Children at the CWH site.

"As much as we are poor and small we want to succeed."
Sizwe Mngwevu, Mayor Ikwezi LM

The view from the community: a preliminary socio-economic appraisal of the Communal Water House, Jansenville

Report on the work of the HSRC research team

Communal Water House
A German-South African Demonstration project for the improvement of rural life by advanced water treatment technologies, water recycling and sanitation
(Project funded by BMBF, Grant No. 02WD0737)

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Executive summary:

The HSRC has conducted a preliminary socio-economic appraisal of the project to locate a Communal Water House (CWH) in Jansenville. This has largely focused on an assessment of existing water services and the social acceptability of the CWH, the extent to which it will meet people's needs, and feedback from the community about potential modifications to the technology which could be put in place. A number of interviews were conducted, key information meetings attended, three focus groups conducted, and the documentary sources consulted.

The appraisal focused on drawing conclusions about whether the CWH is feasible, whether it is broadly socially accepted; or whether it accepted with significant modifications, and to provide suggestions for such modification. This appraisal was situated within an assessment of the current water services provided to poor communities in the area and whether the CWH provides access to water services at a basic level or provide a significant additional supportive service. The site was assessed in terms of access it could potentially provide to the local community and associated institutions such as schools and hostels.

The poor communities of Jansenville were found to have an optimistic view that their lives were improving: "There is change, but not so much." Participants in discussions identified improved levels of service, particularly flush toilets, as indicating a better life rather than social and economic factors such as improved family life, employment or education.

The proposal for a CWH is generally accepted at a political and community level and it was identified as being able to provide important services which would meet social needs in addition to the conventional services. The communities in Jansenville were found to have access to water and sanitation facilities above the basic level of communal facilities and Ventilated Improved Privies i.e. they have piped water at the house, rainwater tanks fed from the roof, and flush toilets.

In the focus groups problems were identified with the existing level of service provided by Ikwezi Municipality:

- poor piped water quality with possible impact on health,
- unpleasant taste and smell from piped water which meant that it is not an acceptable source for drinking water,
- washing laundry is difficult with this water,
- uncertain supply of piped water at times; toilets can not always be flushed, and
- seasonal shortages of drinking water from water tanks.

In the focus groups a lack of health and hygiene education at school or in the community was also identified. There was an uncontested view that proper hand-

washing with adequate water and soap was not being practiced (for a number of reasons) and that this is undermining the health of the community.

Despite their existing level of service the CWH was welcomed by the communities and two drivers of acceptance of the CWH were identified, firstly the acute recognition of water shortage, and secondly the inferior quality of piped water. The facility is seen as providing new improved facilities as well as a supplementary "back-up" system for the conventional water services including the following issues:

- Hot water for showering and laundry is welcomed particularly in winter and for making laundry washing easier;
- Showers are seen as more convenient and economical than bathing at home;
- The CWH will provide free access to better quality water than currently available;
- Showering facilities with hot water could be particularly useful for senior citizens who are difficult to bath in washing tubs;
- The CWH will provide employment for local people;
- The facility will provide a reliable supply of good quality water,
- The CWH re-use of water is a positive feature and people are prepared to wash and re-use water;
- Hand-washing facilities are welcomed,
- Health and hygiene education is seen as necessary,
- The sale of soap and washing powder is a positive feature.

There has, however, also been concern about the following issues:

- Potential health problems, such as fungal infections (athlete's foot) and other skin problems;
- The safety and security of women making use of the facility;
- The potential mixing of sexes in the facility;
- Parents need to know that girls particularly are secure from the attention of boys;
- Mixing of generations in showers and privacy is an issue;
- Whether laundry facilities are adequate;
- Whether there is any waste of water.

There were several proposals for improved acceptability:

- Better laundry washing facilities (than conventional basins) should be considered, and the possibility of a laundry being part of the design;
- A gym and place for physiotherapists;
- Participation in community rule-making,
- Clear rules and the policing of segregation of sexes,
- A register of users should be kept;
- The local police should be responsible for reinforced security,
- Hand-drying facilities should be considered.

The community in Jansenville, in comparison to communities in well watered areas, has an acute sense of water scarcity. This makes the CWH welcome: indeed, participants have a concern that water should not be wasted which is one of the key objectives of the Project. The CWH is, therefore, broadly accepted by the community although there are strong arguments put forward for adaptation (particularly security) and improvement (additional features).

The CWH poses a number of challenges to the Ikwezi Local Municipality as Water Service Authority and Water Service Provider. Specifically these are to integrate and align the Project within the existing plans for improved infrastructure. This will involve, among other things, the measuring of costs to operate and maintain the Project into the future and to factor these costs into future expenditure. Since it seems that the water supplied to the CWH will be included in the allocation of Free Basic Water, there do not appear to be costs to users, but costs will need to be borne by the municipality. These costs and the potential costs of replication of the CWH in the future are unknown but are critical to decision-making.

There are also the additional considerations. The municipality has identified a site which provides both for a significant portion of the population as well as one of the schools which identifies the CWH as an important adjunct to their sports facilities. The leadership will, however, need to justify and explain the uneven level of services which will pertain in the "serviced" areas of Mauritius and parts of 7de Laan and the "un-served" areas of Phumlani, Draai, and Brickfields which are the most distant from the site.

The municipality has identified a number of beneficial spin-offs to the municipality and community from the MoU with the consortium and a growing relationship with German developmental agencies. The CWH is a project which carries expectations for economic growth. These include the prospects for training and exchanges with German institutions and the Project being a point of attraction for regional and international tourism. The prospects for economic advance through international links are not certain but they do hold some promise.

The socio-economic assessment forms an important part of a strategy for managing risks in relation to this Project but is not substitute for a general review of the risks and prospects for social advancement through the adoption of the CWH.

The research team recommends:

1. **Improve the quality of water:** Particular attention be given to improving the water quality available from the CWH as drinking water; this has to be a significant improvement on the quality of the existing piped water which is regarded as undrinkable because of its taste, smell and suspected unhealthy quality.
2. **Participation is key:** A broad-based Project Steering Committee involving key institutions and representatives of civil society needs to be instituted to provide continuous community responses and a feedback mechanism;

3. **Set the rules with the community:** The Municipality and PSC need to give thorough attention to setting the rules for access to communal facilities taking into account attitudes to communal gender and inter-generational issues;
4. **Impact monitoring is needed:** As part of the project design and in discussion with the PSC, impact monitoring should be undertaken to identify key indicators and assess change over time;
5. **Problem-free operation is vital:** A manual for operations and maintenance should be assembled from reports logged on recurring issues needing attention to enable responsibilities to be taken, to a large extent, by local operators;
6. **Consider the site carefully:** Site of the project very carefully; if the feature is popular other communities may well want to make use of it and there could potentially, be an overload of the facility;
7. **Take security issues seriously:** Although the communities in Jansenville appear to have good respect for public property, security of users and the facility needs to be taken seriously;
8. **Integrate the CWH into planning process:** The responsibilities assigned and the municipal responsibilities for the CWH be integrated into the IDP and budgetary planning;
9. **Planned infrastructure development must proceed:** The CWH should not divert attention from the general improvement of water and sewerage infrastructure particularly of a water purification plant;
10. **Netball playing field:** Alternative arrangements need to be made for the playing and sports facilities displaced by the CWH structure;
11. **Learning through the Project:** From its inception transfer arrangements have to be kept in mind to ensure that there is the benefit of learning procedures and skill acquisition.

A project such as the CWH has the potential of successfully transferring technology to a number of the needs of poor rural people. It should be given the necessary social scientific review (in monitoring, evaluation and learning) to go beyond a preliminary review of acceptability to establish impact in hand-washing, time saved, health, economic activities and well being.

Introduction:

The Communal Water House (CWH) is a German-South African Demonstration project for the **improvement of rural life** by advanced water treatment technologies, water recycling and sanitation. The CWH provides for water management by **recycling and rational water use** for unserved communities. It has been developed and advocated by a project partners including companies, universities and professional bodies. The Department of Science & Technology (DST) has committed to supporting a demonstration project of the CWH project in Jansenville, Ikwezi Municipality, Cacadu District Municipality, Eastern Cape. It is envisaged that the success of the CWH could establish it as a **viable model for wider delivery** in other district municipalities following the pilot.

The DST requires initial advice on the planned CWH project, assessing both the technical aspects as well as the socio-economic dimensions. Such an assessment should form an important part of the strategy for pilot roll-out, as well as managing risks in relation to this Project. This HSRC study undertakes the socio-economic review and focuses on the question of social acceptability of the Project.

A thorough review of cases in technological transfer for poverty alleviation has identified that one of the most important, but under-estimated, component if a project is its social aspects. The questions raised are whether communities are consulted, whether projects meet their needs, and whether there are immediate advantages in terms of time and labour saved; in short, whether a project leads to progress in ending deprivation and alleviating poverty.

The socio-economic assessment should form an important part of a strategy for managing risks in relation to this Project but not substitute for it.

Aim

To undertake a socio-economic assessment of the CWH Demonstration project to arrive at an understanding of existing social conditions, social need, community norms and expectations, local government areas of competence and capacity, and operations and maintenance.

To review socio-economic and institutional issues and make recommendations about the social aspects of implementation and longer term assessment.

Method:

The Human Sciences Research Council (HSRC) has been invited by DST to assist with:

- Making an initial assessment to DST on the social, economic and institutional aspects of the project based upon the available documentation, and preliminary engagements (including the scheduled stakeholder consultation).
- Formulating recommendations for consideration in preparing the project rollout and risk management strategy.

This socio-economic assessment essentially provides the scoping of the existing conditions (including demographic data, attitudes, community systems, political representation, etc) to provide baseline understanding of the institutional and service delivery issues from which to draw conclusions as to the likely social response to the Project.

The assessment relies on primary documentary sources for data on the municipality, infrastructure and services, and demographics. This material was supplemented by participation in meetings, site observations, and interviews and focus group discussions to assess the social and physical environment and the social acceptability of the Project.

Limitations:

This study has been undertaken at some speed in recognition of the need for a quick measure of social acceptability of the CWH in Jansenville before the ground-turning event. There has not been sufficient time to spend more time to understand more fully the social dynamics in communities or access community leaders in individual interviews.

A thorough social assessment should provide for all essential baseline data on the socio-economic conditions of the community of Jansenville and the identification of key leading and lagging indicators of participation, processes, outputs, and impact. Significantly this study did not have the time to engage in the preliminary work leading to cost benefit analysis. The costs and benefits of the CWH are very much in debate and bear directly on the prospects for replication.

In a study for the United Nations by scientists from across the world, each authoritative in their field, the conclusion was reached that this expert team "was unable to provide adequate scientific information to answer a number of important policy questions related to ecosystem services and human well being." (MA 2003: 101) The author finds himself in something of a similar predicament; recommendations for key decisions have to be made with data which is often uncertain and inadequate.

Despite the limitations of time and resources, this study has attempted to make the best use of the data, site visit, and focus groups.

Background

Jansenville is a small town situated some 175 kilometers inland in the Karoo scrublands from Port Elizabeth, and has a low level of rainfall at about 300-350mm per year. The town is the centre of the mohair world trade and is to be acknowledged by having an international convention at the town in the near future.

Table 1. Population Projections

2004	2010	2015	2020
5140	5376	5471	5539

Source: 3.6 Socio-economic issues, p17

The town is relatively small and the projections are that it will not increase in population in the near future; there will be a slight increase in population in the next 17 years.

Table 2. Employment and unemployment, Ikwezi Municipality

Community	Employed	Unemployed	Economically active	Level of unemployment
Jansenville	1,035	2,290	3,365	68%
Klipplaat	224	1,130	1,383	82%
Rural area	1,643	370	2,047	18%
TOTAL	2,903	3,790	6,796	56%

Source: Calculations made from figures provided in the IDP, "Employment Status of Workforce Shown as a % of the Total Population of Ikwezi". The economically active population is obtained by adding the numbers of employed and unemployed rather than the total population as in the IDP table.

There is a very high level of unemployment and poverty in the municipality. According to Table 2 the highest level of employment is in the rural area, followed by Jansenville and Klipplaat. Klipplaat has an extraordinary level of 82% unemployment, followed by Jansenville with 68%, and the rural areas have the lowest level of 18%.

Although there is no data available from the IDP or the Community Survey in incomes, a social survey of Klipplaat in July 2006, found that 75% of households in that area had an income lower than R500 per month (Ballantine et al, 2008: Table1). It could be assumed that there would be a somewhat similar profile for Jansenville although the proportion below R500 per month will probably be lower because of higher levels of employment.

Rather surprisingly, in the assessment of needs for the IDP, the key issue identified in community is not employment but water and sanitation. In the table below the

writers of the IDP identify the community perception and, below, translate the perception to define the issue.

Table 3. Water issues identified in IDP

Community Perception	• No sufficient water : -No water tanks. -Water treatment is poor. -There is a shortage of water.
Defining the Issues	• Water losses occur due to insufficient maintenance of water infrastructure. • Underground water is of a sufficient environmental health quality, but is undesirable in terms of taste due to its salinity. • Water shortages are seasonal (during the summer months) and not year round.

Source: Ikwezi IDP, 3.3 Developmental Issues / Needs as Identified by the Community p10

The community perception (recorded in the writing of the 2007 IDP) is that there is insufficient water, that water treatment is poor and that the shortage of water is not alleviated by water tanks. The analytical issues raised by the IDP writers is that there are considerable water losses because of insufficient maintenance, and that the underground water located is undesirable because of the taste due to its salinity. It concludes that water shortages are seasonal rather than regular.

In the subsequent period water tanks have been provided for all in Jansenville and sanitation has been upgraded from Ventilated Improved Privies to flush toilets. Despite this the water is unpleasant to taste (more from a sulphorous smell approaching that of rotten eggs than salinity). Adverse reports have been received of its environmental health quality.[1]

There are a number of line items dealing with capital expenditure to make improvements to water infrastructure. The key item in water services has been that of the elimination of the bucket system which had been allocated R11,2 million by DPLG (Department of Local and Provincial Government) through MIG (Municipal Infrastructure Grant). A further sum of an amount greater than R10 million has been committed by DPLG, DWAF (Department of Water Affairs and Forestry), and MIG for the development of a water purification plant.[2] Progress was in evidence on the

[1] Mentioned by Mayor at the meeting of all interested parties on 24 June 2008.
[2] IDP, 6.2.2 Development Priority 2 : Infrastructure Development.

development of a larger sewerage plant to the west of the town. The system as operated in poor communities appears to be based on a flat rate rather than a metered system.

Within poor communities there remains an acute awareness of water shortage and of inferior quality of the piped water.

Despite this awareness there has been considerable social progress in the Ikwezi municipality. According to statistics from the Community Survey (Statssa, 2007, p11) between 2001/07, there has been an increase in piped water to the house rising from 27,6% in 2001 to 44,0% in 2007. Most of the remaining houses have yard connections. More importantly there has been a rapid increase of flush toilets connected to the sewerage system from 27.6% to 38.0% between 2001/07. Although the figures show a decline in bucket latrines of 8,4% over the same period, from observation and reports during the site visit, in the recent period this system has now been largely eliminated in Jansenville communities. It is possibly this concern which has led to priority being given to expanding the sewerage system and plant.

Figure 1. The structure of deprivation: poor communities in Jansenville

The poor communities in Jansenville which are the subject of this study lie to the north-east of the town. The map indicates the communities which make up the various units:

Unit	Community
1	Mauritius, 7de Laan, Diepkloof
2	Phumlani, Draai, Venterville
3	Holland, Borechards, Erven
4	Brickfield

It appears that, in line with the physical planning of urban apartheid which set out open spaces between black and white settlement, the "location" or black area lies furthest to the right of the map. The communities of Holland, Draai, Phumlani and Brickfields have the oldest housing, some of which is now being replaced by the municipality. Despite their current remoteness from the town centre these areas do have access to the Kwazamukucinga Clinic and the Gcinubuzwe Combined School which includes a high school. The RDP housing includes Borechards (completed in the mid1990s), 7de Laan, Mauritius and Diepfklof.

The CWH site is within Mauritius in Unit 1 which is the area most accessible to town and to primary education but also makes potential provision to 7de Laan and sections of Diepkloof.

CWH: political issues and buy-in:

The Communal Water House (CWH) is a German-South African Demonstration project for the improvement of rural life by advanced water treatment technologies, water recycling and sanitation.[3] The CWH provides for water management by recycling and rational water use for un-served communities. It has been developed and advocated by a project partners including companies, universities and professional bodies.

Although the idea of a CWH has been entertained in other provinces and municipalities the Ikwezi Local Municipality has been the first South African municipality to go beyond the signing of a Memorandum of Understanding to a ground-turning opening. The Project documentation records a history of difficulties in the inception of the CWH in other municipalities where it has been advocated. These include poor communications, insufficient staff capacity, staff changes, and budgetary problems. These are generic problems which have been recorded in reviews of municipal practice and capacity.

These, and other problems, have been confronted by political leadership municipality which has accepted the idea of the project, advocated its benefits to the community, and sustained links with the project partners which have led to the MOU. At two important meetings; firstly with all interested stakeholders on 24 June 2008 at which the project was explained by the project partners and endorsed by the Mayor, and secondly in an important meeting in the community on 29 June 2008 where the CWH was strongly advocated by the local councilor.

This clear commitment to the CWH indicates extensive and durable buy-in to the project; the question is how such a project fits into the existing plans for water and sanitation delivery in Jansenville. Although the capital costs of the project will be met by the consortium itself, there are costs and commitments required from the municipality. A site needs to be selected and land needs to be allocated and responsibility has to be acknowledged for the future operation and maintenance of the CWH. In the public meeting of 24 June the political leadership of the municipality stated that these responsibilities will be undertaken some time in the future and will be planned and budgeted.

A key question in relation to the Project is its relationship to the existing level of service. According to the IDP there has been a full investigation of the backlogs within the Cacadu District Municipality in 2005. At the meeting of 24 June and in subsequent observation in the communities of the north east it is clear that a higher level of service is provided than that contained in the definition of "basic" water services which includes access to piped water within 200 metres of a dwelling and a

[3] There is extensive description in the website, http://www.communal-waterhouse.net/materialien.en.html

Ventilated Improved Privy.[4] Although there are still some bucket toilets these are now being eliminated and it appears that all households now have a household connection to reticulated water supply and a flush toilet.

This somewhat higher level of service indicates that the CWH is ancillary and supportive to conventional delivery rather than providing mainstream delivery i.e. piped water to communities or to be regarded as the way in which people's need for water and sanitation facilities will be met.

Despite this there are a number of points about the existing service made by residents which indicate both appreciation of improvements but also criticism. The CWH could provide a supportive role to the existing water service which is acknowledged in the IDP to be inadequately maintained. Cost estimates in the DIP refer, for instance, to upgrading costs alone and do not include any refurbishing or operating and maintenance costs.

Site selection

The proposed site for the CWH on the concreted netball field adjoining Jansenville Primary School: in the background are the School's sports changing rooms and houses in Mauritius. The outline of the CWH is indicative rather than exact.

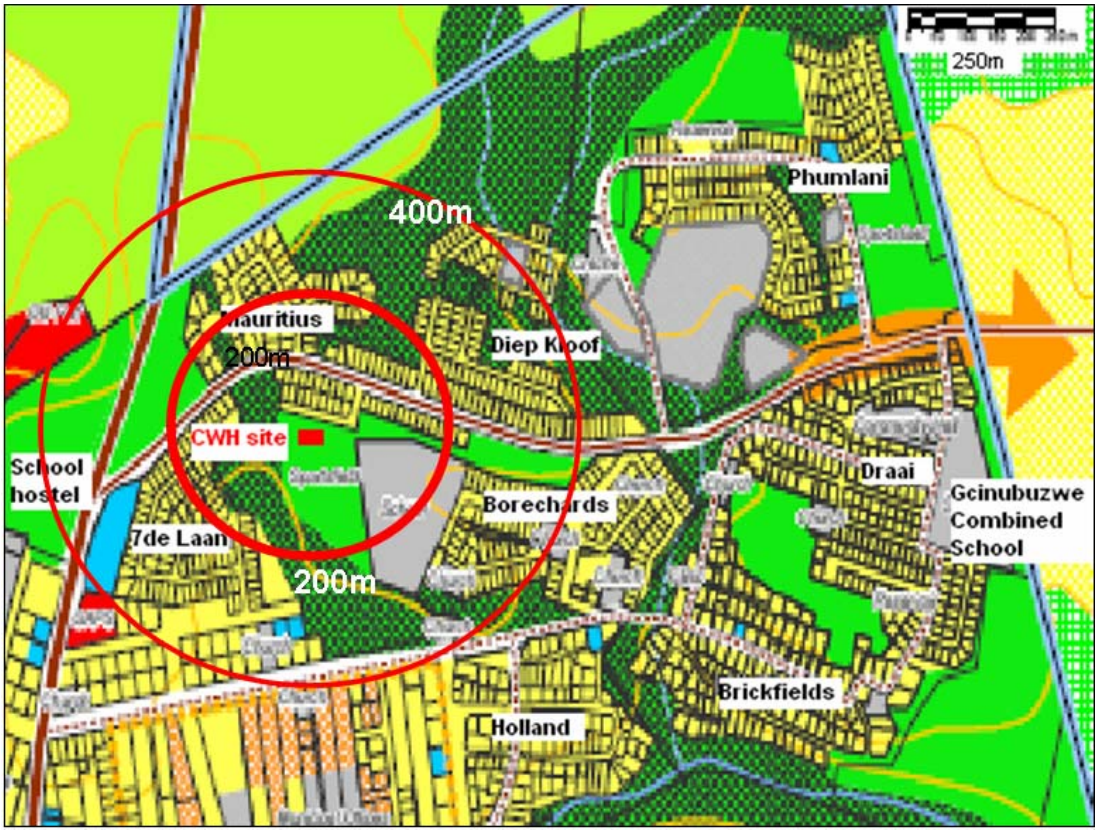
Children playing on the existing netball field.

During the visit to Jansenville the precise site of the CWH was examined in its social and environmental context. The site is located at the concreted netball field adjoining

[4] Unfortunately the IDP is silent, except for reporting on the elimination of the bucket system, on the existing level of service in the section Development Priority 2: Infrastructure Investment, p44, and the data is incomplete. In 3.4 Developmental Issues / Needs As Derived From Statistical Data, it is recognized that "needs may in part be defined through the assessment of verifiable infrastructural backlog figures. Verifiable backlog information does exist with respect to infrastructural requirements pertaining to water and sanitation services. Information pertaining to other infrastructural components is however not that readily available." Unfortunately also in the IDP itself the data relating to household levels of access to water services is itself not available.

the Jansenville Primary School which is situated between Mauritius and Borechards but is also accessible to 7de Laan. New foundations may need to be provided but the site is on municipal land and new planning permission is not anticipated. Alternative provision will, however, have to be made for the children, mostly girls, who currently make good use of the existing grounds.

Figure 2. CWH site and access



The researchers have make the "best fit" calculation of potential coverage of the facility at the following levels:

1. Availability Coverage: People for whom the service is available

The facility as planned does not have exclusionary criteria and is generally available to the poor communities to the north-east of Jansenville. It is also planned to serve local schools. There is (possibly) a potential of 3,500 people in this area.

2. Accessibility Coverage: People who can access the service

In terms of the criteria for access to water services set by DWAF in a number of official policy documents, access to water facilities is set at the outer limit of 200m to a communal tap. Employing this criteria most of the community of Mauritius and sections of Diep Kloof and 7de Laan are within range.

Close examination of the 200m radius and a map of housing used in the IDP indicates that there are 113 houses in the area and, with an average household size of 4.5 in the area[5] there would be potentially 509 people of all ages who could access the CWH. At an outer limit of 250m this figure could rise to 152 houses and 684 people.

3. Acceptability Coverage: People who are willing to use the service

From the map it is clear that not all people who are within access as described above will find roads and established paths leading directly to the facility. Some older people may find that this access beyond their perception of their walking range. In the focus groups described below it is also expressed that older people may feel constrained by the presence of younger people at the facility. Others may, for a variety of reasons, not want to make use of the facility. Possibly as many as 30% (or 153 people) may not use the facility at all or only occasionally. This would indicate willing and fairly regular access at about 356 people and probably a lower daily number.

4. Quality of Access: People who will actually receive quality service

Not all users will make full use of all the services provided by the facility or receive a good quality service. Heavy use could, for instance, result in the temperature of water in winter being lower than preferred. It could also mean that people have to queue to make use of the facilities they need.

Figure 3. CWH site detail, houses within radius of 200m

[5] Established by own calculations made from Ballantine (2008, Table 1) using mid-points and from previous census data on household sizes in rural areas.

Source: Section of map, dated 2008, downloaded via Google Earth, 2 July 2008

These calculations are possibly conservative. If the CWH meets the current expectations expressed in focus groups the question may rather be how the expectations of households beyond this norm can be managed.

Institutional questions:

Although Ikwezi Municipality is a relatively small municipality it acts as both Water Service Authority and Provider and has competence to decide directly on the issues surrounding the implementation of the CWH. The political leadership has frequently expressed its acceptance of responsibility for promoting and maintaining the CWH. Since the Project has been approved and endorsed at a political level it should be integrated into service delivery plans and operational planning.

This involves the consideration of the key service standards and regulations for the water sector. At the risk of burdening this document, these are included as Appendices 1 and 2.

In setting out the strategy for implementation, the municipality also should have a transfer of ownership model in place to work step-by-step towards a successful transition.

The conviction of the municipal leadership that the Project will bring a new service to the community and lead on to a wider range of benefits needs to be reinforced through public consultation and discussion. At the meeting of 24 June there was an extraordinary array of provincial and local departments

In recent weeks there has been consultation with councilors and with a Unit Area Committee on 27 June. The need to consult directly with the people has been actioned: on 29 June a public meeting was held with councilors, in the absence of the mayor, setting out the project's objectives and explaining the municipality's commitment to speedy implementation. According to reports, questions were raised and answered by councilors and the meeting endorsed the council's commitment. Such endorsement is important at the broad social and political level; on-going involvement is necessary to ensure that the many questions raised about the Project are answered as they arise over time and that such feedback is acknowledged and responded to.

Project Steering Committee (PSC)

The focus of institutional development in relation to the CWH has to be at the interface between municipality and community. A PSC is vital for the following reasons to:

- Ensure a high level of involvement of local community and institutions such as schools in the project at the implementation level;
- Institutionalize citizen voice on strategic and procedural issues;
- Adapt project design;
- Undertake essential tasks such as the selection of candidates for employment in construction and other activities;
- Involve civil society generally in the project and their realization;
- Help resolve strategic issues and challenges as they arise;
- Provide on-going monitoring and evaluation on key indicators;
- Provide a feedback mechanism to resolve issues before they become problems; and
- In turn to receive project reports to pass on through the community.

At a meeting of the Unit 1 Area Committee on 27 June, the mayor proposed the creation of a Steering Committee to include a woman representative from each community, a representative from the sports forum and a representative from the school as well as unit members.[6]

Social attitudes and acceptability:

When a significant innovation intending to bring about major changes is introduced in a community it is important that baseline data and attitudes are captured to give some indication of social change and impact once implementation takes place. A comparison of pre and post- implementation attitudes and practices should indicate the impact of an innovation, but without baseline data and values this is not possible.

The following have been identified as critical elements in community assessment of the CWH:

- People's expectations for water and sanitation facilities
- Whether people are ready water recycling and reuse
- Whether people will find communal facilities acceptable
- Commitments made in relation to water and sanitation facilities.

In the three focus groups undertaken with youth, women and Home Based Care Workers (HBCW) discussion questions were raised about general attitudes to life, health, water services, and health and hygiene training and current practices.

[6] Friederike Arnold. Notes on community consultation, 27 June 2008.

Questions posed about baseline attitudes, services and practices

For people in your community, is your life improving?
What do people in the community feel about their health?
What water facilities do you have? What do you feel about these?
What toilets are you using? What do you feel about these?
Have you had health and hygiene training in school or the community?
Speaking frankly; is it the custom in this community for people to wash their hands with soap before eating?

Baseline: "There is change, but not so much…"

Residents in the potentially affected communities generally felt that their lives were improving and were hopeful about the future. Possibly significantly they identified outward social issues as indication of improvement rather than personal questions. Improved services and a more responsive municipality were mentioned as central to their outlook.

The following comments indicate the centrality of sanitation and other service improvement:

> We now have flush toilets – we do not have those smelly buckets anymore. In general life has improved in our community.
>
> The flush toilets are very good indeed and do not have many problems.
>
> There is a change because now we (HBCW) can go to the patients and wash them and do everything for them.
>
> There is change because they gave us tanks and flush toilets.
>
> Health facilities are improving.
>
> Yes there are some changes as we have houses, water tanks and toilets, however there is still a big need for more. There is a change but not so much…

Although these improvements are recognized there is a recognition that residents do not always use facilities wisely ("For example, people throw hair into the toilets") and suggestions for community training to learn to work better.

The following problems are still being faced:

- Fairly frequent interruptions in water supply, “no water is running” “Most of the time there is water but sometimes there is none”
- Insufficient rainwater in water tanks used for drinking water
- Problems with roads especially after rains
- Inadequate medical supplies and shortages of nursing staff. “no trainees”

The most important issue of concern is undoubtedly poor water quality:

> ‘Amanz’amnyama’ (This is) dirty and smelly water -- people cannot wash themselves with such water!
>
> This water is not healthy for drinking purposes.
>
> Is this water healthy to drink….? I do not want to die.
>
> The water is black and we cannot wash our clothes.

Combined with the recognition of improved services there is also a frank realisaiton that been little advance in health practices. Washing hands is central to maintaining personal hygiene but it was readily acknowledged in focus groups that this was not the current practice in poor communities.

> No, no. Hand-washing is not a custom and many people eat with dirty hands, they do not wash their hands before eating.
>
> Our grand-mothers need to be taught about this – when you go to the tap for a hand wash, granny shouts at you “hey wena umosh’amanzi” (don’t waste water).
>
> I tell my children to wash their hands after the toilet – the problem is that there is no soap.
>
> The toilet is outside and only wash after “number one and two” without soap.
>
> There is not water in the taps all the time.

Women are unanimous that there has been no community health and hygiene education, while young people remember some points about hygiene made in biology.

Overall there has been a marked improvement in water services but this had not lead to practices which maintain personal and family hygiene. People recognize improvements and hope for better in the future.

Innovation (CWH): "This is a nice picture"

In the focus groups the picture below (Figure 4) of the Communal Water House was introduced to focus discussion on possible attractive and worrisome features. In attempting to capture the fresh impressions of respondents the focus group moderator was instructed not to provide a long verbal introduction but to allow questions to indicate areas of concern.

In most of the focus groups there was an immediate positive response to the picture.

> (Excitedly) Toilets and water tanks – somebody with a towel going for a shower –gym! soap shop! ladies shower! and water taps!
>
> Laundry for women – separate sinks for doing laundry eh!
>
> This is going to be a nice place for the community.
>
> This looks good; everything is nearby, you get out of the toilet and immediately you can wash your hands.
>
> I see people washing hands.

There were also some negative first impressions (although these were subsequently modified after discussion and explanation):

> I'm not sure it a healthy environment…when I've used the same shower as others I got a rash caused by some fungus. That was not healthy at all.
>
> It looks as though the taps aren't working.
>
> It looks too small; as though some are going to have to wait for others.

There is considerable concern (which is positive in the context) that the CWH will not waste valuable water.

> I am of the opinion that we will be using the same water for dual purposes eg. body and laundry wash, in order to save water eh! Remember,Jansenville doesn't have enough water.

The more durable worrisome aspects related to the security of girls, the mixing of sexes and generations, and the overall security of the institution. The security of girls was mentioned as the first thought of grand-mothers and started a lively debate:

> Our mothers think exactly like our fathers. They think about security for their children. They will consider saving water at home and therefore use the facility.

The security of females generally was a common concern:

> There must be someone responsible to check there are no people loitering around. There must be a sign which reads: "For Men/ Women Only".
>
> Are men and women going to use the same toilets and showers?
>
> We need a security guard so there won't be any strange men invading our space as women when having a shower.
>
> The water house should be closed at night.

The sharing of facilities among generations is also of concern among men:

> I am a black man. According to culture circumcized and the uncircumcized men do not mix. What is going to be done about that?

There is a general interest in maintaining security of people and property:

> It is very important that someone directs people where to go. A person in charge will have authority and get respect. In his absence there will be chaos.
>
> My worry is that this place is not fenced in.

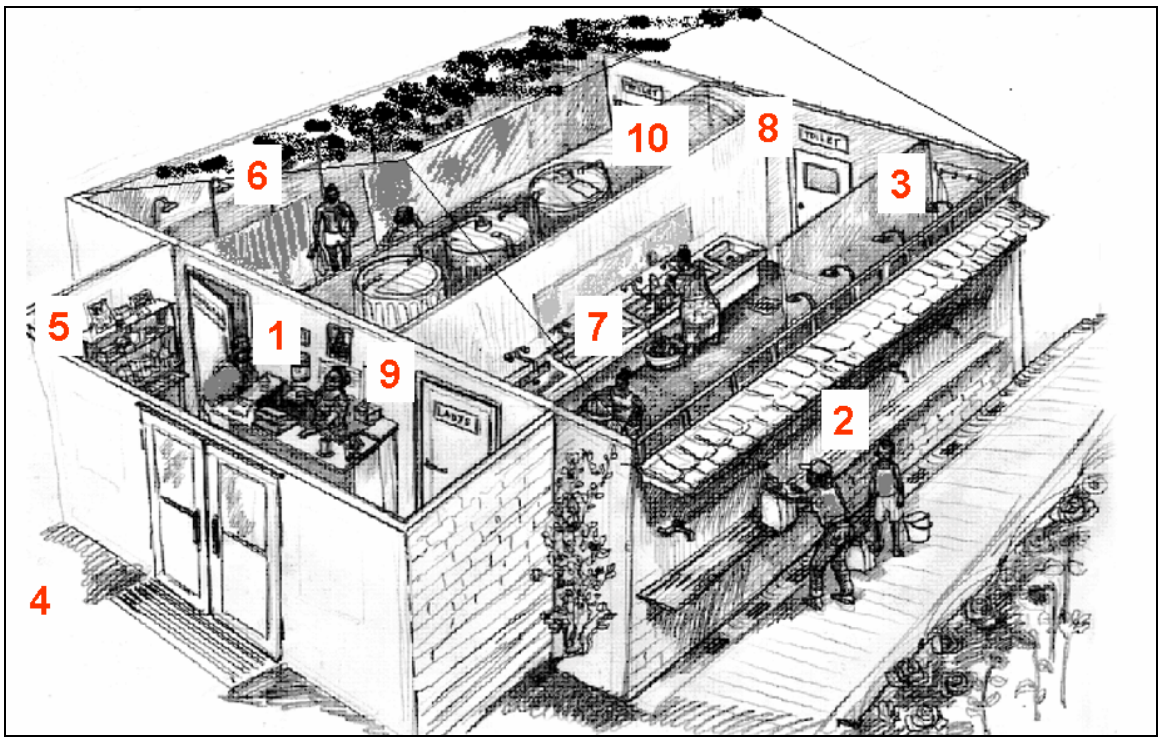
The CWH is seen as providing benefits across the board: for mothers, fathers and youth.

> I think the youth would enjoy it because they like their soccer teams. So after playing they can have a shower.
>
> We as women want it, let it happen! As women we will explain to our men the benefits of the project – after all they are our fathers!
>
> From the mothers' point of view they are going to like it. It is going to help them especially after gym – children will stop being lazy and wash rather than going to bed with stinking feet!

There are, however, reservations about the distance from households, particularly for older people.

> Older people like my grand-mother will complain about the distance. She even complains about meetings in town.

Figure 4. Community response to the CWH picture



Number	Issue or question raised
1	Strict control over access to the facility is needed
	A register of users should be kept
2	Is there sufficient good quality water; are all taps working?
3	If generations are to mix will there be privacy in the showers?
4	There should be visible security.
	The outer perimeter should be fenced
5	Soap and washing powder appears available; this is a welcome sight
6	How will the separation of generations among the males be dealt with?
7	Is the sink adequate for washing laundry?
	Could there be washing machines available?
8	Is there a gym?
	Will hand dryers be available?
9	How will "invasion" of women's area be prevented?
10	Tanks: how does this system work?

Socio-economic benefits

The implementation of the CWH is associated with widespread benefits to the community of Jansenville and to the municipality itself. Apart from the obvious immediate benefits to those living in the immediate vicinity of the CWH, there are additional benefits mentioned in the training and development of capacity in the municipality and community.

The key objectives and activities of the CWH are presented in Appendix 3 and a provisional schedule of the indicators associated with these objectives is listed in Appendix 4.

Among these are items of broad socio-economic interest:

- Involvement of local companies in construction and maintenance;
- Employment of local labour in construction and operation;
- An improved living situation for many people;
- A greater appreciation of the possibilities of solar energy;
- Transfer of knowledge at the municipal level;
- Health promotion;
- Training of trainers in the CWH technology and in its use.

The Municipality has had fairly extensive involvement in public works in road construction in and around Jansenville and local companies interested in construction and maintenance have been identified. In the direct employment firstly of workers on a temporary basis in construction and later in the operations of the CWH there will be some relief of the extremely high levels of unemployment. There will be an additional economic multiplier effect in the purchase of materials from local suppliers if this is set out in procurement policies. In a small town this could be significant.

The job creation of the CWH will, however, be limited.

Tourism and exchanges

It is also hoped that the Project will add to the areas of interest in and around Jansenville and increase tourism. Twinning and educational exchanges between towns and communities in Germany and the Ikwezi municipal area are also being considered.

Improved standard of living

An improved living situation for the poor will be registered if the following are achieved:

1. A high level of use of the facilities provided by the CWH;
2. Levels of satisfaction expressed by the Unit Area Committee and PSC or Communal Water House Committee;
3. Water savings to the household;
4. Energy savings by using hot water at the CWH;
5. Time savings to the household by not having to heat water to bath and washing laundry more efficiency;
6. Greater time for social and other activities by women;
7. Improved laundry washing efficiency through use of warm or hot water;
8. Improved water quality;
9. Improved quality of life for People Living with HIV and Aids (PLWHA);
10. More frequent hand-washing with soap;
11. Changes in the incidence of diarrhoea and water related diseases;
12. Better health through showering with warm or hot water;
13. Possible use of household water "freed" by the CWH in economic activities such as vegetable gardens;
14. Improved health and well-being generally as the result of the CWH and education and training;
15. High levels of satisfaction in health and well-being expressed in quality of life or other surveys.

Although in the focus groups it was argued that men undertake household tasks equally as women, the prospects are that the CWH will release women's time by economizing on time spent in bathing children and in washing laundry. The impact of the CWH should be noticeable through the greatest improvements occurring in the area most accessible to the CWH site.

Transfer of knowledge

In Project documents and discussion there are plans for the transfer of knowledge on technology and health and hygiene promotion.

In relation to the first objective, the plan is for 20 people identified by the municipality to be trained with the basic understanding of the project and technology being used. In other presentations the idea is put forward of Training of Trainers to make technological training and health education self sustained (See Appendix 4).[7] The training provided should, if possible, be set within the standards and qualifications set out in the SAQA framework to allow advancement in further

[7] The HSRC has had experience in this field, see Community Development Practice in Water and Sanitation. Accredited Training Materials and Course Curriculum. General Education and Training Certificate: Development Practice SAQA Qualification ID 2309.

education. Certainly discussion of the Project has led to a keen interest in the potential applications of solar energy.

Health and hygiene promotion are required by the Strategic Framework for Water Services (summarized in Appendix 1) in school and community education. In the focus groups it was mentioned that this was only partially achieved in school and not being undertaken in the communities. Health and hygiene promotion materials are available in South Africa (although not always readily accessible).[8] The difficulty in fully integrating texts on health and hygiene issues into schools is that these texts are most often not set within the curriculum and thus do not encourage teachers to make use of them. Critically important here are exercises leading to class and individual evaluation of learning which will form part of the teachers' assessment. Health and hygiene promotion is often undertaken "off curriculum" by visitors, which gives teachers a welcome break but does not lead to learning being taken seriously.

These issues are taken up in the work the HSRC has undertaken for DWAF entitled: Water for life: Health and hygiene messages for young learners.

Possibly as important as health and hygiene promotion is the assessment of outcomes arising from awareness such as improved provision of soap in households and more frequent and thorough hand-washing.

Conclusions

The CWH poses a new type of water service which does not readily fit within the existing framework for water service provision and regulation. In this particular case there is not tension in the relationship between communal and household delivery as the residents have a good level of service. In Jansenville, apart from generally attractive features, there are particular reasons for the ready acceptability of the CWH. This is a small-scale community which has a keen awareness of water scarcity, on the need to re-use water, and a strong feeling that the existing piped water is not potable because of its smell, taste and perceived unhealthy quality. The water tanks are a welcome ancillary municipal facility but provide inadequate volume.

No conflicts between the CWH and expressed commitments on water and sanitation were found, although there could be implications arising from the Project on the costing and sequencing of infrastructural development. With the change in political leadership in the country there could be changes in expectations.

There is a lack of tension between this communal project and household delivery as the Jansenville residents have a higher level of service. The local features present a quite unusual set of conditions and conclusions about social acceptability in

[8] An internet review conducted during the writing of this report could, unfortunately not locate teaching materials associated with Vision 20/20.

Jansenville may not be matched elsewhere. The importance of the Project in Jansenville is to identify the institutional and social arrangements necessary for the technology to be adapted to the South African social environment.

While a living example of the CWH is important as a demonstration project, the particular conditions of Jansenville imply that it will not serve as a pilot for to illustrate a suitable model for poorly served areas elsewhere. The high level of interest by other municipalities in this demonstration project means that it will be closely observed. It will, however, be necessary for a pilot to be conducted in a municipality with water services below the basic level to authenticate its use and acceptance in un-served communities. This site thus serves as a demonstration model rather than a pilot project exploring solutions to the basic questions of water service delivery.

There is increasing recognition among ordinary people that solar energy has enormous potential and a particular attraction in being "free" (with some level of maintenance after capital costs have been met). Equally there is a growing recognition that the additional demands on water resources in South Africa means that water has to be re-used. These factors imply that there is the basis for future replication elsewhere.

The site specifics do, however, need to be kept in mind. Essentially the CWH supplements the existing conventional water services (of existing house and yard connections, water tanks and flush toilets) rather than provides a basic water service. While in Jansenville a possible "poor fit" between conventional and CWH services is avoided as the population already has higher than basic water services, this may not be the case in other potential sites.

While there have been good indications of social acceptability of the Project (at times after some discussion of the characteristics of the facility with which people are not familiar) there have also been a number of proposals for modifications or additions. These could raise the level of acceptability and the intensity with which the facility will be used, but additional features will inevitably require additional support in operations and maintenance. A key consideration here is a simple hand drying device as an alternative to towels which is not energy intensive.

This socio-economic study has not undertaken cost benefit analysis at any level despite this being flagged (at the meeting of 24 June) as one of the most important aspects of acceptability at a municipal level. In a project supported by development aid there are hidden costs; the task of a pilot or demonstration project is to locate and measure these to understand the final costs of installation and possible replication.

The question of operations and maintenance needs particular attention. The IDP indicates that this is an area of responsibility which tends to be neglected in the municipality and the various tasks and responsibilities need to be measured and reported.

A project such as the CWH has the potential of successfully transferring technology to a number of the needs of poor rural people. It should be given the necessary social scientific review (in monitoring, evaluation and learning) to go beyond a preliminary review of acceptability to establish impact in hand-washing, time saved, health, economic activities and well being.

Recommendations

The research team recommends:

- **Improve the quality of water:** Particular attention be given to improving the water quality available from the CWH as drinking water; this has to be a significant improvement on the quality of the existing piped water which is regarded as undrinkable because of its taste, smell and suspected unhealthy quality.
- **Participation is key:** A broad-based Project Steering Committee involving key institutions and representatives of civil society should be instituted to provide continuous community responses and a feedback mechanism;
- **Set the rules with the community:** The Municipality and PSC need to give thorough attention to setting the rules for access to communal facilities taking into account attitudes to communal gender and inter-generational issues;
- **Impact monitoring is needed:** As part of the project design and in discussion with the PSC, impact monitoring should be undertaken to identify key indicators and assess change over time;
- **Problem-free operation is vital:** A manual for operations and maintenance should be assembled from reports logged on recurring issues needing attention to enable responsibilities to be taken, to a large extent, by local operators;
- **Consider the site carefully:** Site of the project very carefully; if the feature is popular other communities may well want to make use of it and there could potentially, be an overload of the facility;
- **Take security issues seriously:** Although the communities in Jansenville appear to have good respect for public property, security of users and the facility needs to be taken seriously;
- **Integrate the CWH into planning process:** The responsibilities assigned and the municipal responsibilities for the CWH be integrated into the IDP and budgetary planning;
- **Planned infrastructure development must proceed:** The CWH should not divert attention from the general improvement of water and sewerage infrastructure particularly of a water purification plant;
- **Netball playing field:** Alternative arrangements need to be made for the playing and sports facilities displaced by the CWH structure.
- **Learning through the Project:** From its inception transfer arrangements have to be kept in mind to ensure that there is the benefit of learning procedures and skill acquisition.

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Relevant HSRC research and training outputs:

HSRC. 2005. Hygiene and Health: Wash Priorities in Today's South Africa. Research Report conducted for DWAF/WASH Campaign.

HSRC. July 2007. Interim report on research results: Key health messages, communication and changed behaviour for public health.

Teaching material: Water for life: Health and hygiene messages for young learners

1) Educators' manual: English and Xhosa
2) Learners' guide: English
3) Learners' guide: Xhosa
4) Learners' material: Workbook for assessment

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Appendix 1: Key indicators, Strategic Framework for Water Services

	Target/Benchmark	
1	All have access to a functioning basic water supply facility by 2008	Indicator 1/pp6
2	All have access to a functioning basic sanitation facility by 2010	Indicator 2/p6
3	All schools have adequate and safe water supply and sanitation services by 2005	Indicator 3/p6
4	All clinics have adequate and safe water supply and sanitation services by 2007	Indicator 4/p6
5	All bucket toilets eradicated by 2006	Indicator 5/p6
6	All households supplied with piped water receive a quality meeting minimum standard for potable water in SABS 241	Indicator 3/p64
7	All consumers not to experience interruptions of less than 48 hours (at any one time) and cumulative interruption (during year) of less than 15 days	Indicator 4/p64
8	Free basic water to be supplied to all domestic consumers.	Indicator 5/p65
9	Free basic sanitation to be provided to domestic consumers	Indicator 6/p65
10	No water to be discharged into environment which does not meet discharge standards	Indicator 9/p65
11	Hygiene education and wise use of water taught in all schools by 2005	Indicator 7/p6
12	All households with access to basic sanitation to practice safe sanitation by 2010	Indicator 8/p6
13	All WSA to report annually on progress on plans by 2005	Indicator 15/p7
14	All WSA to report annually on set of key performance indicators	Indicator 18/p7

Appendix 2: Standards and measures in water services

Government Gazette No 22355
Notice No 509 8 June 2001
Regulation Gazette No 7079
Date 20010608

GOVERNMENT NOTICE

DEPARTMENT OF WATER AFFAIRS AND FORESTRY

No. R. 509

8 June 2001

WATER SERVICES ACT, 1997: REGULATIONS RELATING TO COMPULSORY NATIONAL

STANDARDS AND MEASURES TO CONSERVE WATER

The Minister of Water Affairs and Forestry has under sections 9(1) and 73(1)(j) of the Water Services Act, 1997 (Act No. 108 of 1997), made the Regulations in the Schedule.

SCHEDULE

Definitions

1. In these Regulations any word or expression to which a meaning has been assigned in the Act shall bear that meaning and, unless the context otherwise indicates -

"effluent" means human excrete, domestic sludge, domestic waste-water, grey water or waste water resulting from the commercial or industrial use of water;

"grey water" means waste water resulting from the use of water for domestic purposes, but does not include human excrete;

"supply zone" means an area, determined by a water services institution, within which all the consumer connections are provided with water supply services from the same bulk supply;

"the Act" means the Water Services Act, 1997 (Act No. 108 of 1997);

"the National Water Act" means the National Water Act, 1998 (Act No. 36 of 1998);

"user connection" means any connection through which a user can gain access to water services and includes any consumer installation and any bulk or communal connection.

"user sector" means the applicable category of users, being users categorised into at least either

(a) domestic;

(b) industrial; or

(c) commercial, sectors;

"water efficient device" means any product that reduces the excessive use of water.

Basic sanitation

2. The minimum standard for basic sanitation services is -

(a) the provision of appropriate health and hygiene education; and

(b) a toilet which is safe, reliable, environmentally sound, easy to keep clean, provides privacy and protection against the weather, well ventilated, keeps smells to a minimum and prevents the entry and exit of flies and other disease-carrying pests.

Basic water supply

3. The minimum standard for basic water supply services is -

(a) the provision of appropriate education in respect of effective water use; and

(b) a minimum quantity of potable water of 25 litres per person per day or 6 kilolitres per household per month -

(i) at a minimum flow rate of not less than 10 litres per minute;

(ii) within 200 metres of a household; and

(iii) with an effectiveness such that no consumer is without a supply for more than seven full days in any year.

Interruption in provision of water services

4. A water services institution must take steps to ensure that where the water services usually provided by or on behalf of that water services institution are interrupted for a period of more than 24 hours for reasons other than those contemplated in section 4 of the Act, a consumer has access to alternative water services comprising -

(a) at least 10 1itres of potable water per person per day; and

(b) sanitation services sufficient to protect health.

Quality of potable water

5. (1) Within two years of the promulgation of these Regulations, a water services authority must include a suitable programme for sampling the quality of potable water provided by it to consumers in its water services development plan.

(2) The water quality sampling programme contemplated in subregulation (1) must specify the points at which potable water provided to consumers will be sampled, the frequency of sampling and for which substances and determinants the water will be tested.

(3) A water services institution must compare the results obtained from the testing of the samples with SABS 241: Specifications for Drinking Water, or the South African Water Quality Guidelines published by the Department of Water Affairs and Forestry.

(4) Should the comparison of the results as contemplated in subregulation (3) indicate that the water supplied poses a health risk, the water services institution must inform the Director-General of the Department of Water Affairs and Forestry and the head of the relevant Provincial Department of Health and it must take steps to inform its consumers -

(a) that the quality of the water that it supplies poses a health risk;

(b) of the reasons for the health risk;

(c) of any precautions to be taken by the consumers; and

(d) of the time frame, if any, within which it may be expected that water of a safe quality will be provided.

Control of objectionable substances

6. (1) A water services institution must take measures to prevent any substance other than uncontaminated storm water to enter -

(a) any storm water drain; or

(b) any watercourse, except in accordance with the provisions of the National Water Act.

(2) A water services institution must take measures to prevent storm water from entering its sewerage system.

Disposal of grey water

7. A water services institution may impose limitations on the use of grey water if the use thereof may negatively affect health, the environment or available water resources.

Use of effluent

8. (1) A water services institution must ensure that the use of effluent for any purpose does not pose a health risk before approving that use.

(2) Any tap or point of access through which effluent or non-potable water can be accessed, must be clearly marked with a durable notice indicating that the effluent or non-potable water is not suitable for potable purposes.

(3) A notice contemplated in subregulation (2) must be in more than one official language and must include the PV5 symbolic sign for non-potable water as described in SABS 1186: Symbolic Safety Signs: Part 1: Standards, Signs and General Requirements.

Quantity and quality of industrial effluent discharged into a sewerage system

9. A water services institution is only obliged to accept the quantity and quality of industrial effluent or any other substance into a sewerage system that the sewage treatment plant linked to that system is capable of purifying or treating to ensure that any discharge to a water resource complies with any standard prescribed under the National Water Act.

Water services audit as a component in the Water Services Development Plan

10. (1) A water services authority must include a water services audit in its annual report on the implementation of its water services development plan required in terms of section 18(1) of the Act.

(2) A water services audit must contain details for the previous financial year and, if available, comparative figures for the preceding two financial years of -

(a) the quantity of water services provided, including at least -

(i) the quantity of water used by each user sector;

(ii) the quantity of water provided to the water services institution by another water services institution;

(iii) the quantity of effluent received at sewage treatment plants; and

(iv) the quantity of effluent not discharged to sewage treatment plants and approved for use by the water services institution;

(b) the levels of services rendered, including at least -

(i) the number of user connections in each user sector;

(ii) the number of households provided with water through communal water services works;

(iii) the number of consumers connected to a water reticulation system where pressures rise above 900 kPa at the consumer connection;

(iv) the number of households provided with sanitation services through consumer installations connected to the sewerage system;

(v) the number of households with access to basic sanitation services;

(vi) the number of new water supply connections made; and

(vii) the number of new sanitation connections made;

(c) the numbers provided in compliance with paragraph (b) expressed as a percentage of the total number of connections or households;

(d) cost recovery, including at least -

(i) the tariff structures for each user sector;

(ii) the income collected expressed as a percentage of total costs for water services provided; and

(iii) unrecovered charges expressed as a percentage of total costs for water services provided;

(e) meter installation and meter testing, including at least -

(i) the number of new meters installed at consumer installations; and

(ii) the number of meters tested and the number of meters replaced expressed as a percentage of the total number of meters installed at consumer connections;

(f) the water quality sampling programme contemplated in regulation 5(1), the results of the comparison set out in regulation 5(3) and any occurrence reported in compliance with regulation 5(4); and

(g) water conservation and demand management, including at least -

(i) the results of the water balance as set out in regulation 11;

(ii) the total quantity of water unaccounted for;

(iii) the demand management activities undertaken; and

(iv) the progress made in the installation of water efficient devices.

Water and effluent balance analysis and determination of water losses

11. (1) Within two years of the promulgation of these Regulations, a water services institution must every month -

(a) measure the quantity of water provided to each supply zone within its supply area;

(b) determine the quantity of unaccounted for water by comparing the measured quantity of water provided to each supply zone with the total measured quantity of water provided to all user connections

within that supply zone;

(c) measure the quantity of effluent received at each sewage treatment plant; and

(d) determine the quantity of water supplied but not discharged to sewage treatment plants by comparing the measured quantity of effluent received at all sewage treatment plants with the total measured quantity of water provided to all user connections.

(2) A water services institution must

(a) take steps to reduce the quantity of water unaccounted for; and

(b) keep record of the quantities of water measured and of the calculations made.

Repair of leaks

12. A water services institution must repair any major, visible or reported leak in its water services system within 48 hours of becoming aware thereof.

Measurement or control of water supplied

13. (1) A water services institution must

(a) within two years after promulgation of these Regulations, fit a suitable water volume measuring device or volume controlling device to all user connections provided with water supply services that are existing at the time of commencement of these Regulations; and

(b) fit a suitable water volume measuring device or volume controlling device to every user connection made after the commencement of these Regulations.

(2) If constructed or installed after promulgation of these Regulations, a suitable water volume measuring device or volume controlling device must be fitted to separately measure or control the water supply to every -

(a) individual dwelling within a new sectional title development, group housing development or apartment building;

(b) individual building, having a maximum designed flow rate exceeding 60 litres per minute within any commercial or institutional complex; and

(c) irrigation system with a maximum designed flow rate exceeding 60 litres per minute that uses water supplied by a water services institution.

(3) Where the water supplied is measured by way of a meter, that meter must comply with the Trade Metrology Act, 1973 (Act No. 77 of 1973), if of a size regulated under that Act.

Consumer installations other than meters

14. Every consumer installation must comply with SABS 0252: Water Supply and Drainage for Buildings and SABS 0254: The Installation of Fixed Electric Storage Water Heating Systems, or any similar substituting re-enactment or amendment thereof if the consumer installation is of a type regulated by either standard.

Pressure in reticulation system

15. (1) A water services institution must design and maintain every water reticulation system installed after promulgation of these Regulations to operate below a maximum pressure of 900 kPa.

(2) Where water pressure in a water reticulation system could rise above 900 kPa, a water services institution must install a pressure control device to prevent the pressure at any domestic consumer connection from rising above 900 kPa.

Reporting of non-compliance

16. A water services institution must have a consumer service to which noncompliance with these regulations can be reported.

Appendix 3: Key objectives and activities identified in CWH presentations

Key objectives and activities identified
Basic understanding
• Participation in the efforts for the project realization is a necessary pre- condition for the success • Establishment of a project team consisting of stakeholders, municipal representatives, firms bringing technologies and representatives from communities • After project period the Municipality will become the owner of the whole system
Main Items
• Selection of a suitable site and establishment of an agreement with the beneficiary community • Taking over the costs for renting the area and running the demonstration plant • Establishment of a building as a shelter for the technical equipment provided by German project partners (about 180m2)
Other Supporting Activities
• Support the realization by availing human resources, planning support • Support educational activities, social activities (as education in water resource management), business planning
Improved Water Services
• Reduction of the water amount needed by 2-3 times at the same level of services • Short time solution at good cost/benefit ratio • 2-3 times people served by the same amount of water • 2-3 times prolonged life time of boreholes • Reduced capacities of pipes and devices
Higher Social Standard
• Reduced transport of large water amounts to the households • Washing efficiency by reduced washing agent costs • Improved hygienic standard by warm shower use and warm rooms • Improved education for water house users via communication centre • Job creation for water house construction and maintenance • Higher washing efficiency by warm water use • Use of organic fertilizer in private gardens
Environmental effects
• Lower input of washing agents into environment • Use of solar energy instead of fossil fuels • Environmental awareness improved • Production of organic fertilizer in compost toilets
General Benefits for Municipality

- to optimize combined action of technologies,
- to fit proven technologies to the situation on site,
- to prove the acceptance of the local people after their special needs.

Massive support by the German Ministry of Science and education. 3 year period. Further activities envisaged

- CWH implies only modern technologies, which are proven in Western Countries in an innovative combination to fit it to the situation of rural region in R.S.A.
- The result of the project will be marketed by a joint venture including the Municipality or other forms of engagement of rural people.
- The CWH itself will be transferred into the property of the Municipality by special agreements.
- A production of equipment in the region is envisaged. Thus a massive input of investment and creation of jobs at several educational levels is possible.
- During the project period educational programs are foreseen for the rural people, especially young people.
- Local firms will be engaged for technical activities, thus jobs are created, and profits are possible.

Source: Presentation "Communal Water House": A German-South African technology co-operation project. Participation of Eastern Cape Municipality.

Appendix 4: Schedule of CWH activities and associated indictors

	Activity or objective	Possible indicator	Location	
1.	Communal Water House	Does the community understand the concept of Communal Water House?	Pg 3 (8th paragraph)	FG
2.	Local municipality	Signing of MOU Political responsibility Managing O&M	Pg 3 (3rd paragraph)	FG
3.	Local companies involved in the construction and maintenance.	Provide local companies the opportunity to be involved in the construction and maintenance of project	Pg 3 (3rd paragraph)	FG
4.	Improve the water availability and water management	Indicators appropriate to volume of consumption	Pg 3 (7th paragraph)	FG
5.	Improve the living situation in rural areas in the shortest term	Alleviate poverty in community	Pg 3 (7th paragraph)	
6.	Potable water for drinking	Improvement of water quality	Pg 3 (8th paragraph	FG
7.	Water for cooking	Both hot and cold water will be available to the community.	Pg 3 (8th paragraph	FG
8.	Recycling water	Will the community accept using recycled water	Pg 3 (8th paragraph)	FG
9.	Solar devices	Problems of security and theft Understanding technical processes	Pg 3 (8th paragraph)	
10.	200-800 people	Will the CWH meet the norms of distance (200m) and volume Can it supply the upper estimation with sufficient water?	Pg 3 (9th paragraph)	
11.	Maintenance of projects	Low maintenance of project is required	Pg 5 (1st paragraph)	
12.	Project needs supervision and maintenance	Training and ability of staff to supervise and maintain the project	Pg 5 (2nd paragraph)	
13.	Rooms for male and female	What means are there not to compromise women security?	Pg 5 (3rd paragraph)	FG
14.	Local and traditional needs	How is the project able to adapt to the local and traditional needs of the community?	Pg 5 (3rd paragraph)	FG
15.	Delays of project	Risk of delays undermining confidence in the Project	Pg 6 (2nd paragraph)	
16.	Local involvement and PSC	Necessary for immediate social acceptability Feedback mechanism for technological adaptation What level of public participation in PSC Public Steering Committee?	Pg 6 (2nd paragraph) Philosophy of project realisation	FG
17.	Municipal staff capacity	Will municipal officials be ready and available to take on responsibilities?	Pg 6 (3rd paragraph)	
18.	Municipal budget constraints	Can the associated costs of the Project be met?	Pg 6 (3rd paragraph)	
19.	Transfer of knowledge at	20 people from the municipality will be	Pg 8 (5th	

	municipality level	identified that will be trained with the basic understanding of the project and technology being used.	paragraph)	
20.	Health promotion	Will health and hygiene promotion as set out by the Strategic Framework for Water Services (SFWS) in schools and with households be undertaken		FG
21.	Provision of Hot water	Needs and priorities of the community	Pg 4 (figure 1: CWH technology scheme)	
22.	Free basic service	As set out in the Strategic Framework for Water Services (SFWS) and should be reflected in the WSDP of the Water Service Authority, DM, for water and for sanitation		
23.	4-5 examples addressing different local needs proposed	Realisation of the social acceptability	Philosophy of project realisation	
24.	Training trainers	Continuing and self sustained programme of a)Health education b)Technological education 2)Use of the CWH	Philosophy of project realisation	
25.	Hygiene Sanitation in rural areas	Improve health of the community	Philosophy of project realisation	
26.	Beneficiary municipality becomes owner of project.	Necessary for the continuation of project.	Philosophy of project realisation	
27.	Establishment of project team	To monitor projects progress	Participation of RSA municipality	
28.	Human resources	Are there human resources available for project continuation	Participation of RSA municipality	
29.	Support educational activities	To improve quality of life in community	Participation of RSA municipality	
30.	Establishment of 5 CWH realisation examples	Reliability of project	Situation and proposals	
31.	2-3 times people served by the same amount of water	People accepting recycled water	Sustainability effects of CWH: Factor 2-3	
32.	Life time of boreholes	Maintenance of project needed	Sustainability effects of CWH: Factor 2-3	
33.	Washing efficiency	Save on water usage	Sustainability effects of CWH: Factor 2-3	
34.	Reduced environmental impacts	Community becoming aware of environmental impacts	Sustainability effects of CWH: Factor 2-3	
35.	Use of organic fertilizers using faecal components;	Will the fertilizers be accepted by the community?	Pg 3 (3rd paragraph) Sustainability effects of CWH: Factor 2-3	

Sources:

FG Focus Groups conducted by HSRC in Jansenville

MMoU Meeting of 24 June 2008 to introduce the Project and sign the MoU