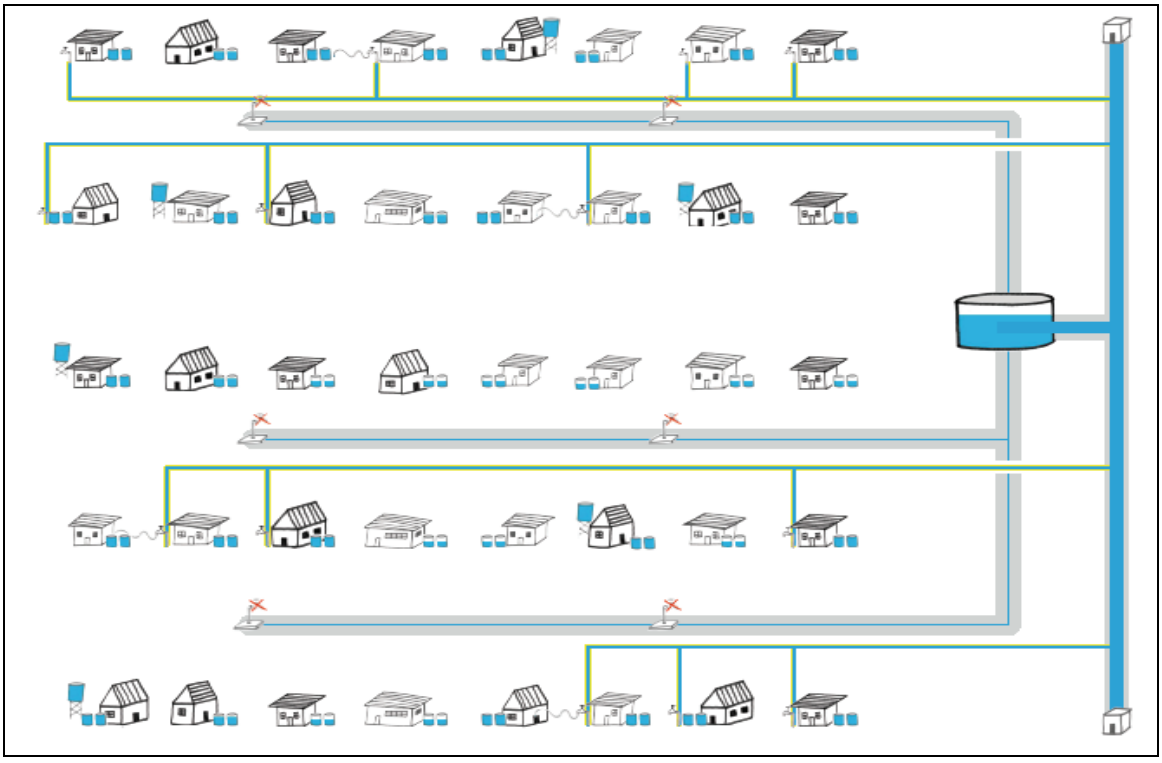
- The community of Sekakene faced challenges with the limited availability of water. This manifested partly as a result of their own practices.
  An Illustration of the water situation in Sekakene (see Section 5.2.4) was compiled through data gathered by observation and discussion with villagers.
  The municipality of Molemole had made the following arrangements for the residents of Sekakene to have access to free basic water: they built a reservoir, which was fed by diesel pumps at two boreholes. From the reservoir reticulation lines supplied standpipes within close proximity to residents' homes. Residents collected water at the standpipes in their own containers and transported it by wheelbarrows to their homes. Some residents had their own boreholes and tanks.
- However, many residents wanted to have taps in their own yards. Groups of residents clubbed together to buy pipes, and contracted plumbers to connect these to the municipal lines and to their own yards. In most cases these connections were made to the main municipal lines. Residents, who did not have the funds to contribute to these connections, still used the standpipes or got water via hosepipes from neighbours' taps.
- The taps at the standpipes were damaged or stolen over time and had not been replaced. Residents did not know who stole the taps, but suspected ''naughty youngsters'', entrepreneurs who needed the metal for jewelry or even water vendors. Some said that ''people from the municipality'' got angry because residents left the taps open and therefore they removed the taps. When this research project started in august 2010, not a single standpipe was in working order.
- In the first quarter of 2010 the diesel pump in the lower lying area was stolen. After the theft, the taps in the lower lying areas furthest from the functioning borehole had a fluctuating supply of water.
- Only at night or during rainy periods was there water in the taps of the lower lying areas. Residents realised that this happened because those in the areas closest to the functioning borehole used less water during these periods. The councillor told the researchers that the municipality was aware of the situation, but wanted to replace the pump with an electric one, which was more difficult to steal. Until the electrification of the site had been done, they were not going to replace the pump.
- The municipality sent a water truck from time to time, mostly once a week, to deliver water to the households in the lower lying areas. Each household was entitled to one 200 litre drum, which was filled at street corners. From there the residents decanted the water into smaller containers and transported these with wheelbarrows to their homes.
- One drum of water per week was too little for most households, even if they used the water sparingly. Many residents bought water from water vendors at R10 or R12 per

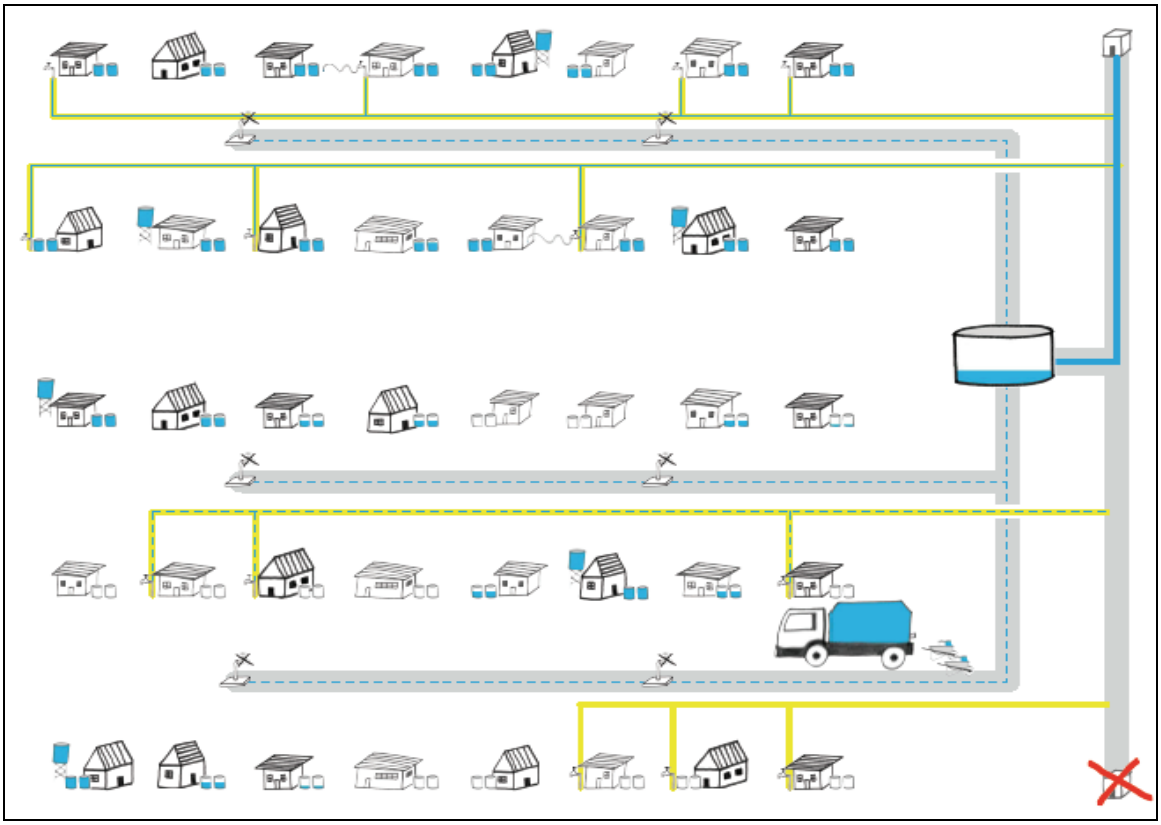
200l drum. The water vendors obtained the water either from their own boreholes or collected it at taps from houses close to the functioning borehole. The councilor insisted that the residents were not paying for water, but for the transport thereof. Water vendors use donkey carts and decant the water into containers at customers' homes.

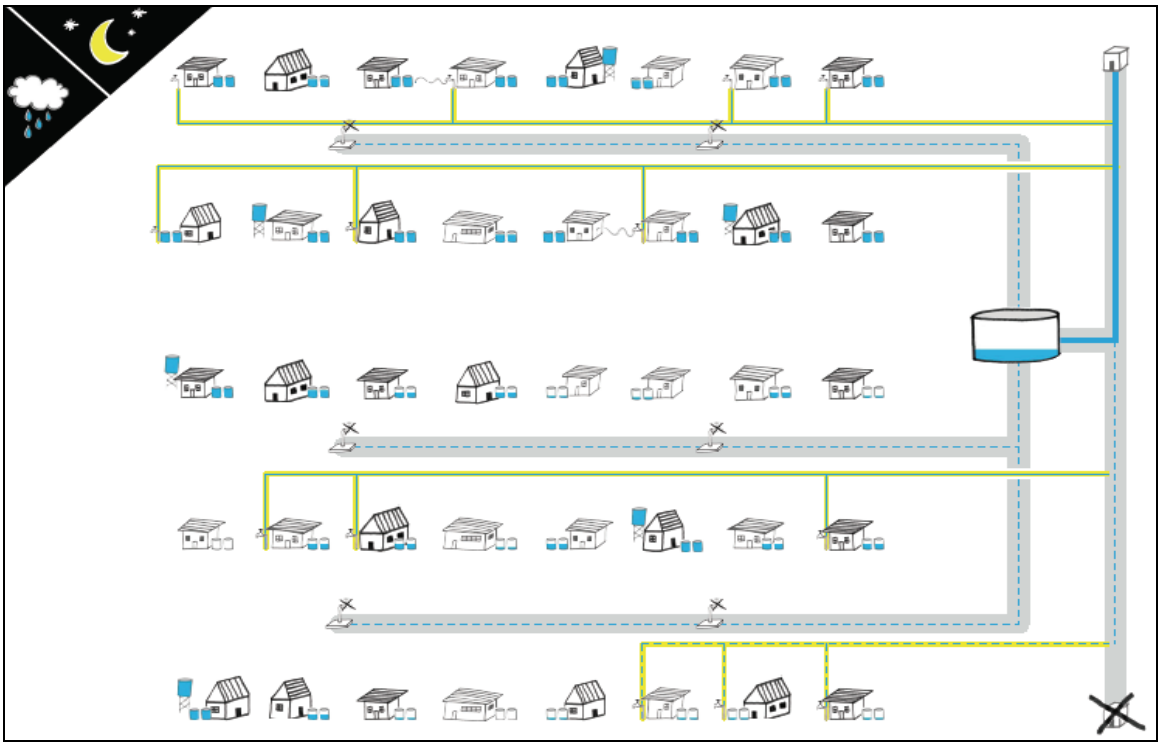
- Since November 2010, when the rain started to fall regularly in the area, until the beginning of May 2011, when this report has been compiled, the municipality has not sent a water truck to the village. The researchers filmed 30 days between November 2010 and February 2011 and have never recorded a water truck in the village supplying residents with household water.
- In February 2011 the remaining diesel pump at the borehole in the higher lying area broke. Until May 2011, when this report has been compiled, the pump has not been repaired, neither had the stolen one been replaced. Most residents buy water from water vendors. Those with transport travel to an area nearby that has standpipes and fill their containers there.

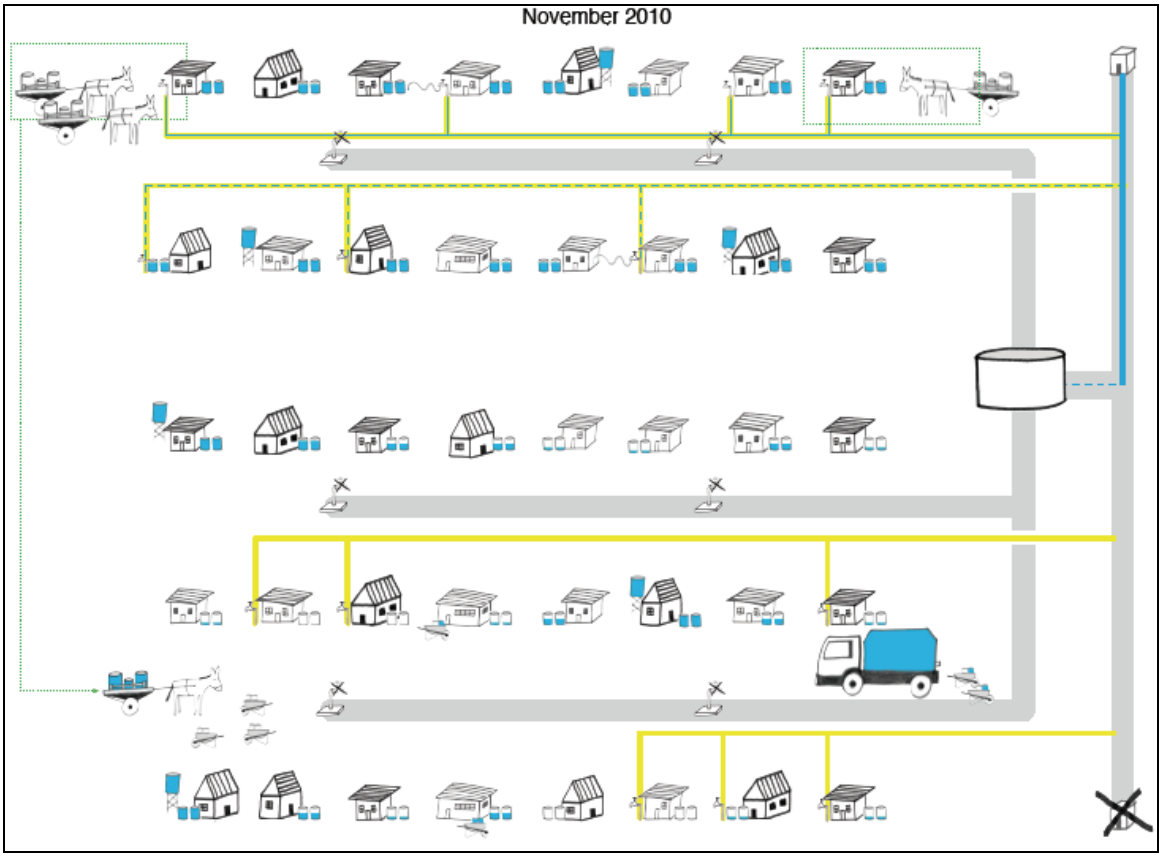
5.2.4. Illustrations (in chronological order) of the water situation in Sekakene (refer to section 5.2.3 for narrative)

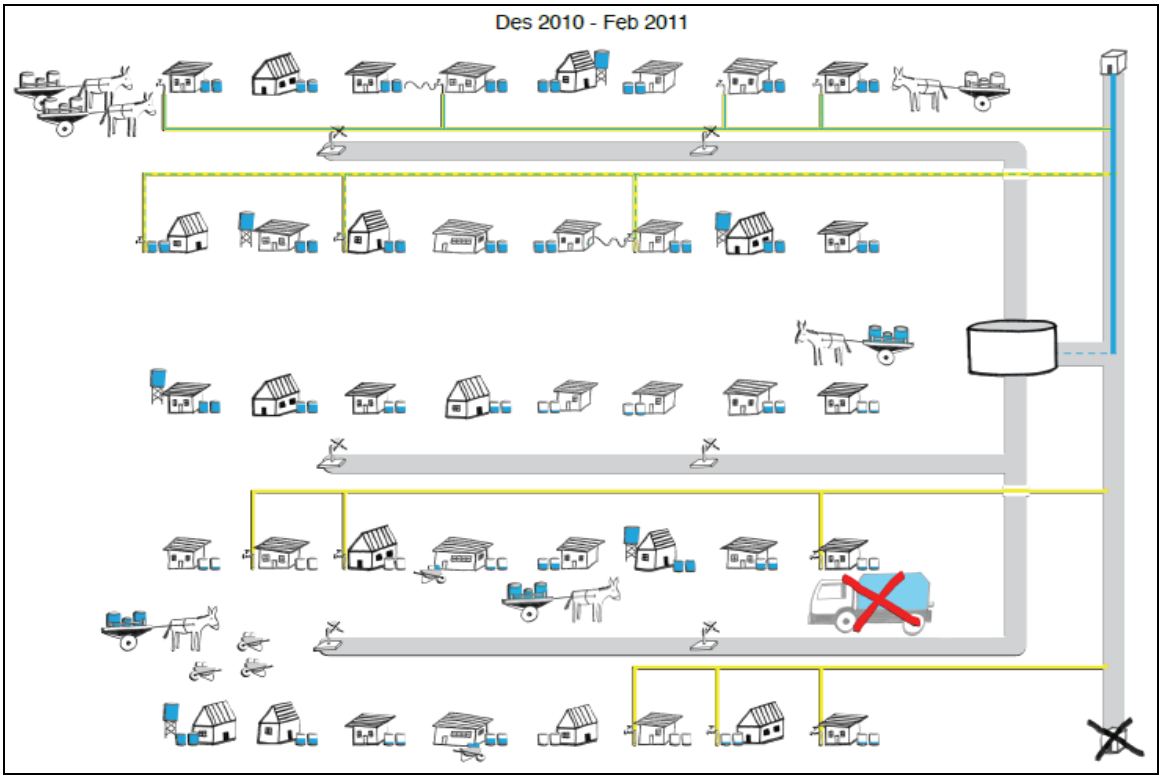


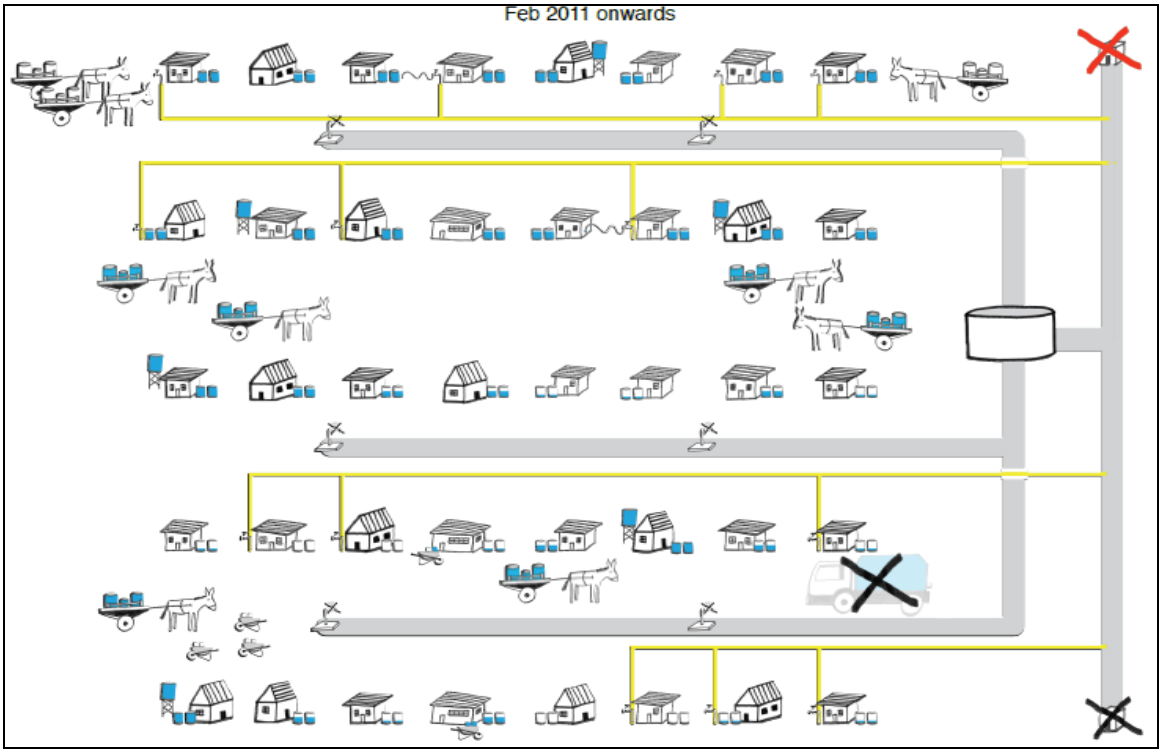







November 2010


Des 2010 - Feb 2011


Feb 2011 onwards

5.3 PILOT STUDY

5.3.1 Introduction

A pilot study, filming two households, was conducted prior to data collection for the final study. Residents were recruited and trained to do the data capturing as well as two households where filming could be done.

5.3.2 Practical arrangements

The following residents from Sekakene were recruited to take part in the **pilot** project:

- **Local manager of the project – Leah Famo.**

  Leah was given training where relevant to be responsible for the following:
  - -Identify and recruiting one resident from the lower lying area, who relies on water from the municipal water truck and water vendors, as well as one resident from the higher lying area with a tap in the yard (illegally) connected to municipal pipes;
  - Arranging with the two residents that all their activities relating to water would be video recorded for two consecutive days;
  - Managing the camera person from the village as well as the logistics relating to the video recording: ensuring charged batteries for the video camera, tapes correctly labelled etc;
  - Control the quality of the camera work (ensure that all aspects relating to water are recorded);
  - Digitised the video recordings to prepare it for editing;
  - Liaised with research manager about any unforeseen circumstances; and
  - Paid the research subjects and camera person (from funds provided by the research manager).

- **Camera operator – Makosha Phoko**.
  Makosha was trained to video record. Thereafter she recorded everything relating to water in two selected households for two consecutive days in each household.

- **Resident from higher lying area – Anna Nakene**.
  Anna is a single mother with five children living at home. She has a tap in her yard that she uses as sole source of water. She and two of her neighbours connected a pipe to the municipal pipes a few years ago; each of the three neighbours has a tap in their own yard.

- **Resident from lower lying area – Johanna Ramahlare**.
  Johanna lives with her brother, daughter and three grandchildren (one an infant). The tap she installed in her yard is mostly without water. She receives a drum of water from the municipal water truck once a week, and buys one or two drums per week from a water vendor.

5.3.3 Commissioning of documentaries

In order to compliment the participatory films, which might potentially have been subjective, it was decided to commission two 'documentaries' about the water situation in Sekakene.

The first ' documentary' was produced by Audrey Famo. Audrey grew up in Sekakene and her mother Leah lives permanently in the village. Audrey received her secondary and tertiary education in Johannesburg and, at the time of the research, lived and worked there as well.

Audrey was not given any background about the study. She was commissioned to produce a short documentary about the village and its people. She was requested to include some footage and comments on the water situation in the village in her film.

Audrey was given training on film techniques and editing. She produced the film entirely on her own.

The second documentary was produced by Chris Slabbert, a member of the research team. He was commissioned to produce a film that reflects the water situation in the community, but also to capture the essence of the village and its people, as experienced by the research team.

5.3.4 Lessons learned from the pilot study

A number of practical aspects were highlighted during the pilot phase, which was addressed before proceeding with the data collection of the main study:

<u>Lesson learned #1</u>

Additional training to camera operators: Makosha was taught the technical workings of the camera. Although she did very well and kept improving, it was still the first time that she had done any camera work. It was decided by the team that additional training and instructions would help her be more efficient. Basic composition, lighting and directing skills made for quicker/cheaper editing. Also, because they work independently and without direct instruction, camera operators need to be able to make sure that the footage recorded is understandable, usable and as clear a retelling of the situation as possible.

To do this, the following list was composed to be added to training:

- Film everything that has to do with water for 2 days per household: where the water comes from, how it is used and how it is disposed of.
- Do not film naked people; if they bath, just show how they fill the container and how they dispose of the water.
- Be proactive and film the context i.e. if mother goes to change baby's nappy, you know she will need water at some or other point; get shots of nappy changing; if she will feed a child you know she will need to wipe the face with a cloth; if water truck comes, film how they collect the containers, the truck arriving, etc.

- If someone buys water, film the exchange of money so that it is clear how much it cost and how many liters have been bought.
- Take a shot of a watch to indicate the time once you start filming a new sequence.
- Measure the water (with broom) of all water containers in the household each morning. Mark the broom clearly.
- At the end of the day (when everybody in the household should be comfortable with the camera) take wide angle shots of the house and the street as well as all the water containers, also of all family members to establish context.
- Shoot wider rather than closer.
- Use zoom function very sparingly, rather move closer if required. When zoomed in, camera shake is intensified. If you move closer you can get the same shot without the camera shaking.
- Count to 10 before you take the camera off a shot. This is to help with the editing process, to give space for the editor to find a shot to cut on.
- Do not include the manager (Leah) in shots if possible.

Lesson learned #2

One day's filming is not necessarily a true reflection. The subjects got a lot more comfortable with the camera on the second day, some people on the village will do washing one day and not the next etc. It was therefore decided that the additional research subjects would each be filmed for two consecutive days.

Lesson learned #3

Moderator needs to speak the Sepedi when moderating a discussion, the respondents are much more comfortable talking in their home language. This relaxes them, un-inhibits their responses and ensures they understand the questions well.

Lesson learned #4

Moderator doesn't need to force an argument: In areas where these issues are significant, it stands to reason that it is a polarizing issue. Therefore, respondents will disagree and discuss things in a way to get their point across. The only thing the moderator really needs to focus on is the direction in which the discussion goes.

Lesson learned #5

All filming needs to be completed before discussions and viewings are done. During this interviews it became clear that to ensure the integrity of further research in the area, all filming for the project had to be completed before going into a discussion of water issues. These discussions ran the risk of influencing the behaviour of future research subjects. Sekakene is a small, tight knit community – any talk between subjects on the issues discussed posed the treat to bias and dilute the findings.

Lesson learned #6

Trained camera operators are able to pass on their training: When the team was training Molokho, our first camera operator Makosha was able to pass on her skills to the trainee as well. Also, as she speaks fluent Sepedi, she was able to pass on her knowledge in a language more familiar and understandable to the trainee than English or Afrikaans. In this way she could translate, pass on her skills, and add to the training from her own personal experience.

Lesson learned #7

Rough cuts can be long: most of the villagers have television and are comfortable with film and visual material. They are able to look at footage with a critical eye. But, because most of them have never seen things on television about themselves and the other villagers, there is a curiosity about the behaviour which keeps them interested in the films, when others would not be.

Lesson learned #8

The respondents are the target audience: the films are not aimed at changing the behaviour of the research subjects. Therefore: the films are non judgemental. They rely on the real issues to surface where they naturally would. It is the process of showing the footage, asking the villagers to look at the footage (analytically) and to discuss the issues raised by the footage that incites a reaction. It is the nature of film footage to give evidence and insight of the behaviour. And it does so without having to be cut for this purpose. Therefore, a result of this project might be that the community might take action or communicate better with the municipality.

Lesson learned #9

When asked to come up with a solution to the water problem, all but one of the respondents came to the conclusion that it was the Local Municipality's duty to help them. There were no ideas given on working together with the community or changing personal behaviour. Although respondents in the lower lying area were not happy, and those in the higher areas agreed that the situation in the village wasn't fair – personal responsibility was not an issue.

Lesson learned #10

Films must get the curiosity out of the way. From observing the respondents while they watch their footage, it is clear that their initial intrigue needs to be overcome. For almost all of the respondents, this was the first time that they were able to watch a film about themselves, and also about their own community. They recognize the images, something that is quite alien to them. In order to have them engage fully on an intellectual level and participate in discussions, it is important to satisfy this curiosity and to get it out of the way. A short film could be cut from interesting bits of footage which will aim to be entertaining. This will take the novelty out of the process and enable the respondents to get to the issues.

Lesson learned #11

The audio should be "censored" to cut out voices of people who forget that the camera record visual and audio, and might therefore say inappropriate things

5.4 THE MAIN STUDY

5.4.1 Introduction

Once all the learnings of the pilot study had been incorporated into the research design, an additional ten families were recruited and filmed: five with taps with water in their yards, and five without.

5.4.2 The research process

27 hours of footage was recorded, relating to the use of water by the selected families in Sekakene.

Through an editing process the footage was compiled in a format that would be accessible to researchers.

Footage was categorized as follows:

- Water sources
- Water storage
- Water uses, which were subdivided into
  - Food preparation
  - Cleaning the house
  - Washing dishes
  - Personal hygiene
  - Laundry
  - Drinking water
  - Other water uses
- Water disposal.

The footage was edited per category. 150 minutes of edited footage is available on data disks, available on request of the WRC.

Throughout the editing process and once completed, various people from the village were shown footage and asked whether the footage and illustrations accurately portray the water situation in the village. The opportunity was also created for debate on possible solutions. Residents who viewed the footage were satisfied that it was an accurate reflection. Their comments on certain details were incorporated in the films.

5.4.3 Capacity building within the community

One of the most rewarding aspects of the project has been the involvement of the people of Sekakene. The project contributed towards the growth and development of the project team as well as those involved in the viewings and debates.

- **Local manager**– Leah Famo
  Leah excelled in her management capabilities. She fulfilled many roles that would normally be done by a producer. She is well organized, punctual and responsible, a valuable asset to the team.

- **Camera operator** – Makosha Phoko.
  Makosha surprised us with the speed she took to her responsibilities. She understood the concepts of filming well. She has a good eye for composition and with limited further training would be able to work on shoots that require more complicated equipment and expertise.

- **Camera operator** – Molokho Letlalo.
  Molokho showed great promise as a camera operator. He worked hard and communicated clearly, even when he fluently interspersed English with Sepedi! He got better with every shoot that he did, and was willing to experiment with the camera. Even though Moloko is disabled and has a pronounced limp, he compensated by tilting the camera in the opposite direction when he filmed while walking, resulting in virtually steady shots.

- **Camera operator, director, editor** – Audrey Famo.
  Audrey was recruited to not only be an additional camera operator, but also to direct and edit a background film about the village. Audrey was given training in camera operating. She was also taught basic directing skills, digitizing and editing techniques. She also moderated and transcribed the discussions at viewings. It's impossible to watch Audrey's film and not be impressed with the vision and heart she brought to the screen.

- **Translator/moderator** – Sharon Komape.
  Sharon was given training in moderating the interviews and discussions of respondents. She also served as a translator where needed. Sharon assisted Chris with interviews after respondents had watched footage. Sharon was a quick learner and she was intuitive in her responsibilities as a moderator.

5.4.4 Giving rural communities a voice: participation of the people of Sekakene

Regular screenings were held with different members of the community throughout the research process, mostly to determine whether member of the community thought that the footage accurately reflects the situation in the village and whether it had captured all relevant information.

We have found the people friendly and helpful but also honest in their opinions.

The response of those who viewed the footage indicated that the residents felt that they had been given a voice.

At a few specific instances during the research process community members indicated that the non-interventionist and participative nature of the approach proved the hypothesis to be correct, namely that the ethno-visual tool ‘’*gives rural households a unique voice to observe, interpret and reflect on their own practices….and tell Government about their basic needs.*’’

The council of village elders could envisage the direct benefit of the project to them as a means of communicating with government as is evident from the following translated verbatim transcripts:

We tell the municipality every single meeting we have with them. We always go on about the water situation when we see them……
Every time we complain to them, they don't do much. But with this video it will be much better…….

So what would help us best? It's these videos where everybody can see and you can show people. If the government were to come to us, we would not be able to show them everything, we could only explain to them that we are suffering, we have a water problem…….But with this videos they can see for themselves, they can see how the taps do not have running water

Every time we complain to them they don't do much. But with this it will be a bit better. There is a water problem everywhere, we rely on the fact that they keep saying that they will bring us water from the big dam in Venda…….

If the government could see this then they could maybe employ security and ensure that the machinery is protected and that thieves don't steal the machines……

After one of the viewings the community members engaged in a lively debate about the reasons for the problematic water situation as well as potential solutions.
After people viewed the footage, we saw a shift in mentality: whilst they initially said that solving the situation was the sole responsibility of the municipality, after viewing the footage they debated about their own potential role in creating a solution.

Once the footage had been compiled and organized, the films were shown to one of the indunas in the village – as well as to the elders that serve as his advisors.
At this time the village had not had water, or a working pump for 3 months, the municipality had not sent a water truck for 5 months, residents had no water in their taps – the water situation was becoming a pressing issue.
The elders envisaged that they could contribute to finding a solution when their ''voice'' has been heard by the municipality:

If everyone can view this, in that way we will be able to put our heads together and come up with a solution……..

We will be able to use it as a way of communicating to the government so that everyone can see what is going on.

The municipality has more knowledge about this kind of stuff; we must get them to assist us coming up with a plan. We are prepared to come together financially and get this problem fixed.

By their own initiative, the induna and advisors asked the research team to cut a film that they would be able to take to the municipality.

They asked that this film captures the problems they were experiencing with water, so they could show the municipality- instead of just telling them.

The induna also proposed that he talks to the other indunas in the village- and to organize a community meeting, so they could all see the films – and discuss possible solutions.

The elders envisaged that various candidates standing for local government election coming up in may 2011 would also be invited to give them the opportunity to tell the community what they propose should be done about the water situation. Some of the elders also envisaged that the film could be sent to president Zuma.

The meeting was held at the community hall in Sekakene on 29 April 2011. Only a small number of villagers attended, since a few funerals took place on the same day. However, the ANC candidate for the local government election attended, together with community members active in the ANC Women's League and Youth League.

The community thanked the research team for the DVD that was given to them. They said that it gives them evidence of the unacceptable situation. They envisage that the DVD will have more effect to rectify the situation than the correspondence they have sent to the municipality in the past.

They envisaged that the new councillor will take this DVD to the municipality. If the municipality fails to attend to the problem, they will follow protocol and take it to the next level. The induna also envisaged that he will take it to a meeting of the Council of Traditional Leaders. There were also suggestions that the films could assist to obtain donations from companies in the area that might enable the community to fix the pumps themselves.

6. GUIDELINES ON PRACTICAL ASPECTS OF USING THE ETHNO-VISUAL TOOL

6.1 Setting up the project

- Obtain a detailed briefing from the commissioning local government, specifically their objectives for the ethno-visual research.
- Obtain certain basic equipment: hand held cameras that are reasonably easy to operate but not too expensive; a laptop computer that can be used for digitising and basic editing; editing package e.g. Final Cut Pro. Obtain insurance for valuable equipment.
- Secure the services of a trained and experienced editor and agree on remuneration.
- Review official documents and statistics of the water situation in the specific community.

6.2 Setting up the project in a specific community:

- Obtain permission from traditional leaders to interact with and film the community.
- Explain the objectives of the study clearly and undertake to provide feedback at regular intervals or when requested to do so.
- Involve councilors and employees of the municipality: explain the objectives of the study, obtain their insights and perceptions and determine what information would be valuable to them.
- Obtain background information from informal discussions with members of the community and relevant people from the local government.

6.3 Fieldwork and initial editing

- Identify an individual in the community who could act as local manager. This person should have some authority in the community and be well acquainted with its members. The manager should be able to communicate clearly with the research team. The manager should be well organised and reliable. Ideally the manager should have a house where equipment can be stored safely overnight as well as access to electricity (to charge batteries and do the editing).
- Explain the objectives of the study, the nature of ethno-visual research as well as the responsibilities and expectations of a manager to the person and agree on deliverables and remuneration.
- Identify, recruit and train at least two camera operators on the use of the camera, basic filming techniques, labelling tapes and specifics required for the ethno-visual project. (Allow at least two days for the training, including some practical experience in real households. Show the camera operators how the footage will be edited to increase their understanding of what would be required.) Agree on the deliverables and remuneration.
- Identify, recruit and train a person who could do the basic editing. This person should be computer literate, be able to communicate well with the research team, be technically inclined and confident (Allow for at least two days; this training could be

done at the same time as the training of the camera operators.) Agree on the deliverables and remuneration.

- Identify and recruit members of the community who would be willing to allow camera operators to film everything they do with water for two days in exchange for incentives.
- In conjunction with the manager, draw up a schedule of filming at the households recruited.
- Decide on appropriate categories to organise the data and, if required, subcategories within these.
- Arrange with the editor to collect the tapes from the manager as soon as filming of a household has been completed, to digitise these and edit it according to categories and subcategories.
- Meet with the local editor as soon as the first household has been edited into categories to ensure that the organisation of the footage has been done correctly.

6.4 Reflection and analysis

- Meet with the project team at least twice during the fieldwork process to obtain informal feedback and to ensure that the data/footage is correctly collected and categorised.
- Randomly view sections of the data/footage to obtain an understanding of relevant issues.
- Show random sections of the footage to members of the community who were not involved in the project to ascertain whether the footage is a true reflection of the situation in the community
- Instruct the external editor to reduce the footage to a reasonable number of hours, ensuring that every aspect recorded is included.
- Instruct the external editor to organise the edited footage in a format that it would be accessible and usable to the commissioning local government.
- Also, as many respondents may not be aware of audio taping, it is necessary that the films be screened for gossip and other conversations on sensitive subjects. These should be edited out, at least by separating audio from film.

6.5 Screening of footage

- Arrange a screening with the traditional leaders to ascertain that they are satisfied that the footage is a true reflection of the water situation in the community.
- Arrange a screening with the commissioning local government. Discuss the options to screen the footage to the community and engage in a discussion with them.

Arrange a screening with community members who participated in the project as well as others interested, possibly attended by members of the local government who commissioned the project

7. KEY FINDINGS

7.1 THE RELEVANCE OF THE ETHNO-VISUAL TOOL FOR REGULATING PURPOSES

The ethnovisual tool could potentially assist regulators, specifically local government, in a number of ways. One being to record practices. However, more important is the opportunity the process creates to engage the community. The following process was the main outcomes in terms of participation:

- **Residents felt they had been given a voice**
  The tool could potentially contribute from a regulatory point of view in creating a starting point for a conversation between local government and residents. As was evident in the study in Sekakene, residents felt they had been given a voice, which they did not have when they had to rely on written and verbal communication alone. However,'' the voice'' was not only to serve as evidence of the problematic water situation, but also to communicate how they could potentially participate in a solution.

- **Residents participated in brainstorming solutions after exposure to the various visual perspectives**
  When residents viewed the films they spontaneously generated solutions, as is evident from the following transcribed translated excerpts:

  …….the pump gets switched on at 6 am and gets switched off at 4 pm…….maybe what can be done is that the water can be pushed up and reach the empty dam, the one that used to have water……..it will eventually be full and everyone else will also be able to get some water too……even if they fix that machine that is stolen or broken, it still won't be able to work the same again like it used to…….if they could let the pumps run throughout the night, the water dam holes would be filled in the morning and the whole village would be able to have sufficient water…yes, during the night there are not many people who use water……..there will be water for everyone if the pump could run through the night

  ……..I think what they can do is assign certain days to certain areas of the village……well that idea you are talking about was once in motion but it did not work……some people would go to other places on their assigned day….people made up their own schedules…….

  ……both water holes used to be pumped up and filled with water…….if they could close the pipes running across the village and let the main one open up then we would be ok in terms of water…….

  ..So each house must have their own water meter where the water consumption will be measured and each household will be responsible for themselves……..everyone will have to pay for their own water…….because clearly free things are making people lose the value of things…..so the best thing is to put meters in and each household should monitor their own water usage……..

……the meter idea will be much better because each household will be able to monitor their own water usage and pay for it……depending on how they use the water

……it is better if each household puts in their own taps and the municipality must just come to install the meters……

.……we don't know who stole the taps……but as a community we could find out if we put our heads together……

……if the pipes or taps are broken or stolen then it is that specific street's responsibility to get that fixed……we will have to put our money together and fix the problem….

……I also have a tap in my yard but if they have to take it out in order for there to be enough water for everyone else then that is fine……. I prefer the street corner taps and if it is broken then we will come up with a plan…..and if it is stolen we will come up with a plan and see if we can catch these culprits….

……..I don't have a problem with this idea…..this idea will actually work better because we will know that everyone has access to water…if the pipes are stolen we will make a plan……the meter idea, sooner or later people are going to start complaining, saying that they find it difficult to have to pay for water……..we know that everyone likes free things so this idea will definitely work better……..

- **Residents reflected on their own practices**
  The footage that was filmed by their own people served as a mirror of residents of their own practices as well as those of other residents; during the discussions following the viewing of the footage, they reflected on this: in most instances to realise that there might be better practices and that they could potentially assist local government in creating a solution.

  ……..Anna uses a lot more water than Johanna, you can see that clearly……..it is due to the fact that Anna has access to a lot more water than Johanna…… it is not fair because it is all in the same village but the way they use their water is different…….it should be the same because they are all in the same village……..

  ….we always have our drums and sink baths under the gutters ready for the rain to come ……the people at the top don't do that that because they don't have to….and if they did there would be more water for those at the bottom. But they don't use the gutter method……..

  The illustrations of the water situation also facilitated productive exchanges of ideas.

  ……yes, people are starting to make their own pipe fixtures now and the water is already starting to not go to the other side……

- **Non-interventionist approach**
  The potential solutions were not suggested to residents by the researchers; residents generated these themselves – and, in the end, will have to decide on the best ones themselves. Neither did the researchers manipulate them into a certain direction, since the approach of the research project was non-interventionist. However, the various perspectives residents have seen that was generated using the ethno-visual tool have potentially contributed to shaping a solution that might work for the village.

- **A <u>participatory</u> non-interventionist approach**
  This process gives new meaning to the often used term ''participatory'': because it was non-interventionist, the people participated and might come to solutions that they have truly generated themselves.

- **Ethno-visual tool can be useful to highlight discrepancies between official information and actual practices.**
  This study indicated a number of discrepancies between officially documented information and actual practices, as well as between information given by municipal officials during interviews and the reality. As such, the ethno-visual tool could potentially assist strategic planners to monitor status and progress.
  The information about the number of people without access to water infrastructure of access below RDP levels is a case in point:

  According to the Water Services National Information System, in April 2010 the Molemole Municipality had a population of 85 010; only 1423 of these people had no access to any form of water infrastructure and 9624 had access below RDP service levels.

  Sekakene is one of a number of villages in the Molemole Municipality. It has an estimated population of 8000.

  This research project indicated that the majority of the estimated 8000 people of Sekakene had no access to any form of water infrastructure in April 2010. It is possible that the water infrastructure situation in the Molemole Municipality deteriorated dramatically since April 2010 to April 2011. Alternatively, the official statistics on the Water Services National Information System might be incorrect.

  WS NIS (accessed 2 May 2011)

Modimolle Local Municipality –	*April 2010*
Population :	*85 010*
Water Supply Backlog –	*Population (No Infrastructure): 1,423*
	Households (No Infrastructure): 360
Water Supply Backlog –	*Population (Access below RDP): 9,62*
	Households (Access below RDP):2,432

  Estimated population of Sekakene: 8, 000

7.2 EVALUATING THE RESEARCH TOOL

In the proposal it was envisaged that the ethno-visual tool could potentially give insights into a number of practices in rural communities. This section highlights some of the insights obtained when viewing the footage and evaluates the ethno-visual tool as being suitable to provide answers.

7.2.1 Sanitation

Even though it was originally envisaged that water practices would be investigated, it proved to be too wide a scope to include sanitation as well as water into this exploratory study. Furthermore, sanitation practices often takes place in private and could not be filmed. The exception in this regard was hand washing: at only one household did we film a bucket with clean water placed close to a pit latrine and members of the household washing their hands there. Even though the camera operators were requested to specifically film people returning from latrines, we do not have footage of people washing their hands upon returning.

Typically a ritualised washing of hands with clean water took place before a meal. We have not filmed people using soap when washing hands before they eat. However, mostly hand washing was done with a fair amount of rubbing.

Evaluation: Ethno-visual tool is not optimally suitable to record sanitation practices
It would appear as if the ethno-visual tool might not be an effective tool to record sanitation practices. However, it might be a more reliable tool than other research tools to obtain certain sanitation information, for instance on washing hands after visiting the toilet.

Evaluation: The ethno-visual tool might be more effective that other tools to record certain sanitation practices.
The socially accepted answer that people are likely to give would be that everybody washes their hands after visiting the toilet. As we have heard in an interview when we visited Skilpadfontein, people said they always wash their hands. However, at the same household we filmed the people visiting the toilet and not washing their hands.

7.2.2 Water practices

The ethno-visual tool provided answers on the following questions regarding water usage:

- **What infrastructure is available for water collection?**
  The standpipes in Sekakene were all broken and out of order at the time of the fieldwork, from November 2010 until February 2011.

  No footage of the municipal water truck delivering water to households was recorded in 30 days of filming between November 2010 and February 2011. Residents said that the water truck did not deliver water during this period.

  Until beginning of February 2011 residents in the upper part of the village had access to water via their illegally connected yard taps.

Villagers bought water from vendors, who got their supply from residents with their own boreholes or who collected it at standpipes from nearby areas.

<u>Evaluation</u>: Suitability of the ethno-visual tool to capture infrastructure available for water collection

This film footage gave an accurate reflection of the infrastructure that was not functioning, much more accurate than what would have been obtained from official sources. In fact, the municipality officials claimed to be unaware of the fact that the standpipes were all broken, that the water truck did not deliver or even of the fact that virtually every household had an illegal yard connection. These officials were also not aware of the amount of water each household is allowed by the truck driver to collect.

However, the camera on its own was not suitable to capture infrastructure that did not exist, for instance a water truck that did not deliver. A combination of interviews, group discussions and graphic illustrations were required.

- **What infrastructure is available for water storage?**

  At every household filmed, plastic containers were used to store water. Bulk storage was typically done in 200 liter plastic drums. Sometimes metal containers were also used for bulk storage. No footage had been recorded of these containers being washed or cleaned. At all households included there were at least 3 of these containers.

  Water was also stored in a range of smaller containers, typically 20-25 liter containers. Few of these appeared to be bought specifically to store water; mostly these were used chemical containers. The containers were mostly quite dirty. Very little footage was recorded of these containers being washed or rinsed inside or outside.

  Water stored inside the kitchen was either in a 200 liter drum or a smaller 20-25 liter drum. These containers were often covered. No footage was recorded of bleach being added to this water. At one household the water used for drinking was boiled first.

  The containers used for water in the kitchen were relatively clean, although no footage was recorded of the containers being washed; however, these were rinsed.

  <u>Evaluation</u>: Suitability of the ethno-visual tool to capture water storage

  The tool in all probability gave a more accurate reflection of water storage than other research tools might have given, specifically the unhygienic state of the containers and the fact that unsuitable discarded chemical containers were used.

- **How do rural people/households use the available water infrastructure?**

  A range of uses of water had been recorded; this footage is available on a separate DVD.

  In broad terms the households in the higher lying areas, that had water in their yard connections, used water far more liberally than those without water in their taps.

Even though the households in both areas used water for the same purposes, those without running water used less.

Evaluation: Suitability of the ethno-visual tool to capture water use
The tool gives a more accurate depiction and in depth understanding of water uses than other research methods would. A research instrument would for instance be unlikely to determine whether someone would wash dishes in dirty water or whether water used for cooking would be reused for washing dishes; similarly, only when viewing footage would one realise that the same container would be used by numerous members of the household to drink water without washing it between.

- **How do individuals/households dispose of grey water?**
  In general, households in the lower lying areas without water in their taps used their grey water more than those in the higher lying areas. It was mostly used to water plants. Some residents would make real effort to optimally use their grey water.
  Generally, when grey water was used on plants, residents did not distinguish between water with or without detergents in. Grey water was also used to pour into pit latrines.

  Evaluation: Suitability of the ethno-visual tool to capture water disposal
  It is unlikely that the ethno-visual tool would provide better information on grey water disposal than other research tools, since there does not appear to be social stigma attached to water disposal practices.

- **What are the challenges that rural people/households/neighbourhoods struggle with regarding water?**
  The overwhelming challenge in Sekakane is the lack of available water due to the non-functioning of the municipal infrastructure

  Evaluation: Suitability of the ethno-visual tool to capture challenges
  The tool in all probability captured the problem far more accurately than any other research method would have. Any method relying of self reported access to water might have been discounted by municipal officials as being incorrect. However, the fact that 12 households were each filmed for two days and that the same situation of lack of access to municipal infrastructure was repeatedly recorded indicates that it is indeed a true reflection.

  However, the tool did not record the reasons why the problems arose in the first place, namely the illegal connections or the stolen and broken pumps; questions asked to the villagers were required to determine that.

- **What strategies do rural people/households employ to cope with a lack of sufficient water?**
  The most important strategy recorded was a frugal use of water for cleaning purposes.

  The only available strategy when the infrastructure from the municipality ceased to exist, was to purchase water from vendors. We hypothesise that, when the

municipal infrastructure is not repaired quickly, the poorest residents will walk to the nearest functioning standpipes to collect water. According to people we have spoken to in the village, this is the only option for those who cannot afford to buy water from vendors. The closest traditional water source that might be an option would be the river on the way to Dendron, at least 15 kilometer form Sekakene, which does not always have water. The (PUT) where people could draw water with a bucket, which was established by the Government in early 1960's when they proclaimed the village, is not open any longer.

Evaluation: Suitability of the ethno-visual tool to capture coping strategies
This tool would not be the only one to record that people buy water from vendors; self reported verbal or written responses would give the same results. However, since the selling of water is a politically sensitive topic, such self reported answers are likely to be discounted or disputed. However, the ethno-visual tool illustrate that such transactions actually take place.

- **What is the economic value of water infrastructure for rural people/households? Who pays who, how much, for what?**
  When the fieldwork started in August 2010, the ''going rate for a ''scoop of water (20 liter bucket) was R1 and a 200 liter drum cost R10. Some residents said that the cost was R12.The cost was the same whether the vendors sold water from a private borehole or water collected from a yard tap connected to the municipal main line. In May 2011 the cost of a drum had escalated to R15 per drum.

  Evaluation: Suitability of the ethno-visual tool to capture the economic value for water
  The tool could not effectively capture the exact amount of money paid to the vendors, self reporting was required to determine this.

- **How do rural people/households pay for water infrastructure?**
  In all instances filmed people paid cash for water. It is possible that water could be exchanged for goods or services, but none of that was recorded.

  Evaluation: Suitability of the ethno-visual tool to capture payment for water
  The tool would be suitable to capture exchange of goods and services for water; however, other tools are likely to give the same results.

8. POTENTIAL TO USE THE ETHNO-VISUAL TOOL FOR FURTHER STUDIES

Ethno-visual tools have been used in research before. Numerous ethnographic studies, also in the water sector, have been done in South Africa. The use of electronic equipment had also been incorporated in some of these studies. Furthermore, obtaining the participation of residents, using electronic devices, has also been done in studies before.

However, in all of these studies a specific ideal outcome was part of the original research design. For instance, it was used to educate people about better practices or to make them realise that their own practices were not in their best interest.

Non-interventionist participatory ethnographic film has not before been used in South Africa in water research.

This study had no hidden agenda or desired outcome. It was non interventionist. Its only aim was to provide the community with different perspectives on their own practices. What they decided to do with the information was entirely up to them.

This study was innovative in a number of ways, due it its non-interventionist nature: It was designed to give a visual tool to a rural community to capture, analyse, interpret and present their household practices from their own as well as from other perspectives.

The community had the opportunity to interrogate, analyse and interpret other perspectives against their own perspective. This generated debate and learning about their own practices.

This study has clearly shown that the ethno-visual tool can be used in a participatory non-interventionist manner in rural communities. The study was innovative in that it was non-interventionist, allowing rural people the opportunity to examine their problems through their own eyes and using their own perspective. The use of different perspectives, both from insiders and outsiders to the community broadened the scope of the study. Apart from the film footage, other material collected was graphically and visually provided to the elders in the community, allowing for debate on a level previously unknown to them.

Although further development and/or shaping of the tool may be required to fit the profiles and problems of specific communities, it is envisaged that the ethno-visual tool would have substantial value in similar situations in other communities, specifically to contribute to the discourse on community led participation. It would also allow for comparison of the use of the tool with other participatory rural research methods

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