



# **QUALITY OF LIFE SURVEY**

## **EVALUATION OF THE EASTERN CAPE RURAL WATER SUPPLY PROJECT**

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# EXECUTIVE SUMMARY

This report outlines the results of a Quality of Life study (QoL) that was conducted during October 2006 among 504 beneficiaries living in 21 villages within the Oliver Tambo District Municipal area. The study attempted, apart from physical observations of the Water Infrastructure, to determine community opinions and perceptions towards the Water Infrastructure project that was implemented within the villages, and to link the perceived impact thereof with various Quality of Life domains.

Based on the above broad objectives a QoL theory and questionnaire was developed, taking the rural circumstances as well as existing literature on QoL into account. QoL in this study was measured through qualitative and quantitative measurements, and focused on Objective as well as Subjective QoL indices.

The findings in general suggest:

- Most pump houses and water reservoirs are in a good physical condition and seem to be managed effectively, though some problems exist with electricity supply and maintenance of the grounds. General maintenance work and electrical problems at these facilities are the main factors contributing to water interruptions in the villages. The majority of communal tapstand is still in a good working condition and is easily accessible to villagers. Very few are leaking or have blocked drains, while the most prevalent problem is broken tapstand mechanisms. In terms of community accountability, no real threat was observed in terms of illegal water connections, as only one illegal connection was found at one of the reservoirs.
  
- A very important finding is that although water interruptions seem to occur regularly, and that some villages have experienced water supply problems for quite a while (due to electrical failures) the findings indicate positive opinions and perceptions towards the Water Infrastructure project among the different village communities, with no major underlying antagonism towards it. Villagers are highly appreciative of the fact that they now have access to clean water; that is easier accessible to them, and that it have major advantages for them in terms of their health and lifestyle. These positive attitudes most probably can be attributed to the Mayo, or Hawthorne effect, in the sense of reaping rewards when you pay attention to people. The mere act of showing these villagers that government is concerned about their live circumstances spurs them to positive attitudes, regardless of the actual outcomes of the developmental interventions.

The Water Infrastructure Project in itself has successfully followed a very detailed and involved community consultation process, resulting in relatively high satisfaction levels among the beneficiaries towards the maintenance and operational aspects, as well as water quality. The least positively evaluated aspect (though still positive) of the project, in line with the findings of the technical observations, is that of water interruptions.

Community accountability has successfully been created, in line with the low level of actual vandalism of the Water Infrastructure. Most villagers also feel that it is fair for them to look after the assets of the Water Infrastructure Project, and are committed to the functioning of the project in future. In respect of the project's sustainability in future, a number of potential problems have been highlighted. The villagers feel that the long-term future of the project is much better than the short and medium term, indicating that they believe that the current problems being experienced will be sorted out in the long-run.

One of the most important findings is that an overwhelming majority of beneficiaries believe that the Water Infrastructure project made their lives easier and that it impacted positively on them as communities (resulting in a very high rating on the project's Overall Impact Index of 95.9%)

- Villagers display a moderate level of Subjective happiness (Overall QoL Life Index of 68.1%). In line with the actual high poverty levels in rural areas, the villagers displayed very low satisfaction levels on the Material Well-being domain of QoL (32.7%), while moderate satisfaction expressed in terms of the Basic Services that they receive (58.3%). In sharp contrast, villagers tend to be very satisfied with their Personal Functioning (77%) and high satisfaction levels exist in terms of the Relationships domain (77.2%).
- The research findings suggest that the perceived positive impact of the Water Infrastructure project on the evaluation of Overall QoL (Subjective happiness) cannot be under-estimated as it significantly contributed to the variation of QoL, over and above, the relationships with the four mentioned 1<sup>st</sup> Order QoL domains as well as a combination of 2<sup>nd</sup> Order domains. The findings have also distinctively indicated that the villager's current water source usage patterns (as an objective measurement of Services) are significantly associated with QoL. Those villagers using the newly built communal tapstands as their main water source are more satisfied with their Physical Health, Community relations, and Overall QoL, than those villagers still using the rivers as their main source of water.

In terms of specifically the 2<sup>nd</sup> order domains of Basic Services, very positive opinions were expressed on Environmental management in the villages (84.6%); rather low satisfaction levels on Safety and Housing (44% and 47% respectively), while moderate satisfaction levels were

expressed on Service Evaluation (57.9%). With regard to Service evaluation specifically, high levels of satisfaction were expressed towards water supply in general (86.1%), while an overwhelming majority of villagers (94.6%) believe that water supply improved over the past 5 years in their villages. With the exception of Safety, all three remaining 2<sup>nd</sup> order Domains of Basic Service correlates significantly with Overall QoL. However, Safety in combination with Housing and Service Evaluation explain about 9.8% of the variation in Overall QoL.

On an objective measurement level, it is clear that the majority households moved away from using rivers, springs and boreholes as their main source of water to the usage of communal tapstands. An estimated 4 890 households are currently using communal tapstands as their main water source, while an estimated 4 345 households were using rivers before the Water Infrastructure project was implemented.

Apart from these mere household numbers, major water usage changes has been observed, since the implementation of the Water Infrastructure project.

- Firstly, the estimated time that families spend per day to fetch water has significantly been reduced by more than 50% (30 minutes compared with 13.8 minutes).
- Secondly, the per capita daily water usage has increased by 50% (9.1 litres compared with 13.6 litres) among these village communities.
- Thirdly, the role of woman in fetching water might also be changing as it was found and observed that children, as well as young males are now assisting in this regard.

In conclusion the findings suggest that the implementation of the Water Infrastructure project are positively viewed and perceived by most villagers, this despite the fact that water interruptions are experienced from time to time. The perceived impact of the project correlates significantly with Overall QoL, and these perceptions contribute to Overall QoL over and above the 1<sup>st</sup> and 2<sup>nd</sup> order domains. The study has shown that the project also impacted positively on villager's water use patterns, as well as on their subjective evaluation of their Physical health and Community relations. The study has clearly indicated the positive impact on attitudes and behavioral patterns of villagers.

A number of recommendations were made based on these findings.

# 1. INTRODUCTION

In South Africa, major social development initiatives have been implemented since the democratisation processes started in 1994 in order to address the marked social disparities that exist in society. Various development initiatives were implemented based on the Reconstruction and Development Programme (RDP), in an effort to improve the life circumstances of different communities.

These development initiatives focused on all spheres of life, including the supply of potable water, sanitation services, electricity supply, housing, health and various other social services. One of the major priority areas of government is that of delivering clean water to all citizens, especially those living in rural areas. In this regard, the South African government requested the government of Japan for Grant Aid Assistance, to speed up the provision of rural water supply. The Eastern Cape, one of the provinces with the largest water services backlogs in the country, was therefore specifically targeted.

The improvement of the levels of basic services and eradication of water and sanitation backlogs are some of the major priorities set by the South African Department of Water Affairs and Forestry, accompanied by effective support to local government. Based on these priorities, the Japanese Water Infrastructure project was embarked upon in the Eastern Cape, within the Oliver Tambo District Municipal area. Apart from the mere construction of water supply infrastructure, the project also focused on building adequate community capacity for future maintenance and operations of the water infrastructure, as well as creating heightened community awareness on health and hygiene practices. The construction of water supply facilities included, the building of communal standpipes, water reservoirs, pump houses as well as the reticulation systems linking these infrastructural components.

The Japanese Government conducted a series of scoping and feasibility studies from April 2001 up to February 2002 before the Rural Water Infrastructure Project was embarked upon. This included activities such as field surveys, aerial photographs and a range of technical studies. In total 30 villages in the Oliver Tambo District Municipal area were put through a thorough screening process, based on evaluation criteria on water quality, water adequacy, water flow rates, duplication with other similar water projects, etc. Based on this screening process, 21 villages were identified as suitable for project implementation. These selected villages fall with four Local municipalities, with an approximate 8% water coverage rate and the assumption of a local population growth rate of 2.5% per annum. The Water Infrastructure project was planned, based on an estimated 38 627 people or 5 106 households living in the 21 villages, with a view of serving at most 6 534 households eventually.

The Water Infrastructure project was implemented in two phases. Upon completion of phase 2, a total of 216 communal tapstands were built within a 200m radius of dwellings as per RDP standard (that is about 1 tapstand supplying about 250 households), as well as 22 water reservoirs and 19 control rooms (with three-phase power line extensions). The following benefits were expected to materialise from the project:

- ❑ The number of beneficiaries in the villages will increase from an estimated 38 627 persons to an estimated 49 446 in the target year.
- ❑ Unit water consumption will expand from 8% to 12% in the target year.
- ❑ The constructed water facilities will contribute to the prevention of water-borne disease such as cholera.
- ❑ The water unit consumption will increase from 9 lit/cap/day to 25 lit/cap/day.

Apart from the above-mentioned benefits, it was also indicated that the Water Infrastructure project would meaningfully contribute to the improvement of basic human needs of the local population, having great significance on the lives of the relevant village communities.

The Department of Water Affairs and Forestry expressed a need, in line with their Monitoring and Evaluation policies, for a thorough evaluation study covering the 21 villages and its beneficiaries. The purpose of this assessment was therefore to:

- ❑ Determine the impact of the Water Infrastructure project on Quality of life (QoL) of village communities.
- ❑ Assess the sustainability of the project, in respect of skills transfer, training, project ownership and operational functionality.
- ❑ Determine the number of standpipes in working condition, as well as maintenance of water reservoirs and pump houses in general.

The findings on the above assessment areas will be used as explorative strategic information to overcome future problems and focus future water infrastructure projects in order to maximise its impact on beneficiaries.

## **2. RESEARCH OBJECTIVES**

Based on the above introduction, the current research study identified the following four broad research objectives:

- ❑ Determining and quantifying perceptions and opinions of beneficiaries towards the Water Infrastructure project and its future sustainability.
- ❑ Determining the Quality of Life among the different village communities, as well as its underlying social dynamics.
- ❑ Establishing whether the Water Infrastructure project has impacted on the Quality of Life of the village beneficiaries.
- ❑ Observing and determining the actual condition and maintenance of the water infrastructure and its potential impact on the beneficiaries.

## **3. RESEARCH METHODOLOGY**

### **3.1 Theoretical framework and QoL model**

As stated in the research objectives one of the main themes throughout the study is that of Quality of life (QoL). It is clear from the existing literature that QoL actually provides a useful tool for community development, in terms of monitoring key indicators that encompass various domains, such as social aspects, health, economic and environmental dimensions.

According to a pioneering study in South Africa, conducted by the Human Sciences Research Council during 1987 (Schlemmer, et all 1987) QoL can be viewed as self-explanatory and basically, synonyms with life satisfaction, happiness, need satisfaction or social well-being. QoL research according to this report gives individuals the opportunity of making their own judgements about their social, economic, political and other life conditions. Literature on QoL suggests that it centres on the extent to which people's subjective happiness requirements are met. Some researchers and academics define it as fulfilling the societal and cultural demands for material wealth, social status and physical well-being.

Literature on QoL indicates that:

- It is centered around life happiness, fulfilling people's needs and demands.
- QoL can be conceptualised and measured in various ways and these ways are important and useful in combination with each other. This includes public mood opinion; basic needs assessments, as well as Objective and Subjective QoL measurements.
- The two main methods of determining QoL, however are that of Subjective and Objective measurements.
  - Objective QoL measurements are usually related to social groups on characteristics such as income levels, life-expectancy, disease rates, housing standards, availability of basic services and facilities. Social in this instance relates directly to socio-economic circumstances of people and communities. These objective social measures impact on people's subjective well-being, for example, sick people are obviously less happy than healthy people or highly educated people usually enjoy a greater sense of self-achievement compared to poorly educated persons.

However, researchers became aware of the fact that sometimes these objective indices not necessarily reflected the actual subjective well-being of people. For example, are poorer people really less happy than rich people? Based on this dilemma, the development of Quality of Life studies emerged that took not only objective measures into account, but also subjective elements.

- Subjective measurement of QoL refers to the establishment of satisfaction levels on different QoL indicators. Various theories and models exist measuring QoL using subjective indicators. It is clear that a rich array of infinite attributes is related to QoL, ranging from personal well-being, basic needs, expectations, happiness, knowledge, pleasure, and personal enhancement. However, it is usually seen as a state of "Subjective well-being" of a person. It reflects the difference, or the gap between hopes and expectations of people and their present experience. According to some researchers and academics, human adaptation is such that life expectations are usually adjusted, to lie within the realm of what the individual perceives to be possible. This enables people who have difficult circumstances to maintain a reasonable QoL level. In conclusion, Subjective QoL can be described as a personal feeling of goodness and being satisfied with things in general.

Some academics have in the past used a systems-model of QoL, based on the assumptions that QoL are measured through the assessment of a number of living domains. Each domain contributes to overall QoL. The domains are measured through perceptions and opinions, which are shaped by cultural, demographic and socio-economic conditions, as input. The final output is the subjective QoL and Well-being of people.

- Subjective QoL elements can be divided into quantitative and qualitative measurements. The Qualitative measures are based on free-flowing and unstructured in-depth probing into what accounts for Quality of life. This is usually done through in-depth personal interviews or focus group discussions. On the other hand, Quantitative QoL refers to the feelings and reactions of people being measured through structure questionnaires or checklists. In the case of Objective QoL only quantitative indicators are used, through the analysis of numeric indices, such as Census statistics, Economic, Health data, etc.
- An important finding is that QoL as measured by an Objective indicator such as GDP for example, cannot alone explain the broader quality of life of citizens. It has been stated that subjective QoL can often be explained by differences in objective QoL circumstances, and that there should be some association or correlation between these subjective and objective measures. It has been hypothesized that these measurements complement each other in defining people's life circumstances.

However, the HSRC research report placed some emphasis on the fact that it is possible to obtain contradictory findings on QoL pending the usage of Subjective and Objective QoL indicators. It is for example possible that people are subjectively unhappy or feel dissatisfied with their Quality of life, no matter what the objective QoL indicators tend to be. Interpretation and inferences of Objective indicators towards subjective well-being should therefore be treated with utmost caution.

- Various Objective and Subjective QoL domains have been used, pending the research objectives of studies. For example, the UNDP uses and publishes the Human Development Index (HDI), based on the health, education and wealth of citizens. It includes measurements on Life expectancy, Educational achievement (adult literacy, etc) as well as Standard of living (as measured by real GDP per capita).

Although studies use different domains to explain QoL, these domains cannot be interpreted on its own, as close associations usually exist between each other. They often complement and influence each other.

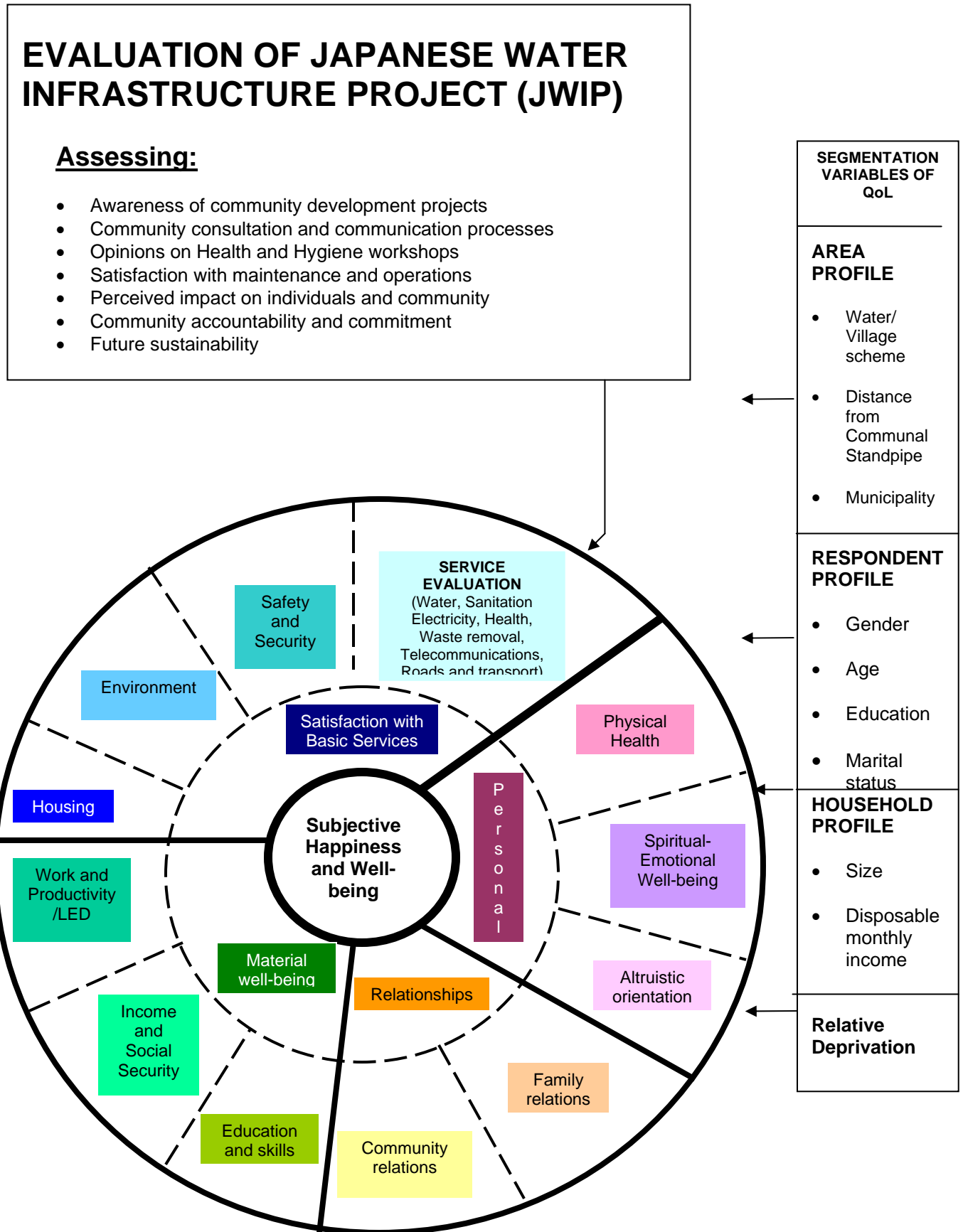
The more dominant QoL domains, from a social viewpoint, includes dimensions such as:

- ❑ Material-well being
- ❑ Health
- ❑ Political stability and security
- ❑ Family life
- ❑ Community life
- ❑ Climate and typology
- ❑ Job security
- ❑ Political freedom
- ❑ Gender equality
- ❑ Civic privileges and community services
- ❑ Social Integration
- ❑ Relationships, such as Family, Community, Friends, Intimate
- ❑ Food provision
- ❑ Housing
- ❑ Transport
- ❑ Spiritual
- ❑ Community stress, and
- ❑ Community participation.

On grounds of the literature overview, it was decided to base the current research on the following QoL principles (see Figure 1):

- QoL incorporates Subjective and Objective measurements
- In terms of Subjective measurement, quantification will be the primary objective, although qualitative input will be gathered where necessary.
- The final output will be an Overall Quality of Life Index (Overall Life happiness and life quality), based on subjective life perceptions and opinions.
- This Overall Quality of Life Index is associated or correlated with a range of relevant QoL 1<sup>st</sup> order domains and 2<sup>nd</sup> order sub-domains.
- The 1<sup>st</sup> order QoL domains will consist of four dimensions, namely:
  - Personal functioning
  - Material well-being
  - Relationships
  - Satisfaction with Basic Service Provision.
- Each of these 1<sup>st</sup> order QoL domains will consist of 2<sup>nd</sup> order QoL sub-domains, namely:
  - Personal functioning: Physical Health, Spiritual Well-being and Altruistic Orientation
  - Material well-being: Education/Skills training, Income and Social Security as well as Work and Productivity
  - Relationships: Family and Community relationships
  - Satisfaction with Basic Service Provision: Housing, Environment, Safety and security as well as Service Evaluation.
- It is assumed that Overall QoL, its domains and sub-domains are related to a range of geographic related variables, personal and household circumstances, and relative deprivation perceptions as confounding variable.

**FIGURE 1**  
**QUALITY OF LIFE MODEL**



**TABLE 1**  
**DEFINITIONS OF 1<sup>st</sup> and 2<sup>nd</sup> ORDER QoL DOMAINS**

	<b>1st ORDER</b>	<b>2nd ORDER</b>	<b>DEFINITIONS</b>
<b>Overall Quality of Life</b>	The extent to which persons are subjectively happy with their current lives they live and feel that they have a good quality of life in general (as defined by their own cognitive mindsets)		
	<b>PERSONAL FUNCTIONING</b>	<i>Physical Health</i>	The extent to which persons are satisfied with their general health, their energy and stress levels and that their health is better than that of other persons of their age.
		<i>Spiritual-Emotional Well-being</i>	The extent to which persons are satisfied with themselves, with their beliefs providing meaning to their life, and their life actually being meaningful.
		<i>Altruism Orientation</i>	The extent to which persons believe that one should assist and help other people, especially the less fortunate, and not to ignore other persons situations.
	<b>RELATIONSHIPS</b>	<i>Family relations</i>	The extent to which persons feel that they receive support from their families, having fun together, and being close in terms of their relationships.
		<i>Community relations</i>	The extent to which persons feel respected by other community members, perceptions that one can trust other community members and community cohesion.
	<b>MATERIAL WELL-BEING</b>	<i>Education-skills training</i>	The extent to which persons are satisfied with their level of education and skills development.
		<i>Income and Social Security</i>	The extent to which persons feel that they and their household can provide for their expenses, satisfaction with their current and future perceived standard of living, and their household's financial vulnerability in case of personal death.
		<i>Work and Productivity</i>	The extent to which persons are satisfied with local job and business opportunities, as well as Local Economic Development.
	<b>SATISFACTION WITH BASIC SERVICES</b>	<i>Housing</i>	The extent to which persons are satisfied with housing availability in general, with their own dwellings in terms of the size and physical condition.
		<i>Environment</i>	The extent to which persons are satisfied with the way the natural environment is managed in their village, including air and water pollution.
		<i>Safety and Security</i>	The extent to which persons feel secure against crime in their area, as well as the confidence level in the local police
		<i>Service Evaluation</i>	The extent to which persons are satisfied with various municipal/provincial services, such as water, sanitation, clinics, roads, transport, etc.
<b>Relative deprivation</b>	The extent to which persons feel that they deserve a better social situation than what they currently have.		

## 3.2 QUESTIONNAIRE AND CHECKLISTS

Based on the proposed QoL theory, a structured questionnaire was developed with valuable input DWAf's Water Services Support Department. The questionnaire was developed in such a way that trained fieldworkers would facilitate the completion of the questionnaire, in a face-to face interview situation with respondents.

The questionnaire (see Appendix A) was based on a various structured 3, 4, and 5-point Likert-scales, while a number of open-ended questions were included to probe Qualitatively into underlying dynamics of important QoL issues. It was limited to 96 Questions, with some sub-questions where necessary, in order to be completed within longest an hour interview situation. Some items consisted of single mentions, while others of multiple mentions.

The questionnaire consisted of an introduction page, with the necessary steps in selecting randomly an adult within each household, followed by the following sections:

- ❑ Geographical information
- ❑ Biographical information of respondents
- ❑ Household information
- ❑ Dwelling and Service Evaluation
- ❑ Development Initiatives (Including the Evaluation of the Water Infrastructure Project)
- ❑ Lifestyle and Community Issues

Although the questionnaire was written in English, a translator living within the survey area translated it into local Xhosa. This was done in order to phrase questions as correctly as possible, taking the language usage levels and nuances of the proposed village respondents into account.

Each of the items measured a specific aspect of the proposed QoL theory. Table 2 indicates which items measure what aspect in terms of Subjective QoL.

**TABLE 2**  
**ITEMS AND DOMAINS OF SUBJECTIVE QoL**

<b>Scales</b>	<b>1<sup>st</sup> Order QoL Domains</b>	<b>2<sup>nd</sup> Order QoL Domains</b>	<b>ITEMS</b>
Overall Quality of Life			85a, 85b
	<b>Internal</b>	Physical health	80, 93a, 93b, 93c
		Spiritual-Emotional Health	93d, 93e, 93f
		Altruistic Orientation	92a, 92b, 92c
	<b>Relationships</b>	Family Life	86a, 86b, 86c, 86d
		Community relations	27c, 85c, 87, 89, 90, 91, 94f
	<b>Material Well-being</b>	Education/skills training	9, 10, 12, 94a
		Income and Social Security	20, 54a, 54b, 94b, 94c
Work and Productivity		95d, 95e, 95f	
	<b>Satisfaction with Basic services</b>	Housing	30, 95a, 95b, 95c
		Environment	96a, 96b, 96c
		Safety and Security	52, 50, 94d
		Service Evaluation	38a-e, 41, 43, 47a-b, 49, 53, 95g
Relative deprivation			55a, 55b

The items that were used as objective measurements of QoL are presented in Table 3.

**TABLE 3**  
**ITEMS AND DOMAINS OF OBJECTIVE QoL**

<b>1<sup>st</sup> Order QoL Domains</b>	<b>2<sup>nd</sup> Order QoL Domains</b>	<b>ITEMS</b>
<b>Relationships</b>	Community relations	14
	Family relations	7
<b>Material Well-being</b>	Education/skills training	8
	Income and Social Security	23, 24
	Work and Productivity	19
<b>Satisfaction with Basic services</b>	Housing	28, 29
	Safety and Security	51
	Service Evaluation	32, 33a-c, 34, 35, 36, 40, 42, 44, 45, 48

Apart from the QoL questionnaire, three separate basic checklists were developed as observational guidelines in assessing the state of the actual water infrastructure in the villages (refer to Appendices B to D). These checklists included basic questions on maintenance and operation of the water reservoirs, the pump houses and communal tapstands.

### 3.3 SAMPLING FRAMEWORK

Based on the estimated number of households (5 106), as determined by a combination of exercises such as field surveys, aerial photographs and a socio-economic survey prior to the implementation of the Water Infrastructure project, a ten percent sample of households were found to be sufficient enough to draw reliable conclusions on the total population of households.

Thus 10% of households had to be drawn within each of the villages, to sufficiently portray the actual population of households in the area. The most comprehensive data in this regard was the Japanese Socio-Economic data as used in their planning document of 2002. The other available datasets (DWAf data and Census 2001) did not cover all the villages, while some differences in estimated population and household sizes existed.

At a research meeting in Mthata on 14 October 2006, where all relevant role-players attended (DWAf and District Municipality) it was decided that the original Japanese household data should be used as guideline for the sampling process. The following sampling layout was used, as portrayed in Table 4.

**TABLE 4  
SAMPLING LAYOUT**

Village	Number of Households	Household Sample 10%	Number of tapstands	Sample of Tapstands	Sampling of Households (1 near, 1 intermediate, 1 far)	Adjusted Sample size
Kumaxhaka	175	18	7	6	3	18
Qanqu	231	23	9	8	3	24
Didi	153	15	7	5	3	15
Ezinkozweni	203	20	9	7	3	21
Sikobeni	223	22	10	7	3	21
Centuli	267	27	14	9	3	27
Dlova	299	30	15	10	3	30
Upper Xongora	83	8	6	3	3	9
Gubevu	143	14	6	5	3	15
Luxolweni	130	13	6	4	3	12
Tafeni	229	23	11	8	3	24
Cezu	84	8	7	3	3	9
Mavundleni	91	9	7	3	3	9
Lower Roza	267	27	10	9	3	27
Ncalukeni	264	26	9	9	3	27
Ndasane	116	12	5	4	3	12
Ndwane	528	53	17	17	3	51
Mvumelwano	227	23	7	7	3	21
Dambeni	587	59	27	20	3	60
Bhakuba	587	59	18	18	3	54
Kwazulu	219	22	9	7	3	21
TOTALS	5 106	512	216	173	3	507

The sample of households was determined as follows:

- A 10% sample size per village was set as target.
- Within each village a sample size of tapstands was selected, each with three households, to best fit the 10% of sample size. However, in three villages all tapstands had to be selected to fit the 10% sample size.
- Slight adjustments had finally to be made to the number of households per village, taking the number of selected tapstands (with three households each) into account. In total 507 households formed the sample size.

In order to generate a wide geographic spread within each village, the following tapstands were randomly selected by computer, as fieldwork reference points.

**TABLE 5**  
**RANDOM SAMPLING OF TAPSTANDS PER VILLAGE**

Village	Sample of Tapstands	Tapstand number
Kumaxhaka	6	1, 2, 4, 5, 6, 7
Qangu	8	1, 2, 3, 4, 6, 7, 8, 9
Didi	5	2, 3, 4, 5, 7
Ezinkozweni	7	1, 3, 4, 5, 6, 8, 9
Sikobeni	7	2, 4, 5, 7, 8, 9, 10
Centuli	9	1, 2, 3, 6, 8, 9, 10, 12, 14
Dlova	10	3, 4, 5, 7, 9, 10, 11, 12, 14, 15
Upper Xongora	3	1, 4, 6
Gubevu	5	2, 3, 4, 5, 6
Luxolweni	4	1, 2, 5, 6
Tafeni	8	3, 5, 6, 7, 8, 9, 10, 11
Cezu	3	3, 6, 7
Mavundleni	3	1, 4, 5
Lower Roza	9	1, 2, 3, 4, 6, 7, 8, 9, 10
Ncalukeni	9	1 - 9
Ndasane	4	1,2,4,5
Ndwane	17	1 - 17
Mvumelwano	7	1 - 7
Dambeni	20	2, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 21, 22, 23, 24, 26, 27
Bhakuba	18	1 - 18
Kwazulu	7	1, 3, 4, 5, 6, 8, 9
<b>TOTALS</b>	<b>173</b>	

## 3.4 FIELDWORK TRAINING AND EXECUTION

Ten local unemployed persons were selected as community fieldworkers in the Mthata area by Rosina Langa, the fieldwork manager, as well as one fieldwork supervisor. Training of these community fieldworkers took place in Mthata on the 17 and 18<sup>th</sup> October 2006.

**PICTURE 1**  
**TRAINING SESSION ON FIRST DAY**



The first training day was mainly spent on the following activities:

- ❑ Orientating the fieldworkers on the Water Infrastructure project and its broad objectives, as well as the evaluative objectives of the research study.
- ❑ Some discussions were also held on obvious pitfalls inhibiting good response rates, as well as identifying factors that facilitate the creation of good report with respondents.
- ❑ The first day also focused on the survey questionnaire itself, where each question was thoroughly discussed. This was done to minimize any possible misunderstandings and uncertainties on each question.
- ❑ The day ended with a session of role-play where fieldworkers had to interview each other, using the English questionnaire.
- ❑ That evening each fieldworker had to complete a questionnaire at home, for feedback on problems experienced the next day.

**PICTURES 2 - 3**  
**TRAINING SESSION: ROLE PLAYING**



The second training day was spent on:

- ❑ Correcting questions that were misunderstood and created problems for the fieldworkers. Some minor changes were made to the questionnaire, especially in terms of administration of certain questions.
- ❑ Two sessions of role-play were also done on this day.
- ❑ Finally, the basic guidelines for practical fieldwork execution were discussed. Firstly, it was emphasized that within each village certain standpipes need to be selected. At each of the selected standpipes, three households were to be selected taking distance into account (one nearby, one on an intermediate distance and one far away from the standpipe). As no updated aerial photographs exist for the villages, fieldworkers had to use their discretion in choosing households, pending the availability of households in the selected areas.

At each of the selected stands, the main household had to be interviewed, while any persons older than 17 years of age formed part of the potential respondent population. In order to overcome bias in this regard, respondents within each household were randomly selected according to their birth dates.

Each fieldworker was requested to tape record three questionnaires for back-checking purposes and clarifying any strange findings if necessary. They were instructed to firstly get permission for this exercise before conducting and taping these interviews.

The actual fieldwork commenced on Wednesday 19<sup>th</sup> October 2006 and was completed on Saturday 28<sup>th</sup> October 2006. Before conducting interviews at each village, permission was requested by the fieldwork supervisor from the local village leaders. None of the villages had any objections in being surveyed, already indicative of a positive attitude towards the project in general. A letter was presented to all households before the interviews started (see Appendix E).

The completed questionnaires were checked by Rosina Langa, while the fieldwork supervisor executed a 10% back-check of questionnaires in the field for quality control purposes. In total 504 questionnaires were completed. Thirty interviews were also tape recorded for quality control purposes.

### 3.5 POST-WEIGHTING

All 504 completed questionnaires were used in the statistical analysis phase. The results indicate that some under and over realisation occurred among certain villages during the fieldwork phase that might contribute to some variation in answers, particularly on the results pertaining the total sample.

Applicable weights were determined for each questionnaire, based on the village location, and the estimated population of households as in 2006. An average 4% growth rate was assumed since 2002, based on the findings on Question 27b in the questionnaire. According to this finding, the majority of households (96%) have lived for the past four years or longer in the area.

**TABLE 6  
WEIGHTS APPLIED TO EACH VILLAGE HOUSEHOLD**

Village	Questionnaires Completed	Population of Households (2002)	Population of Households (2006)	Weights applied
Kumaxhaka	17	175	182	10.706
Qanqu	24	231	240	10
Didi	16	153	159	9.9375
Ezinkozweni	22	203	211	9.591
Sikobeni	23	223	232	10.087
Centuli	29	267	278	9.581
Dlova	28	299	311	11.108
Upper Xongora	9	83	86	9.556
Gubevu	14	143	149	10.643
Luxolweni	12	130	135	11.25
Tafeni	24	229	238	9.917
Cezu	9	84	87	9.667
Mavundleni	9	91	95	10.556
Lower Roza	27	267	278	10.296
Ncalukeni	23	264	275	11.957
Ndasane	11	116	121	11
Ndwane	52	528	549	10.558
Mvumelwano	21	227	236	11.238
Dambeni	60	587	610	10.167
Bhakuba	53	587	610	11.509
Kwazulu	21	219	228	10.857

The final statistical analysis however, indicated that the weighted results did not differ significantly from the non-weighted results on the core indicators of QoL (see Appendix F). It was therefore, decided to work with the non-weighted data, as the weighting of responses on its own lead to some over-counts when certain statistical procedures are executed, such as Cross-tabulations and Chi-Squares, skewing the data when using small sample sizes (as within certain of the villages). The weighted results will be discussed in the report where necessary.

## 3.6 DATA-ANALYSIS

The following statistical analysis were done:

- Subjective Quality of Life Domains: The following formula was used to determine satisfaction levels per item and per domain throughout the questionnaire on the 5-point Likert scale (adapted also to other 4, 3 and 2 point scales):

$$(X-1)/4*100$$

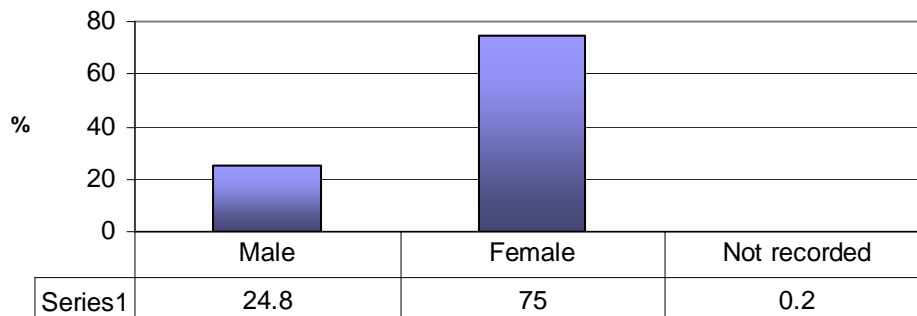
High index scores indicate high satisfaction levels, while low index scores indicate low satisfaction levels.

- Correlations: Pearson product moment correlations between two variables, to determine the strength and direction of association.
- Prediction analysis: Stepwise linear regression analysis was used to determine best fitted regression lines predicting QoL by 1<sup>st</sup> and 2<sup>nd</sup> order domains.
- Segmentation analysis: Chaid analysis was used to exploratively identify the most important beneficiary segments and associated segmentation variables. Apart from the analysis of nominal data, the satisfaction Indices and QoL data was treated as ordinal data, on a scale of 0%-100%. These chaid-analysis will not always be discussed in detail, as they are largely self-explanatory.
- One-way ANOVA: Determining the differences between three or more groups on their averages regarding specific Indices.
- T-Test for Independent groups: Determining the differences between two unrelated groups on their averages regarding specific Indices.

## 3.7 RESPONDENT AND HOUSEHOLD PROFILES

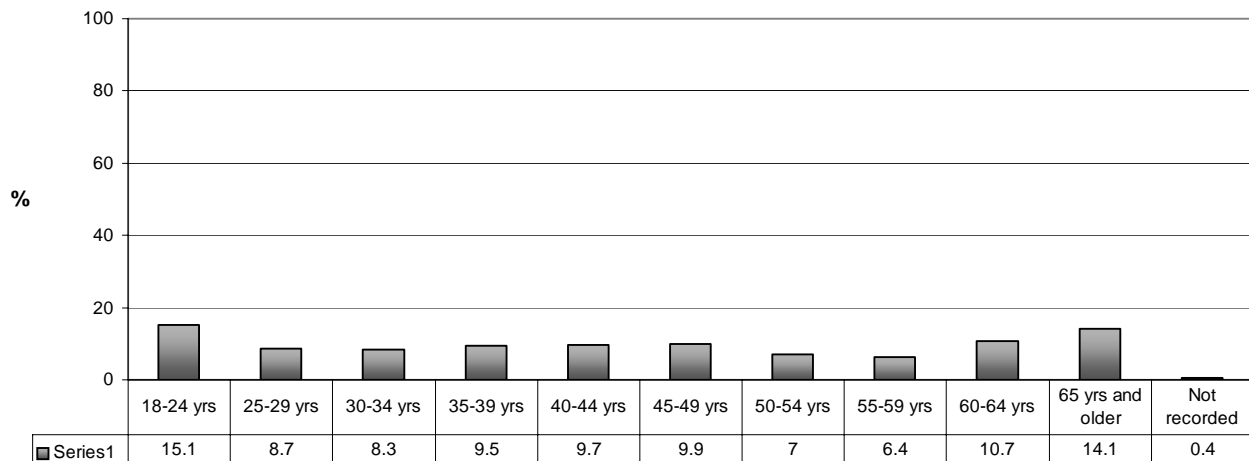
Graphs 1 to 6 display some general profiles of the respondents and households interviewed. More detailed personal and household information will be discussed as part of the different Quality of Life aspects.

**GRAPH 1  
GENDER DISTRIBUTION**



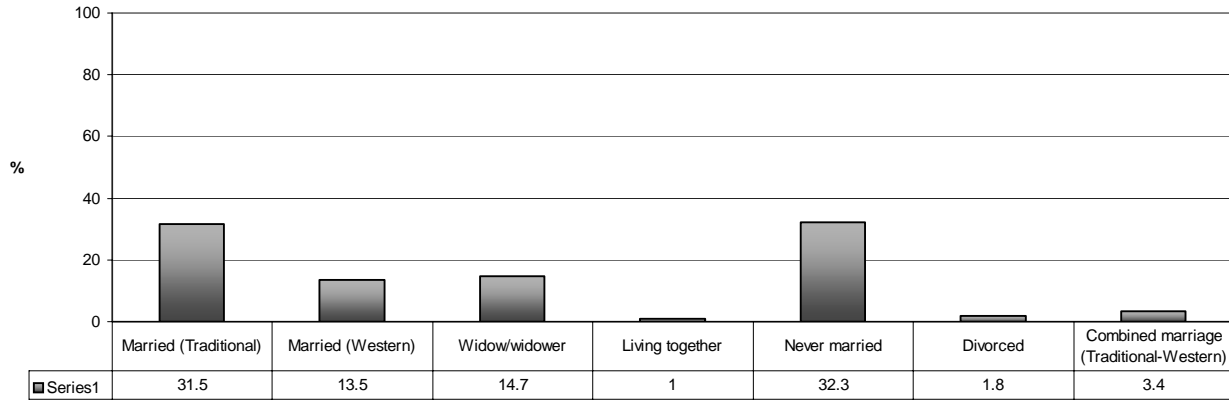
As with most other surveys recently conducted, especially in water-related fields, a much higher proportion of woman (75%) tends to participate than males (24.8%). This is most probably because more female adults are living in these villages than male adults, as respondents were randomly selected within each household, regardless of their gender.

**GRAPH 2  
AGE DISTRIBUTION**



The age distribution indicates that respondents from a wide spread of age groups took part in the survey. However, respondents in the youngest age group (18-24 year) are the largest group, followed by the oldest age group (65 years or older). The median age group is the 40-44 year age group. The above results indicate a situation where the relatively low prevalence of middle-aged people might be attributed to the fact that they are the ones working as migrant workers in cities and towns outside the selected villages.

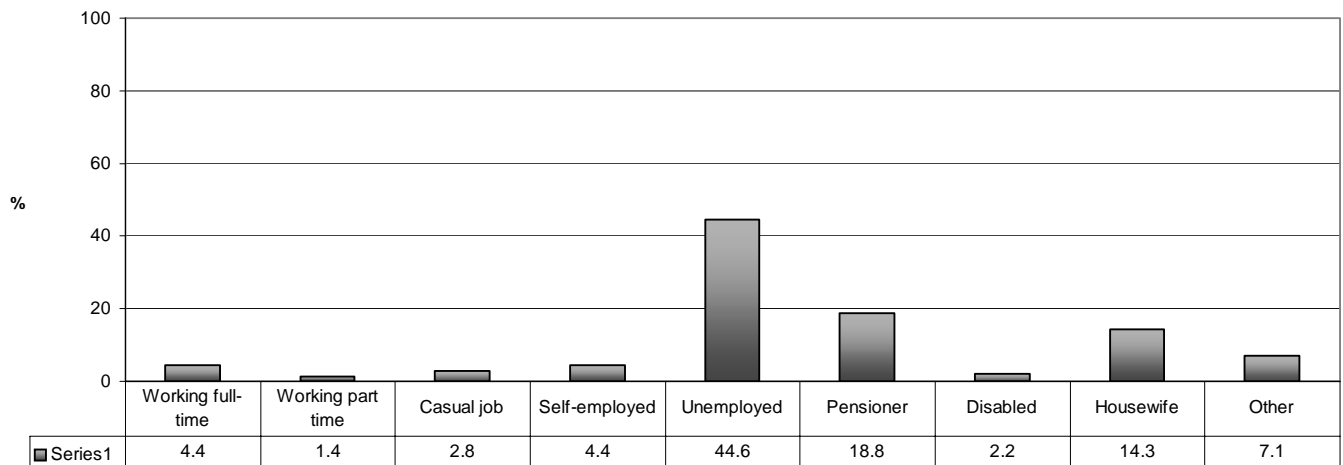
**GRAPH 3  
MARITAL STATUS**



The above graph suggests that slightly less than 50% of the respondents are married. Approximately 31.5% of respondents are married in a Traditional way, while 13.5% in a Western way. Very few respondents are married in both traditional and westernized ways.

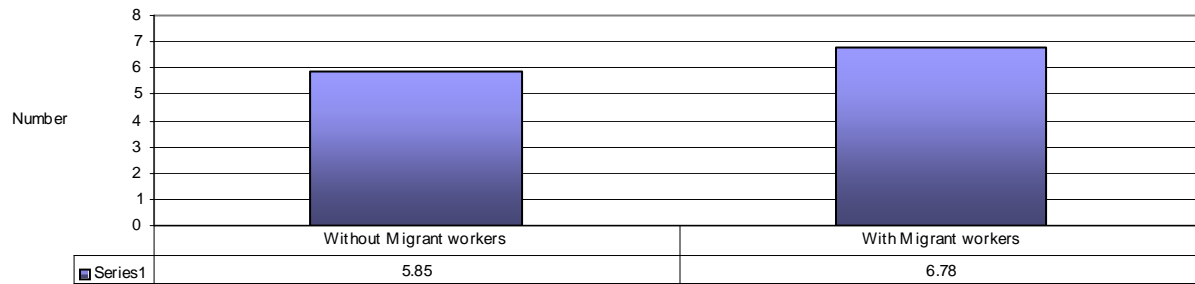
A very important finding is that about a third of respondents were to date never married, while quite a large percentage (14.7%) is widows/widowers. In terms of possible family relationships, a very small proportion of respondents said that they were divorced (1.8%), indicative of relatively stable family relations.

**GRAPH 4  
EMPLOYMENT STATUS**



The results clearly indicate that the estimated unemployment levels in these rural villages tend to be very high (44.6%), while employed adults account for only about 13% of adults older than 17 years of age. In line with the findings on the age distribution, just less than a fifth of respondents have indicated that they are pensioners, while 14.3% are housewives. The high unemployment levels might be attributed to the fact that many respondents are actually working in a local agricultural environment, for example looking after cattle or ploughing fields, but not recording it as a work.

**GRAPH 5  
HOUSEHOLD SIZE**

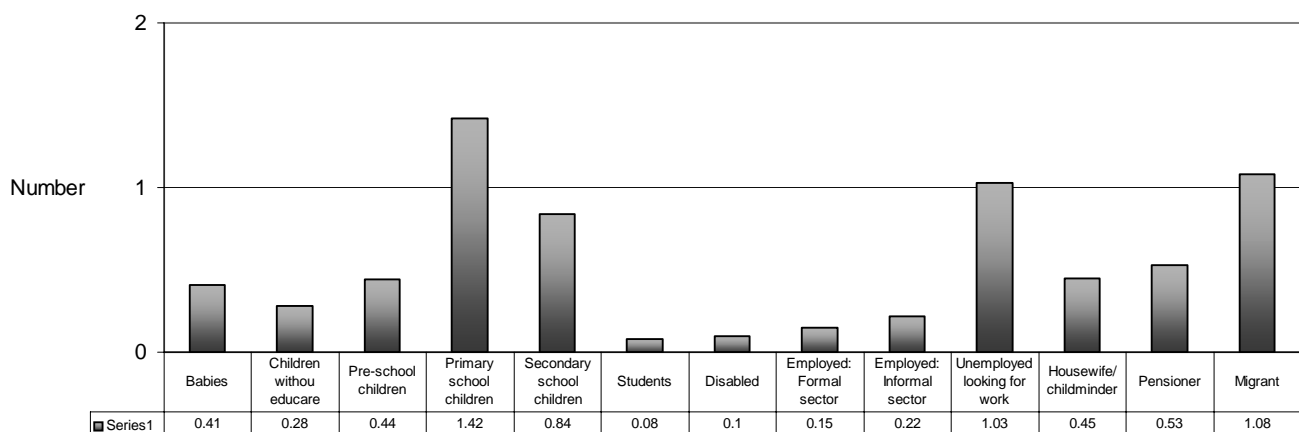


The average size of households (migrant workers included) is slightly below seven persons per household. However, if the migrant workers are not considered as part of the actual households, then the estimated household size drops to just below six persons. On average approximately 5.85 persons therefore live permanently in the villages, for at least 4 days a week.

The household size, as per the 2002 Japanese Water Supply Facilities Planning Report, was around 7.56 persons (population size of 38 627 with 5 106 households). The current results thus shows a decrease in the average household size since 2002, which might be attributed to a number of factors:

- ❑ Urbanization processes
- ❑ The impact of health epidemic
- ❑ Movement of beneficiaries to RDP housing outside the villages.

**GRAPH 6  
HOUSEHOLD COMPOSITION**



The results suggest that households consist of a range of people. On average households have about:

- ❑ One member below primary school level,
- ❑ At least two members are still at school (primary or secondary level),
- ❑ One migrant worker,
- ❑ One person being unemployed looking for work, with
- ❑ One pensioner or housewife.

The basic respondents and household profiles suggest in general that:

- The respondent profile is skewed in terms of the number of female's that participated.
- Respondents come from a wide range of age groups, especially younger and older age groups, with a median age group of 40 – 44 years.
- While about 50% are married, of whom Traditional weddings are the most prevalent (indicative of the importance of local customs); 31% are not married with very few divorced people (indicative of relative stable family circumstances).
- In terms of respondent employment status, respondents fall mainly within three categories, namely unemployed people, pensioners and housewives. The employment profile suggests that poverty in the area might be attributed to the fact that there are relatively many pensioners, many unemployed people, while few people are actually working.
- The current average household size (migrant workers excluded) is slightly below six persons, which indicate a possible drop in household size since 2002. However, if the migrant workers are considered as part of the actual households, then the estimated household size are nearly the same as in 2002. The possible decrease in household sizes since 2002 might be attributed to a number of factors on health, migration patterns and government housing developments.

Cognizance of the above factors should as far as possible be taken into account when interpreting the Quality of Life research findings.

## 4. RESEARCH FINDINGS

The research findings will be discussed in terms of three main themes. The findings firstly focus on the perceptions and opinions of the village beneficiaries towards the Water Infrastructure Project. The discussion will center around:

- ❑ The implementation processes that were followed during project execution,
- ❑ Satisfaction with the health and hygiene community workshops
- ❑ Satisfaction with water infrastructure,
- ❑ Opinions on community accountability and commitment
- ❑ The project's future sustainability, and
- ❑ Perceived impact that the project had on the villagers.

The second part of the findings focus on the Objective and Subjective indicators of Quality of life with emphasize on:

- ❑ Overall QoL
- ❑ 1<sup>st</sup> Order domains
- ❑ 2<sup>nd</sup> Order domains, zooming into water supply services.

This second part concludes with the relationship between various Quality of Life domains and the perceived impact that the Water Infrastructure project as potential predictors of QoL.

The last part focus on the technical observations on:

- ❑ Communal tapstands
- ❑ Water reservoirs
- ❑ Pump houses

## 4.1 PERCEPTIONS ON THE WATER INFRASTRUCTURE PROJECT

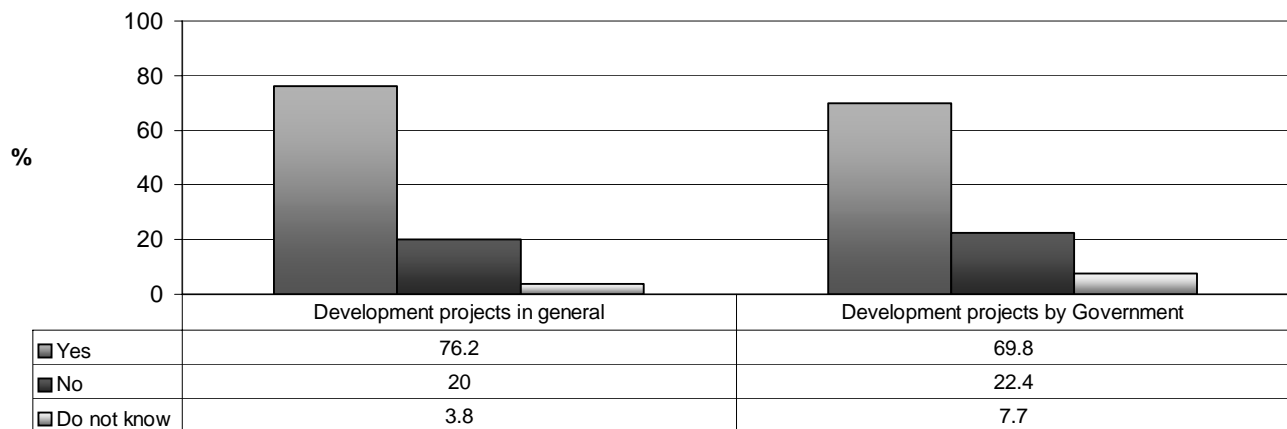
This section firstly focuses on the community awareness levels created, followed by community consultation and communication processes, opinions on health and hygiene workshops and satisfaction with maintenance and operational processes of the Water Infrastructure Project.

Lastly, the section focuses on the perceived impact on an individual and community level, community accountability and commitments, as well as the opinions on the project's future sustainability.

### 4.1.1 COMMUNITY AWARENESS

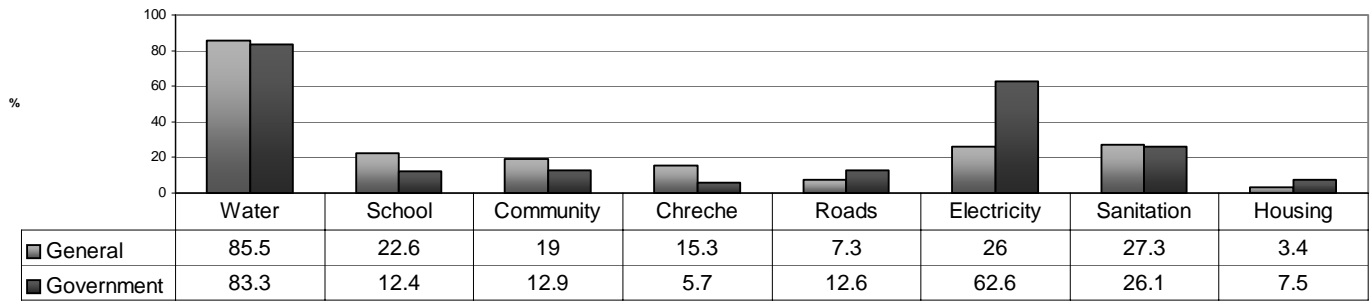
A very important aspect of people's lives in these rural villages is the developments taking place and its impact on them. A couple of questions therefore focused on the awareness levels regarding recent local development initiatives, and how it impacted on them as beneficiaries. Graph 6 shows the unaided awareness levels of development projects (in general and specifically by Government) that took place in their villages over the past 5 years.

**GRAPH 7  
UNAIDED AWARENESS LEVELS OF DEVELOPMENT PROJECTS**



The above results (Graph 7) indicate that village residents generally are aware of development initiatives taking place in their villages. A slightly lower awareness level exists in terms of specifically Government initiated projects (69.8% versus 76.2%), than projects in general.

**GRAPH 8  
AWARENESS OF SPECIFIC DEVELOPMENT PROJECTS**



Graph 7 indicates that development projects on three basic community needs forms the bases of project awareness levels, namely water, electricity and sanitation. Water related projects are the highest recalled development related initiative in the villages (with equal proportions of respondents having mentioned both general and Government led projects-85.5% and 83.3%). This is followed by the Electrification projects (especially Government led developments - 62.6%), followed by sanitation provision (27.3% and 26.1%).

A range of other projects that village people are aware of (3% to 22%) includes upgrading or building of educational facilities, building of community halls, crèches, housing as well as road projects. Apart from these, some other projects were to a lesser extent mentioned such as Agriculture, Sewing projects, health clinic, poultry projects, etc.

The output of these development projects is quite clear in some villages, as shown in Pictures 4 to 6.

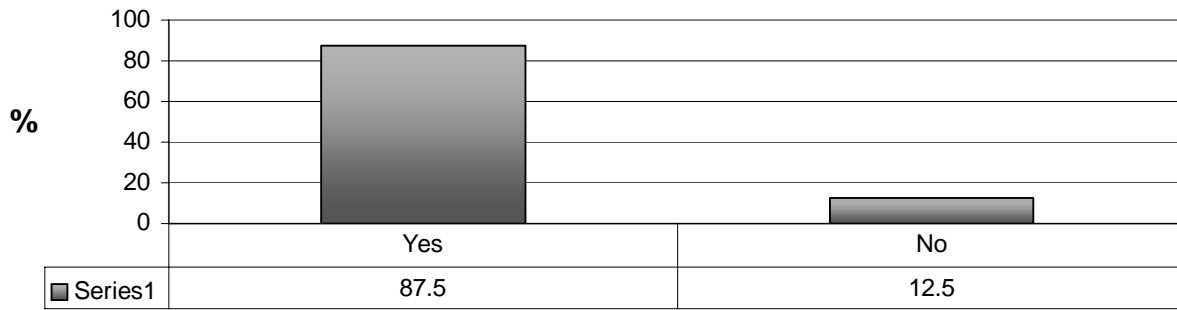
**PICTURES 4-6**

**SANITATION PROVISION, TELECOMMUNICATIONS, ELECTRICITY AND EDUCATIONAL FACILITIES**



The findings on the development projects are very important, as the Quality of Life of village residents as will be discussed in the next section, most probably have been influenced in one way or the other, by each and every development initiative. The interrelationships between development projects also cannot be negated in terms of cumulative community impacts.

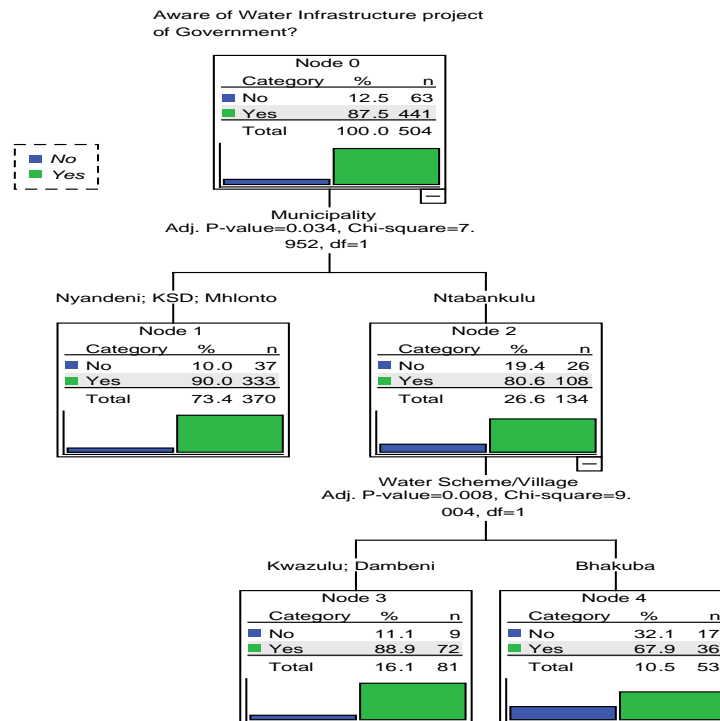
**GRAPH 9**  
**AWARENES LEVEL OF THE WATER INFRASTRUCTURE PROJECT**



Awareness levels of the Water Infrastructure Project are relatively high (87.5%), while 12.5% of the interviewed people indicated that they are not aware of the project.

The Chaid-analysis (Figure 2) below indicate that Municipality tends to be the most important segmentation variable. Villagers living in the Ntabankulu municipal area tend to be less aware of the Water Infrastructure project (80.6%), than those living in the remaining three municipal areas (90%). Within the Ntabankulu Municipal area, a further difference was observed, with Bhakuba village people being even less aware than the remaining two villages (32.1% versus 11%).

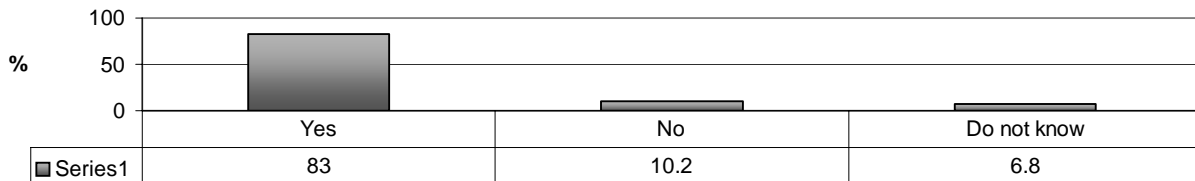
**FIGURE 2**  
**SEGMENTATION: AWARENESS LEVEL OF WATER INFRASTRUCTURE PROJECT**



## 4.1.2 COMMUNITY CONSULTATION AND COMMUNICATION

The range of community initiatives that were implemented during the Water Infrastructure Project's execution, ranging from needs assessment to communication and community involvement, on operational and maintenance matters are shown in Graphs 10 to 14.

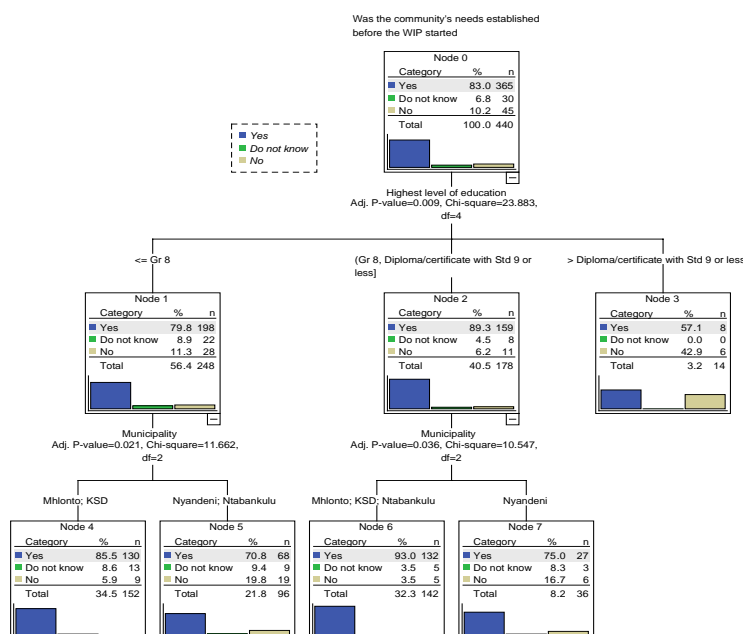
**GRAPH 10  
COMMUNITY NEEDS ASSESSED BEFORE AND DURING WATER INFRASTRUCTURE PROJECT**



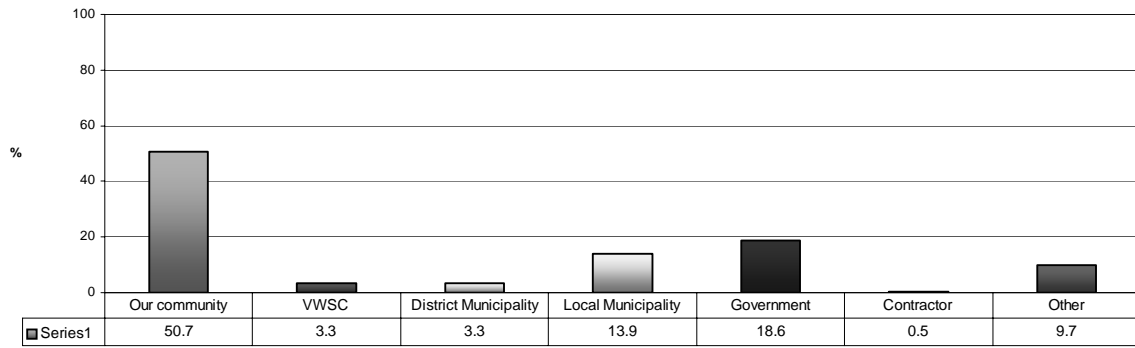
An overwhelming majority of households (83%) suggested that their community needs were established before and during the implementation of the Water Infrastructure Project. Only 10.2% of households disagreed in this regard, while 6.8% did not know.

The Chaid-analysis suggests that Education is the most important segmentation variable. Respondents with the highest level of Education were less of the opinion that their needs have been assessed during the project (57.1% versus 79.8% versus 89.3%). Municipal area played a secondary role in the opinions of respondents with lower educational levels. For example, the Nyandeni area tend to be less of the opinion that their needs have been assessed, compared with the remaining three area, among respondents with grade 8 or those with a diploma/certificate with Gr 9 or less.

**FIGURE 3  
SEGMENTATION: COMMUNITY NEEDS ASSESSED**

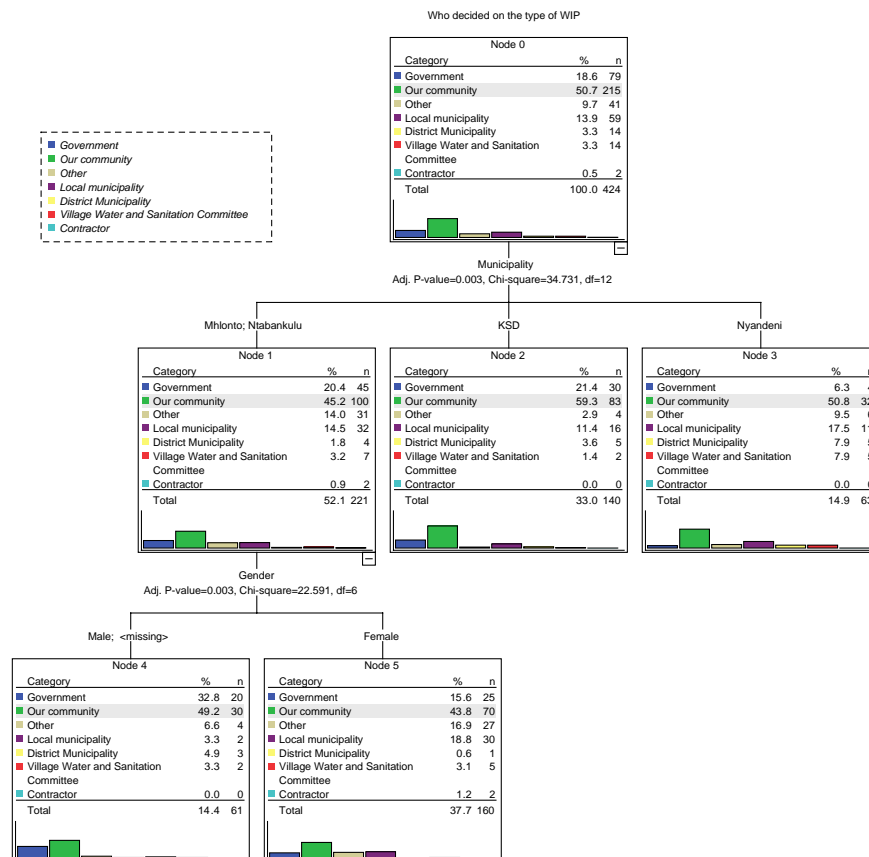


## GRAPH 11 OPINION: WHO DECIDED ON THE TYPE OF WATER INFRASTRUCTURE PROJECT



Just more than 50% of the villagers believe that their community decided on the nature of the Water Infrastructure project, followed by the opinion that Government (18.6%) did it, Local Municipality (13.9%), while about 10% indicated other role-players (including the Japanese Government).

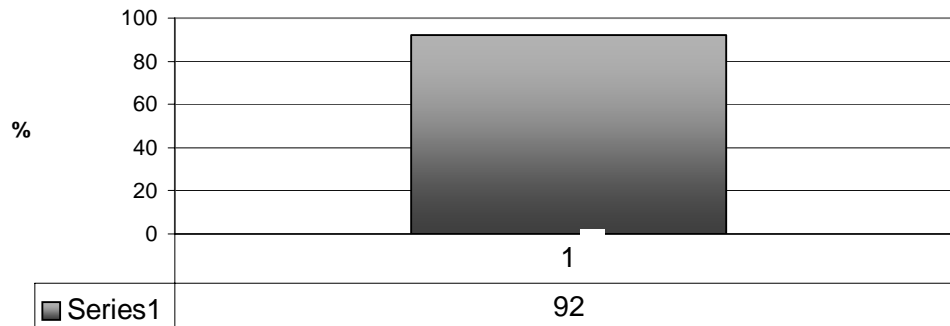
## FIGURE 4 SEGMENTATION: WHO DECIDED ON WATER INFRASTRUCTURE PROJECT TYPE



The Chaid analysis indicates that Local municipality is the most important segmentation variable. In the KSD municipal area, in comparison with the other three, a higher percentage of villagers hold the opinion that their community decided on the project (59.3%), while Government's role is perceived to be the lowest in the Nyandeni municipal area (6.3%).

A relative high satisfaction level of 92,2% was expressed towards the community consultation process followed before and with the implementation of Water Infrastructure Project. It is quite evident that the project management did address community involvement, in view of the positive results on the needs assessment and community consultation processes.

**GRAPH 12**  
**SATISFACTION WITH COMMUNITY CONSULTATION PROCESSES FOLLOWED**



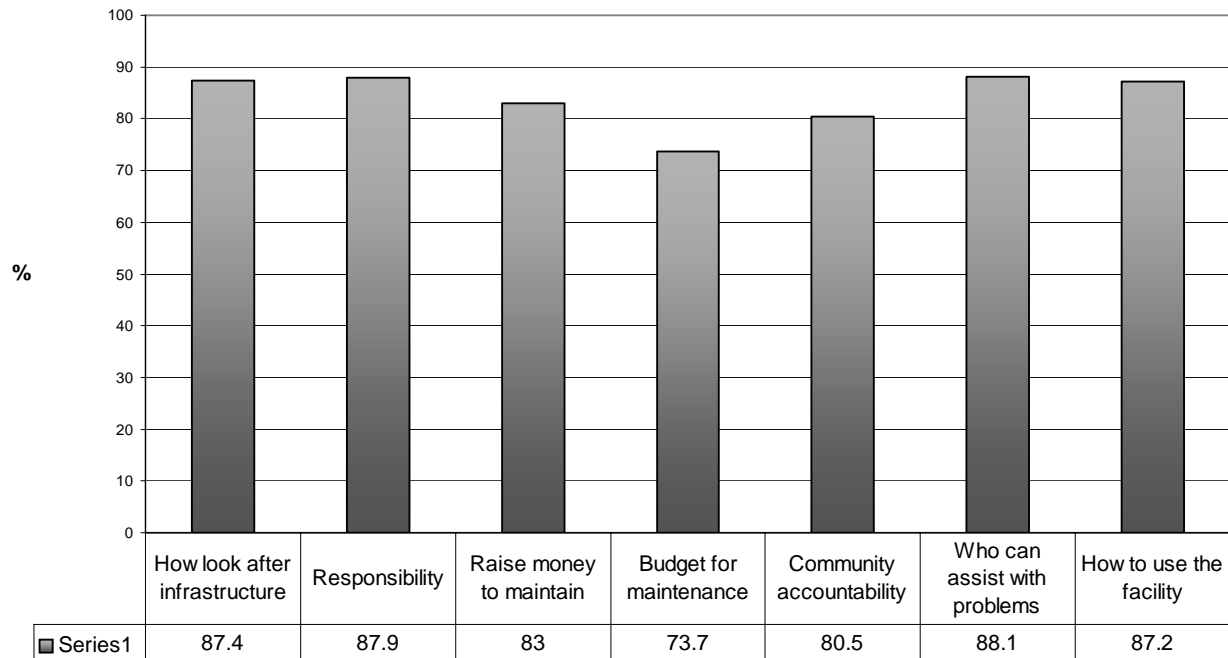
**TABLE 7**  
**SATISFACTION WITH COMMUNITY CONSULTATION PROCESSES FOLLOWED**

		Satisfaction with consultation processes before and with implementation
		Mean
Water	Kumaxhaka	96.88
Scheme/Village	Qanqu	85.53
	Didi	94.23
	Ezinkozweni	97.37
	Sikobeni	96.25
	Centuli	94.64
	Dlova	87.50
	Upper Xongor	94.44
	Gubevu	91.07
	Luxolweni	80.56
	Tafeni	86.36
	Cezu	94.44
	Mavundleni	91.67
	Lower Roza	95.83
	Ncalukeni	90.48
	Ndasane	94.44
	Ndwane	92.02
	Mvumelwano	87.50
	Dambeni	94.71
	Bhakuba	90.00
	Kwazulu	96.25
Total		92.20

The differences between the villages regarding the Satisfaction with Community Consultation processes (as portrayed in Table 7) are not statistically significant. A one-way ANOVA confirmed this non-significance level, as a significance level of only 0.353 were obtained.

Part of the Water Infrastructure project's objectives was to capacitate villagers, in terms of knowledge necessary for the proper maintenance and operations of the water infrastructure facilities. Graph 13 shows the percentage of villagers that indicated that they have received information on various maintenance and operational topics.

**GRAPH 13  
RECEIVED INFORMATION ON ...**



Most of the villagers indicated that they have received information on the different topics. Slightly less respondents (73.7%) have indicated that they have received information on budget maintenance.

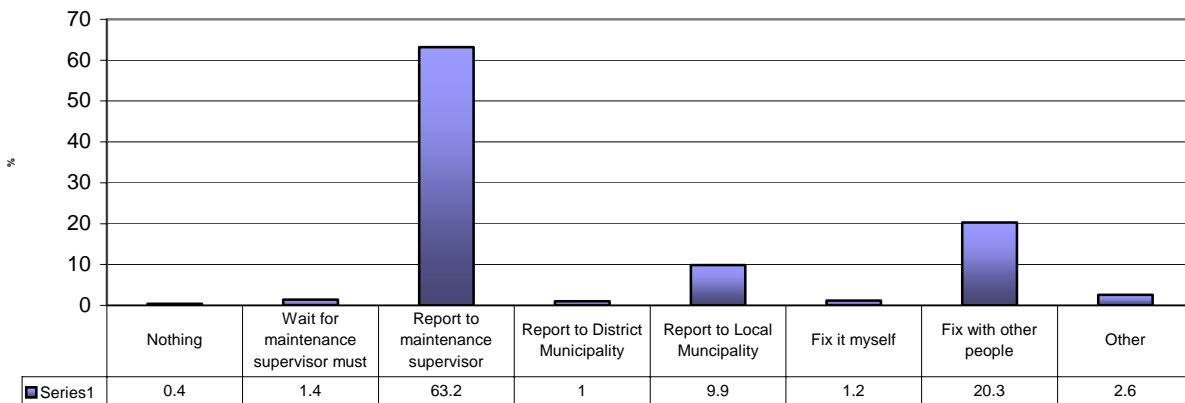
The results therefore suggest that the village residents should at least:

- Know how to look after the infrastructure
- Be aware of the roles and responsibilities of different stakeholders
- Community accountability
- How to use the facilities, and
- Whom to contact if any problems arises.

No significant segmentation predictor variables were identified, with regard to any of the topics.

The previous results suggest that villagers should know what to do when something breaks. Graph 14 indicates their most expected behaviour if anything should break.

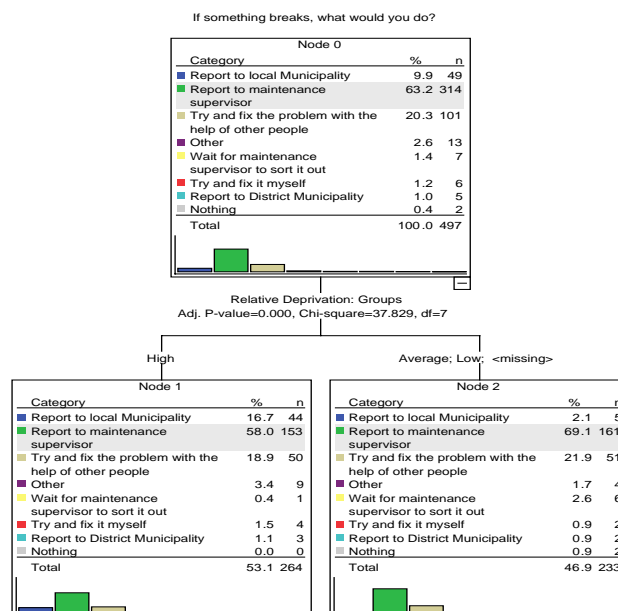
**GRAPH 14  
ACTION WHEN SOMETHING BREAKS**



Three avenues tend to be usually followed in this regard. Reporting to the maintenance supervisor (63.2%) is the most prevalent, followed by fixing it with the assistance of other people (20.3%) as well as reporting to Local Municipality (9.9%).

The Chaid-analysis (Figure 5) indicates that Deprivation is the main segmentation variable, in terms of usual action. Respondents from highly deprived households are less inclined to report it to maintenance supervisors (58% versus 69.1%), but more inclined to report it to their Local Municipality (16.7% versus 2.1%).

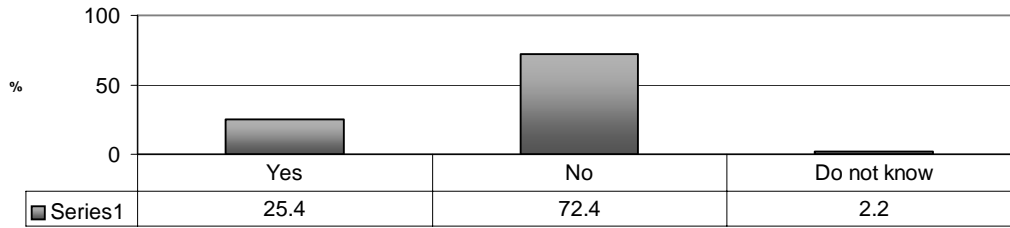
**FIGURE 5  
SEGMENTATION: ACTION WHEN SOMETHING BREAKS**



### 4.1.3 HEALTH AND HYGIENE WORKSHOPS

The opinions on the community health and hygiene workshops that formed part of the Water Infrastructure project's output are presented in Graphs 15 to 17.

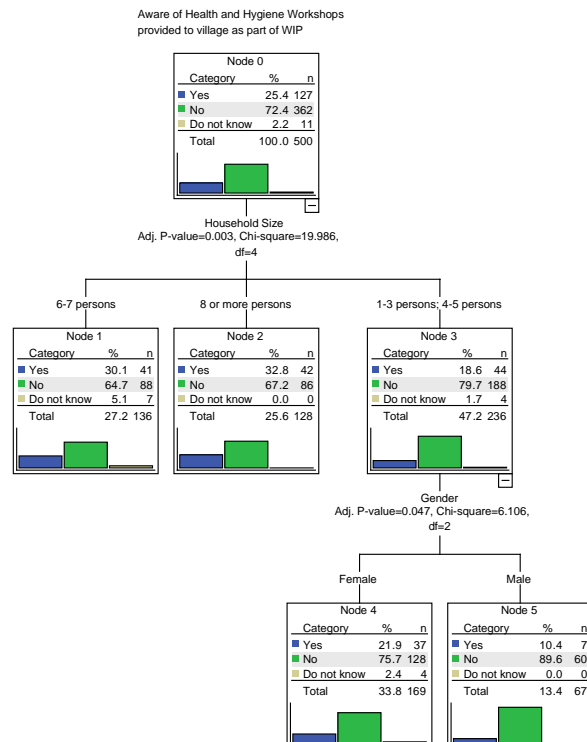
**GRAPH 15**  
**AWARE OF HEALTH AND HYGIENE WORKSHOPS**



Only about one quarter of the respondents indicated that they are aware of the health and hygiene workshops that were conducted in their villages, at the time of the implementation of the Water Infrastructure project.

Awareness of the health and hygiene workshops is according to the chaid-analysis directly related to household size and gender. The larger the household sizes the higher the awareness levels. Among the smaller households (that is households with 1-5 persons) gender plays a further influencing role, where 21.9% of females indicated that they are aware of the workshops, versus only 10.4% of the males.

**FIGURE 6**  
**SEGMENTATION: AWARE OF HEALTH AND HYGIENE WORKSHOPS**



An overall satisfaction level of 92.4% has been recorded towards the Health and Hygiene workshops that were held in the villages. No significant segmentation variables were extracted during the Chaid-analysis, indicative of highly homogenous answers.

**GRAPH 16**  
**SATISFACTION WITH COMMUNITY HEALTH AND HYGIENE WORKSHOPS**

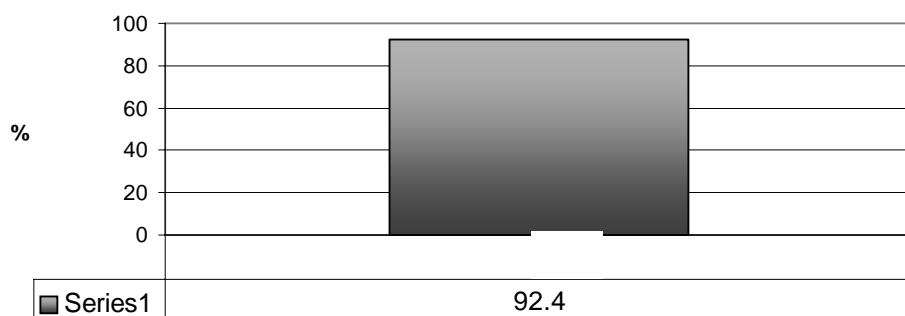
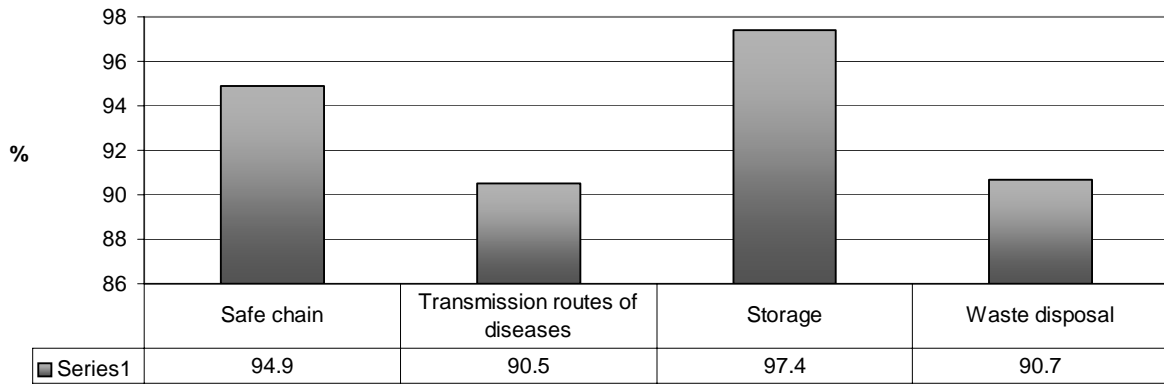


Table 8 shows the satisfaction levels as obtained per village. A one-way ANOVA once again indicated that these differences on the satisfaction levels towards the health and hygiene workshops are not statistically significant, in line with the findings of the Chaid-analysis.

**TABLE 8**  
**SATISFACTION WITH COMMUNITY HEALTH AND HYGIENE WORKSHOPS**

		Satisfaction with Health and Hygiene Workshops	
		Mean	
Water	Kumaxhaka		90.00
Scheme/Village	Qanqu		90.63
	Didi		100.00
	Ezinkozweni		96.88
	Sikobeni		93.75
	Centuli		95.00
	Dlova		90.63
	Upper Xongora		85.00
	Gubevu		95.00
	Luxolweni		100.00
	Tafeni		81.25
	Cezu		100.00
	Mavundleni		100.00
	Lower Roza		100.00
	Ncalukeni		100.00
	Ndasane		87.50
	Ndwane		86.11
	Mvumelwano		93.75
	Dambeni		94.64
	Bhakuba		84.38
	Kwazulu		100.00
Total			92.44

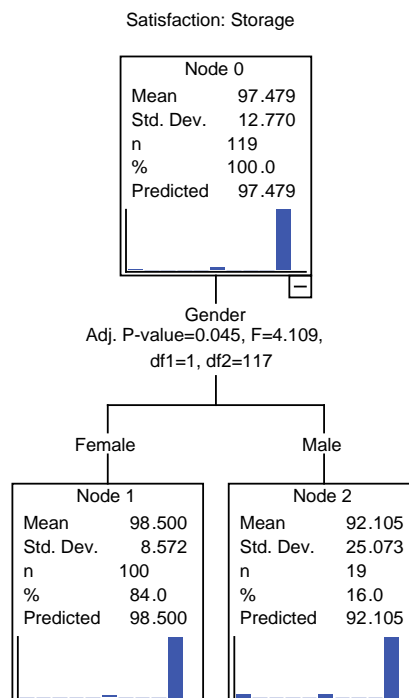
**GRAPH 17**  
**SATISFACTION WHETHER TRAINING ADRESSED...**



The above results indicate that villagers that are aware of the health and hygiene workshops are highly satisfied with the extent to which the training addressed the different health issues. Slightly less positive satisfaction levels (although still very positive) were expressed towards Waste disposal and the Transmission routes of water-borne diseases (90.7% and 90.5% respectively).

Only one of the four training aspects could be significantly segmented, indicative of relative homogenous satisfaction levels on the remaining three training aspects. The Chaid-analysis suggests that females are significantly more positive than males on terms of whether the storage of water was addressed properly during training (98.5% versus 92.1%).

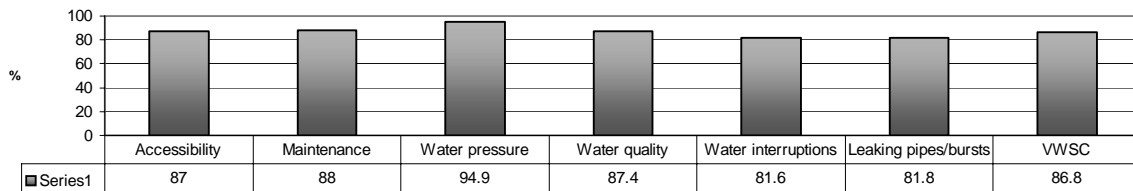
**FIGURE 7**  
**SEGMENTATION: SATISFACTION WHETHER TRAINING ADRESSED SAFE WATER STORAGE**



#### 4.1.4 SATISFACTION LEVELS: MAINTENANCE AND OPERATIONS

Graphs 18 attempts to show the satisfaction levels of villagers on some basic operational and maintenance aspects of the Water Infrastructure project.

**GRAPH 18**  
**SATISFACTION WITH WATER INFRASTRUCTURE PROJECT IN TERMS OF...**

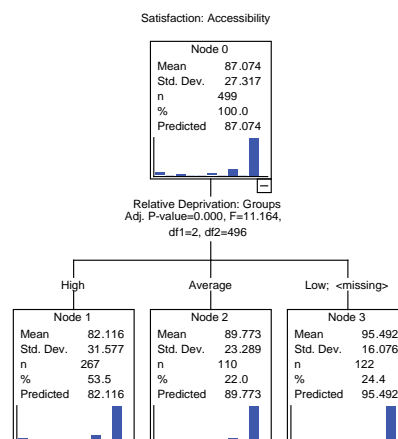


High satisfaction levels have been expressed on all aspects measured regarding the maintenance and operations of the Water Infrastructure project. The highest satisfaction level was expressed in terms of water pressure (94.9%), followed by the maintenance of the infrastructure (88%). In line with the already mentioned aspects, it is clear that water quality is not a problem. A satisfaction level of 87.4% has been expressed in this regard, while equally satisfaction levels have been displayed on the accessibility of standpipes. Community involvement and responsibility, in the form of the Village Water and Sanitation Committees has also been evaluated positively (86.8%).

The only two aspects, although still very positive, where slightly lower satisfaction levels have been obtained is that of water interruptions and leaking or burst pipes (respectively 81.6% and 81.8% satisfaction levels).

The Chaid-analysis indicates that Relative deprivation is the only significant segmentation variable, and that accessibility is not related to the actual distance of households from the communal taps. The higher the deprivation level, the less satisfied the villagers become towards accessibility of communal tapstands.

**FIGURE 8**  
**SEGMENTATION: SATISFACTION WITH ACCESSIBILITY**

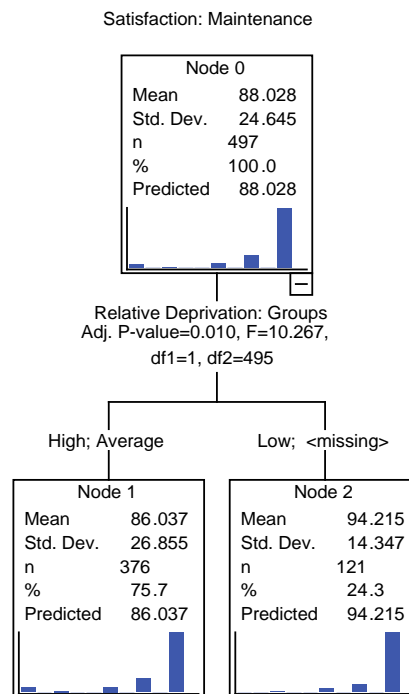


The observations of communal tapstands, as depicted in Picture 7, confirmed that most households generally have easy access to facilities. Majority of these communal standpipes were built adjacent to the village road infrastructure.

**PICTURE 7  
ACCESSIBILITY OF COMMUNAL STANDPIPES**



**FIGURE 9  
SEGMENTATION: SATISFACTION WITH MAINTENANCE**



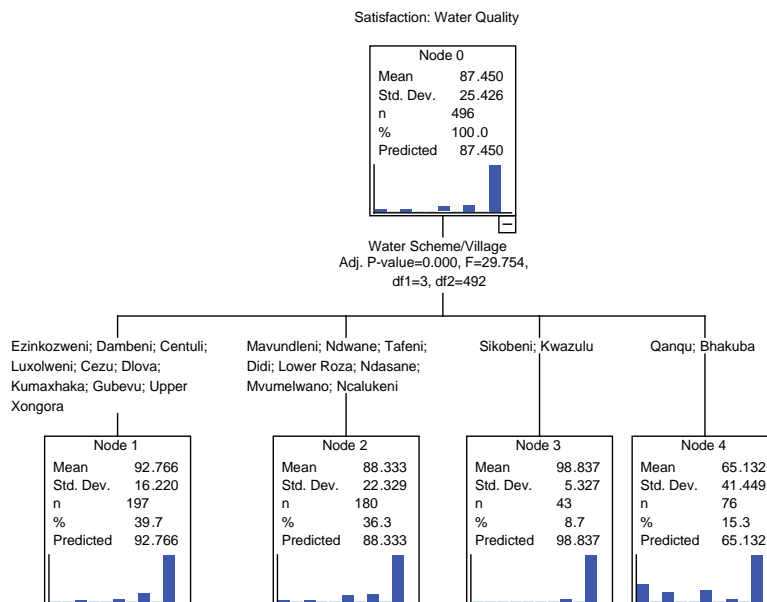
Once again the chaid-analysis indicates that Deprivation is the only significant segmentation variable. The less Deprived households tend to be more positive towards the maintenance of the Water Infrastructure Project in general, compared with households with high and average deprivation levels (94.2% versus 86%).

**PICTURE 8-12  
MAINTENANCE OF COMMUNAL STANDPIPES**



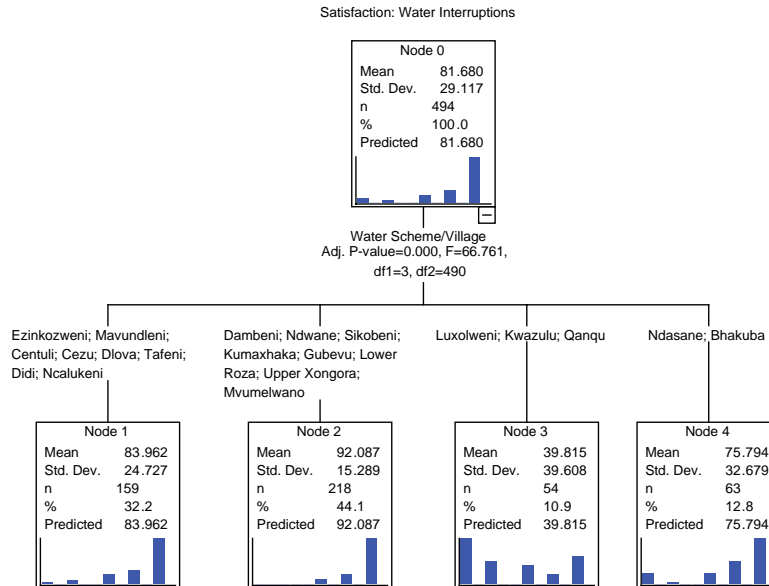
The above pictures are examples of instance where poor maintenance of communal tapstands could have contributed to lower satisfaction levels among beneficiaries.

**FIGURE 10  
SEGMENTATION: SATISFACTION WITH WATER QUALITY**



The above results suggest that village location is related to satisfaction levels on water quality. Relative moderate satisfaction levels have been expressed by the residents of Qanqu and Bhakuba, with a satisfaction level of only 65.1%. In sharp contrast, the people in Sikobeni and Kwazulu villages recorded the highest satisfaction levels of 98.8% on water quality.

**FIGURE 11**  
**SEGMENTATION: SATISFACTION WITH WATER INTERRUPTIONS**



Results suggest that satisfaction with water interruptions is related to only village location. Very negative perceptions exist in Luxolweni, Kwazulu and Qanqu, in this regard (recording an average satisfaction level of only 39.8%). High to very high satisfaction levels have been expressed in all the remaining villages, although Ndasane and Bhakuba slightly less positive (75.7%).

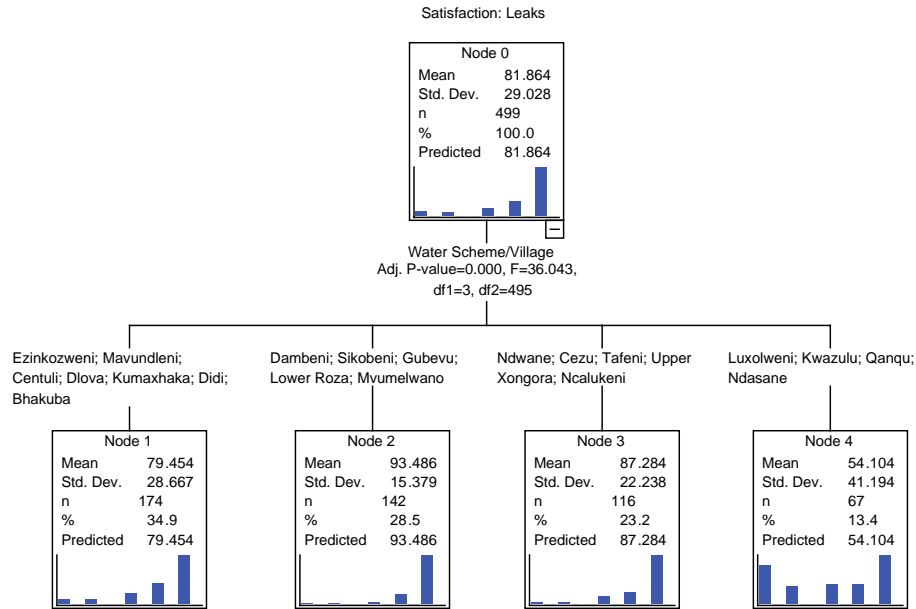
Water interruptions are sometimes related to other service problems such as Electricity supply to reservoirs and pump stations.

**PICTURE 13-15**  
**ELECTRICAL MAINTENANCE WORK AT GUBEVU PUMP HOUSE RESULTING IN WATER INTERRUPTIONS**



Village location (Figure 12) also plays a role in satisfaction levels regarding the prevalence of water leaks. Very negative perceptions exist in Luxolweni, Kwazulu, Qanqu as well as Ndasane in this regard (recording an average satisfaction level of 54.1%. Relatively high satisfaction levels have been expressed in all the remaining villages.

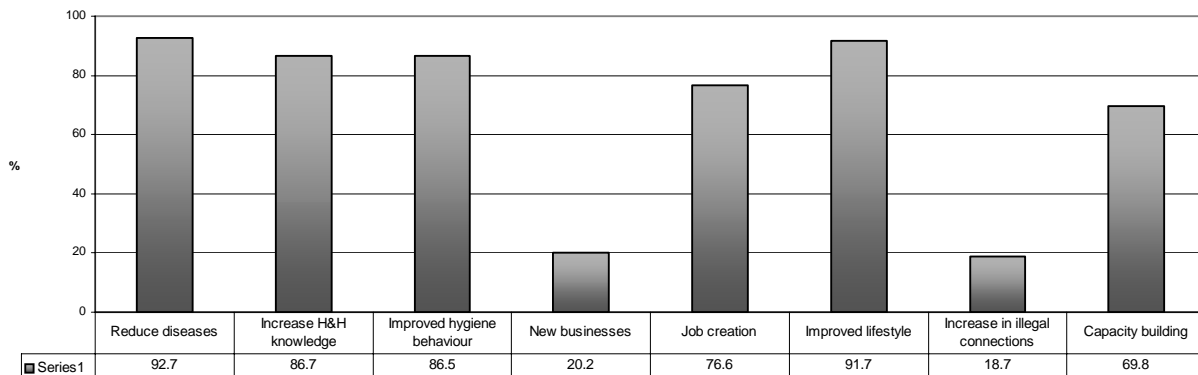
**FIGURE 12  
SEGMENTATION: SATISFACTION WITH WATER LEAKS**



### 4.1.5 PERCEPTIONS ON IMPACT

The perceived impact of the Water Infrastructure project is shown in Graphs 19 to 22.

**GRAPH 19  
WATER INFRASTRUCTURE PROJECT LEAD TO ...**



The above graph clearly indicates that diverse opinions were expressed on whether the Water Infrastructure Project impacted or not on various social aspects.

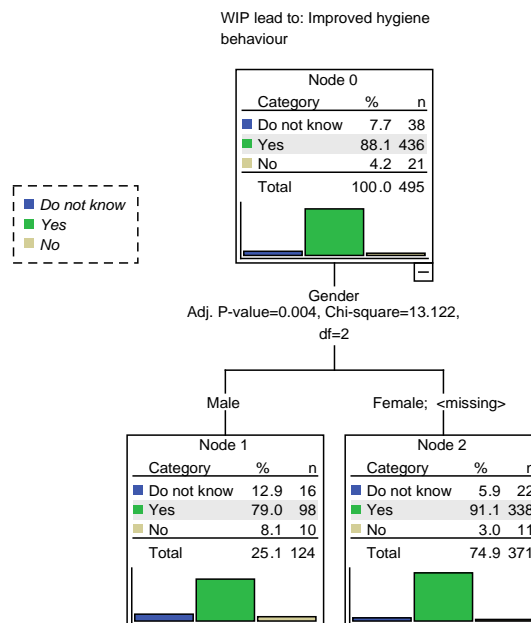
- Only about a fifth of the villagers believe that the project lead to New business developments in their villages (20.2%), while 76.6% indicated that it actually lead to job creation, and capacity building among the community (69.8%).

- Very positive opinions were expressed in terms of its impact on health and hygiene related aspects of people living in the villages. For example, 92.7% of villagers indicated that it contributed to the reduction of water borne diseases such a cholera, while 86.7% said it lead to an increase in knowledge levels on Health and Hygiene, and actual improvement in hygiene behaviour (86.5%). In line, with the health related aspects, 91.7% of the villagers indicated that the Water project definitely contributed to improved lifestyles.
- In terms of the water infrastructure, approximately 18.7% of villagers indicated that the project actually lead to an increase in illegal water connections.

A series of Chaid-analysis were conducted to determine beneficiary segments with similar and different opinions on each of these impact areas. These analysis indicate that no significant difference exists in terms of opinions on, the reduction of water borne diseases and on knowledge acquired on Health and sanitation aspects, indicative of relatively homogenous held opinions:

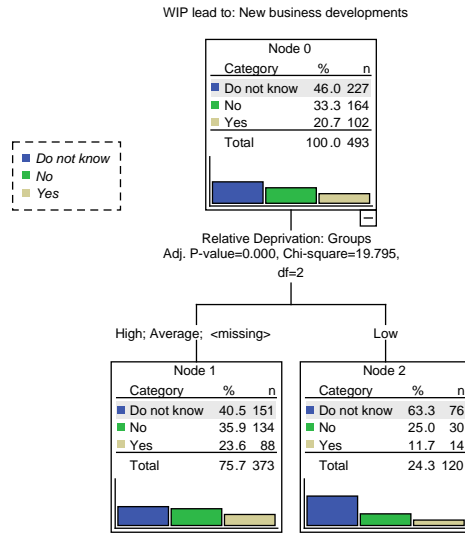
Results in Figure 13 indicate that improved hygiene behaviour can be segmented in terms of gender. Proportionally more females (91.1%), than males (79%) believe that the project lead to better hygiene behaviour.

**FIGURE 13**  
**SEGMENTATION: IMPROVED HYGIENE BEHAVIOUR**



**FIGURE 14**

**SEGMENTATION: LEAD TO NEW BUSINESS DEVELOPMENT**

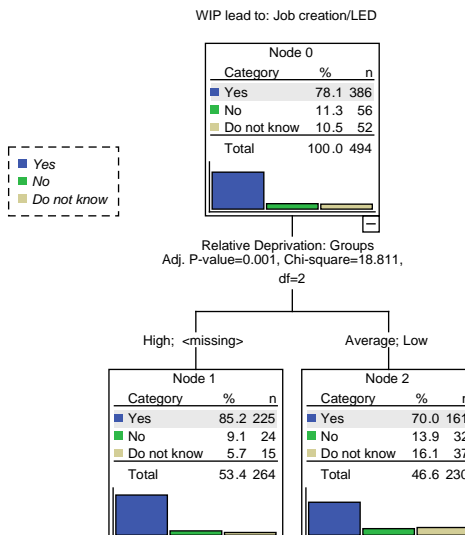


Opinions on whether the Water Infrastructure project has lead to new business development can be segmented accordingly to household's level of deprivation. The less deprived people tend to be less positive in this regard, while average and higher level deprived persons tend to be slightly more positive (23.6% versus 11.7%).

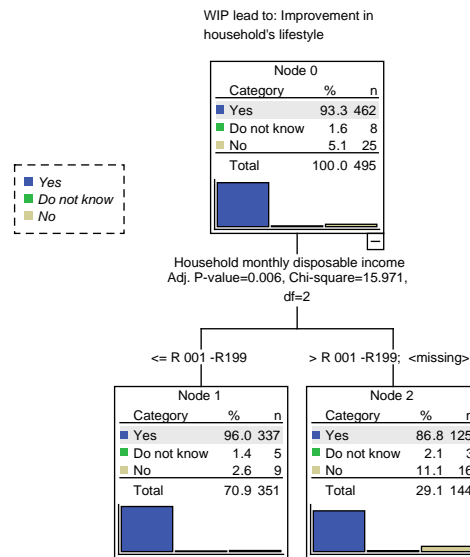
The Chaid-analysis in Figure 15 once again suggests that Deprivation is the best segmentation variable of whether the Water Infrastructure project has lead to job creation or local economic development. In this instance the more deprived persons are more inclined to feel that it led to job creation, than the lesser deprived persons (85.2% versus 70%).

**FIGURE 15**

**SEGMENTATION: LEAD TO JOB CREATION/LED**

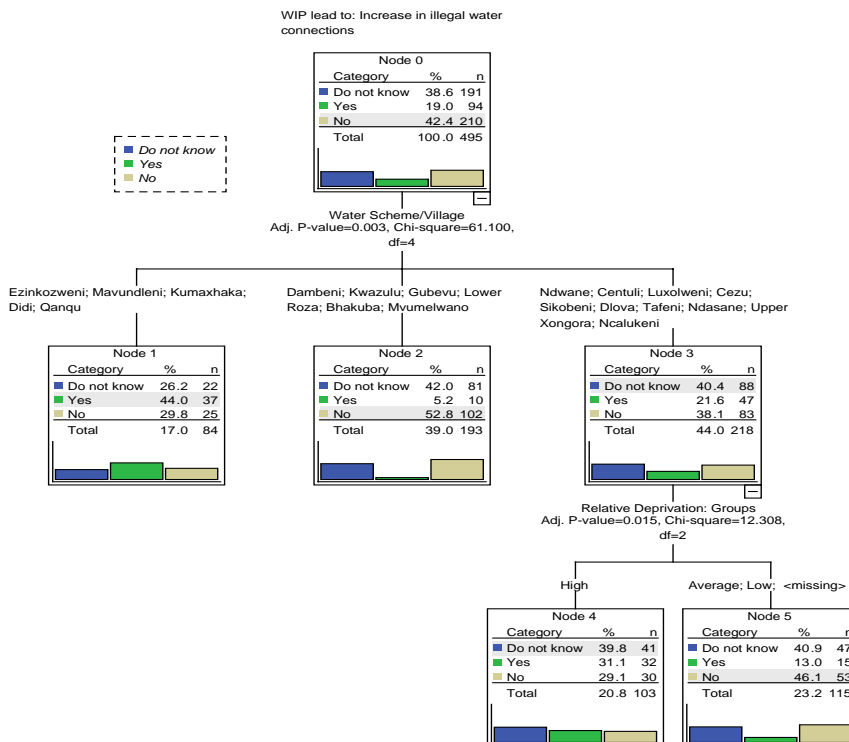


**FIGURE 16**  
**SEGMENTATION: IMPROVEMENT IN HOUSEHOLD'S LIFESTYLE**



The above findings indicate that household's having a monthly disposable income of less than R200 are more inclined to feel that their household's lifestyle have improved (96%) versus 86.8% among households who have monthly disposable incomes more than R200.

**FIGURE 17**  
**SEGMENTATION: LEAD TO INCREASED ILLEGAL CONNECTIONS**



The Chaid-analysis indicates that a combination of two variables significantly segment the opinion on whether the water project has lead to an increase in illegal water connections.

Villagers in specifically five villages expressed confirmatory believes in this regard, namely Ezinkozweni, Mavundleni, Kumaxhaka, Didi and Qanqu (44%).

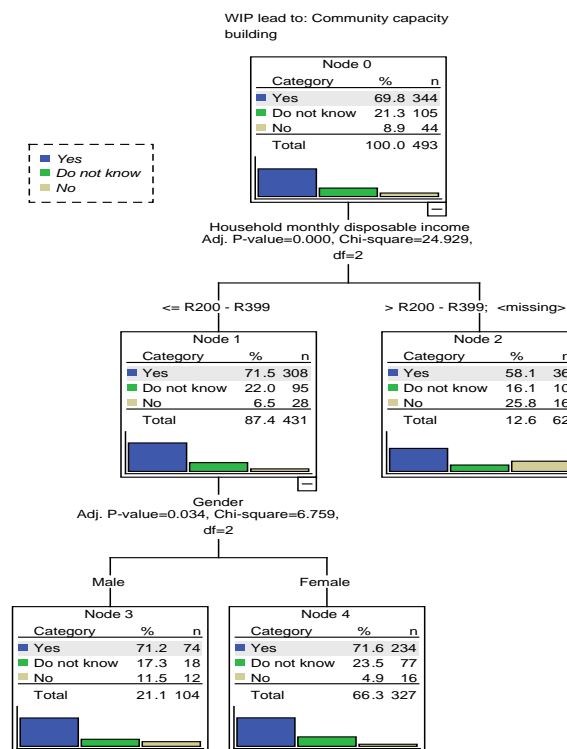
This negative attitude was also expressed among the higher deprived people (31%) living in a combination of 11 villages (See graph 17).

No obvious illegal connections were found during the observations from the communal tapstands, except for an illegal connection from one reservoir.

**PICTURE 16-18**  
**ILLEGAL CONNECTIONS AT RESERVOIR**



**FIGURE 18**  
**SEGMENTATION: LEAD TO COMMUNITY CAPACITY BUILDING**

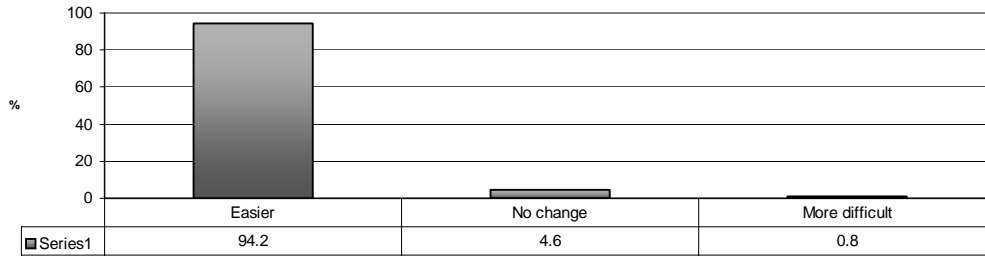


The Chaid-analysis indicate that a combination of two variables significantly segment the opinion on whether the water project has lead to community capacity building or not

Villagers earning a monthly disposable income of less or equal to R200–399 per month are more of the opinion that it lead to capacity building, compared to those earning more (71.5% versus 58.1%).

Among the former group, gender plays a secondary role.

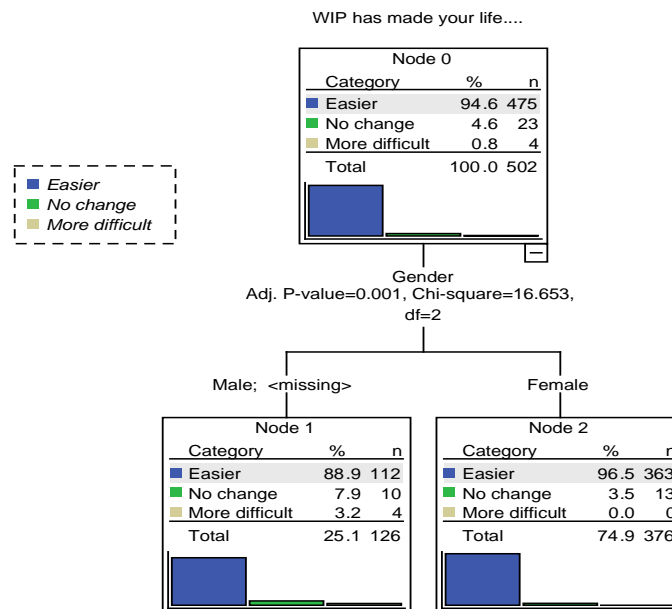
**GRAPH 20**  
**WATER INFRASTRUCTURE PROJECT HAS MADE LIFE EASIER OR NOT**



The results indicate that a very positive sentiment exist on whether the project has impacted positively or not on their personal life's. An overwhelming majority of villagers indicated that the project has made their life's easier (94.2%), while only .8% indicated that it made their life's more difficult. .

The findings of the Chaid-analysis show that the Water Infrastructure Project has impacted differently on the two gender groups. Although both groups experienced a positive shift, more females than males believe that it made their lives easier (96.5% versus 88.9%). This might be attributed to the fact that woman traditionally are mainly responsible for fetching water, and that the new infrastructure makes water collection much less difficult due to proximity and other related aspects as accessibility.

**FIGURE 19**  
**SEGMENTATION: WATER INFRASTRUCTURE PROJECT HAS MADE LIFE EASIER OR NOT**



**TABLE 9  
REASONS WHY WATER INFRASTRUCTURE PROJECT HAS MADE LIFE EASIER OR NOT**

		WIP has made your life....			Total
		Easier	No change	More difficult	
		%	%	%	%
Why has WIP made your life (Easier-no change-more difficult)	Water is purified/clean/free of germs	23.7	8.7		22.8
	Safe from water borne diseases as cholera	8.9			8.4
	Shorter distance/Not far	46.7			44.2
	Taps not working closed		17.4	25.0	1.0
	No longer sharing with animals	1.5			1.4
	Water is life	.6			.6
	I am able to fetch water myself	.2	4.3		.4
	I fetch water from river as tapstand is not working		13.0		.6
	Taste the same as the river		4.3		.2
	Water interruptions-we still go to river		4.3	50.0	.6
	We have water all the time	1.5			1.4
	We are clean	.8			.8
	Taps are far from us		4.3		.2
	No longer using river/dam or carry big buckets	7.4			7.0
	Tasteless		4.3		.2
	Better life/lifestyle	1.3			1.2
	Better health	.6			.6
	Not purified yet		4.3		.2
	We receive free water	.4			.4
	No more suffering/easier to fetch water	4.4			4.2
	Using water from tank		21.7		1.0
	Water is healthy	.2			.2
	No change		4.3		.2
	Too many houses per tap			25.0	.2
	Life has changed	.8			.8
	Vegetable gardens	.6			.6
	Own source		8.7		.4
	Do not know	.2			.2
Total		100.0	100.0	100.0	100.0

Numerous reasons were provided on the underlying reasons for the impact of the Water Project on villager's personal lives. The reason that was mostly mentioned is that the project brought water nearer to them (44.2%), followed by the opinion that the water is clean/purified or free of germs (22.8%). A further 8.4% of responses centered around the elimination of water-borne diseases such as cholera, while 7% and 4.2% villagers referred to the fact that they no longer have to use the river as their water source and that they are no longer suffering (easier to fetch water).

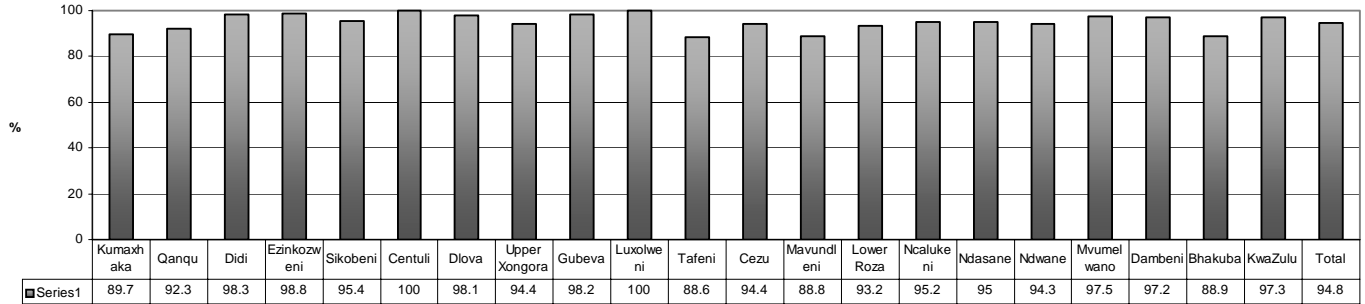
Negative opinions on impact were based on the following issues:

- There are too many houses per communal tapstand,
- Due to water interruptions still occurring, and
- The fact that the communal tapstands are not working at all.

Neutral opinions on the project's impact on lives of the villagers were based on:

- That they are still using their own sources of water (such as rain-water tanks)
- Communal tapstand water is not purified
- Communal tapstands are not working, thus they are still using river water.

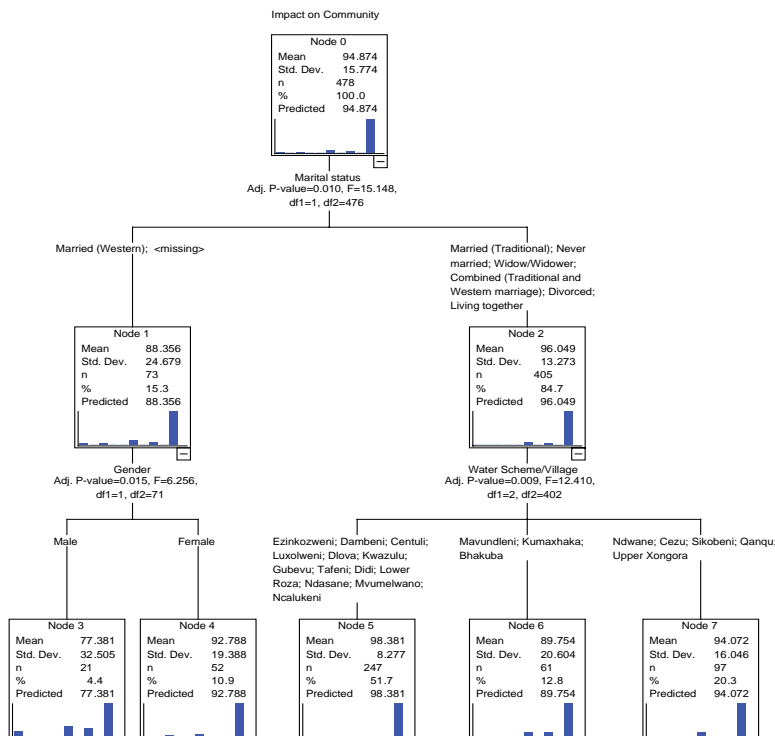
## GRAPH 21 OPINIONS ON COMMUNITY IMPACT BY THE WATER INFRASTRUCTURE PROJECT



The above results indicate an extremely high Overall Community Impact Index of 94.8% by the Water Infrastructure project in line with the findings that it made most villagers' lives easier. Although the results indicate some differences between the villages, a Chaid-analysis as well as a one-Way ANOVA analysis indicated that no statistical significance difference exists in this regard.

The Chaid-analysis, however indicate an interaction between three variables, namely marital status, followed then by gender and village. Villagers married in Western Style tend to be less positive than the remaining villagers (88.3% versus 96%). It is especially the males that were married in Western tradition, that are the least positive (77.3%). Village location played a role among the remaining villagers.

**FIGURE 20  
SEGMENTATION: OPINIONS ON COMMUNITY IMPACT**



**TABLE 10  
REASONS FOR COMMUNITY IMPACT**

		Overall impact of WIP on Community					Total %
		Very Positive	Fairly positive	Just as positive as negative	Fairly negative	Very negative	
		%	%	%	%	%	
Reason for Overall Community Impact by WIP	Previously had to fetch water from river	6.6	6.7	3.1			6.3
	Improved health and hygiene	7.5	6.7				6.9
	We drink purified water	38.9	13.3				35.1
	Proximity of tap/Nearness	18.4	13.3	3.1			17.0
	Free from diseases/germs/cholera/infections	8.7	6.7				8.0
	We grow vegetable gardens	1.4	13.3				1.7
	No longer struggling for water	5.9	6.7				5.5
	Today working-tomorrow not		6.7	9.4			.8
	No change			43.8			2.9
	Able to plough	.2					.2
	We are clean/safe	1.4	6.7				1.5
	Taps still far from us/not enough taps/Needed at each house			6.3	50.0		.6
	Community working together with trust	3.5					3.2
	Tasteless			6.3		33.3	.6
	Tap water is bad for me			3.1		33.3	.4
	Too salty		6.7	3.1			.4
	Better life/living conditions	2.6	6.7				2.5
	Saving time	.2					.2
	Water interruptions			3.1			.2
	Not in good condition			6.3			.4
	Taps in good condition	.2					.2
	Not drinking with pigs	.2					.2
	Taps working with cards				50.0		.2
	Taps not working properly			3.1		33.3	.4
	Get water at anytime of day	.2					.2
	Previously bought from vendors	.5					.4
	LED	.5					.4
	Lifestyle	1.7	6.7				1.7
	Not enough taps			3.1			.2
	Too long to maintain			3.1			.2
	Job creation	.2					.2
	Do not know	.9		3.1			1.1
Total		100.0	100.0	100.0	100.0	100.0	100.0

Once again, numerous answers were provided on the perceived community impact. The most prevalent underlying reason provided, was that villagers feel that they are now using clean, purified water (35.1%). The next mostly mentioned reason was that of proximity or distance from communal tapstands (17%).

In terms of health aspects 6.9% of the villagers said that it led to an actual improvement in health and hygiene, while 8% indicated that they are less prone for water related diseases and infections. About 1.5% indicated that it assisted in terms of cleanliness.

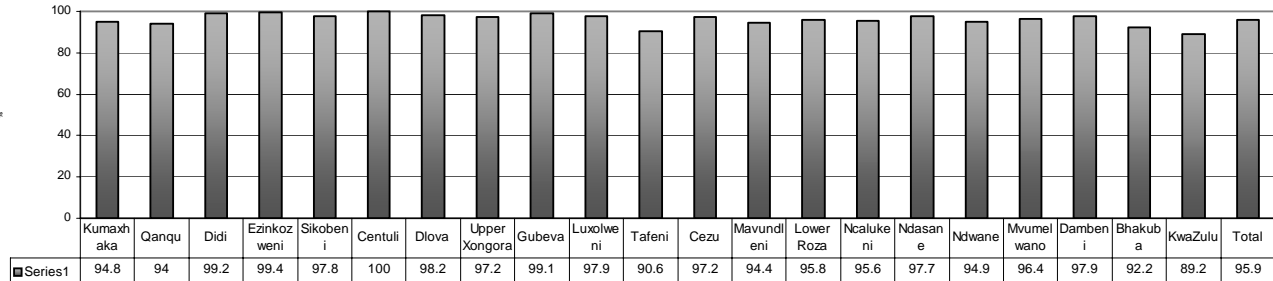
In terms of social dynamics 2.5% of the villagers said that it contributed to better living conditions, 1.7% better lifestyle, and even that their communities are now united and working together (3.2%). It was once again, indicated that villagers no longer have to struggle to fetch water (5.5%) from the rivers.

The few villagers with negative opinions, based it on the following reasons such as:

- Communal taps not working properly,
- Need communal taps that work with cards,
- Salty taste of the water,
- The perception that communal tap water are not good for them, and
- That the communal tapstands are still too far from them.

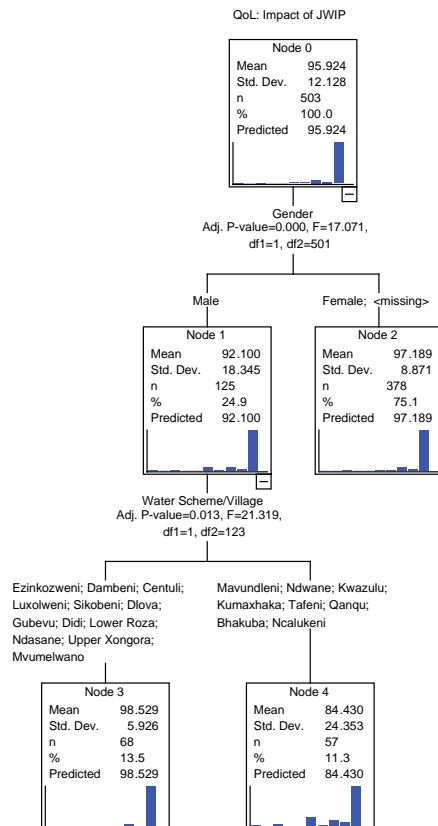
An Overall Impact Index was developed, based on the last two variables (Personal and Community Impact). As expected, this Overall Impact index recorded a very high impact level of 95.9%. Graph 22 shows the perceived impact level per village, showing very little variation between the villages.

**GRAPH 22**  
**OVERALL IMPACT OF THE WATER INFRASTRUCTURE PROJECT**



The Chaid-analysis on the Overall Perceived Impact of the project indicates that males are slightly less positive than their female counterparts (92.1% versus 97.1%). However, the males in one combination of villages (Mavundleni, Ndwane, Kwazulu, etc.) are actually the least satisfied village segment (84.4%).

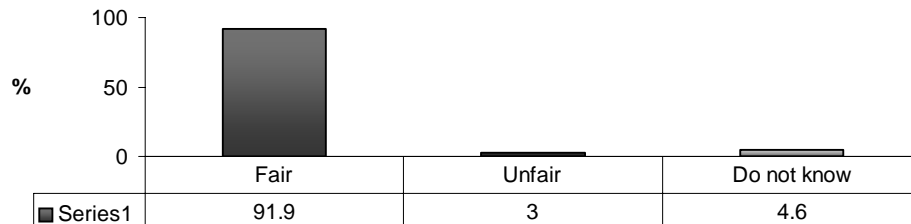
**FIGURE 21**  
**SEGMENTATION: OVERALL PERCEIVED IMPACT**



## 4.1.6 COMMUNITY ACCOUNTABILITY AND COMMITMENT

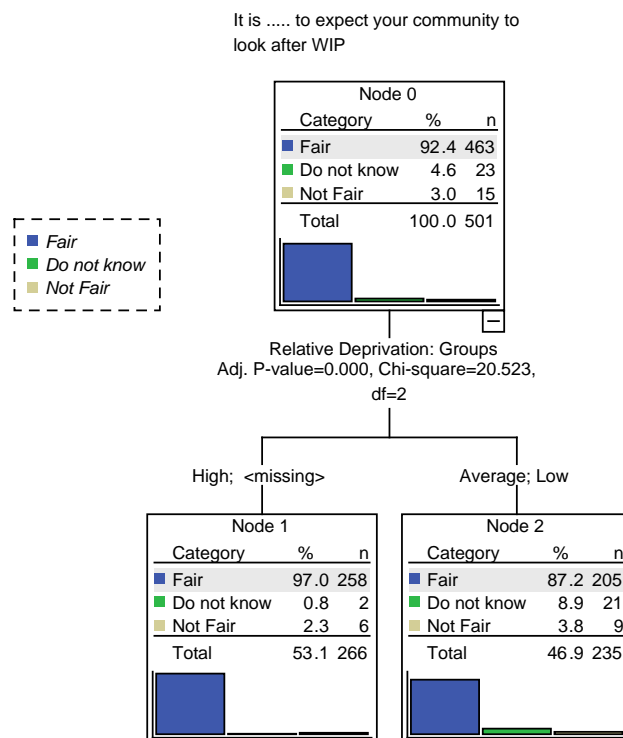
An overwhelming majority of villagers (92%) believes that it is fair for the community to look after the Water Infrastructure Project's assets. Only 3% indicated that it is unfair.

**GRAPH 23**  
**FAIR TO LOOK AFTER THE WATER INFRASTRUCTURE PROJECT ASSETS**

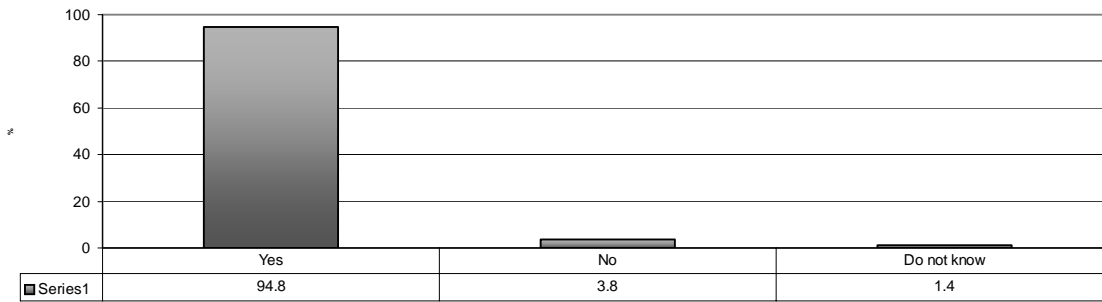


According to the Chaid-analysis, deprivation is the only significant segmentation variable in this regard. Proportionally more highly deprived villagers feel that it is fair to look after the assets, in comparison with low and averaged deprived villagers (97% versus 87.2%).

**FIGURE 22**  
**SEGMENTATION: FAIRNESS TO LOOK AFTER WATER INFRASTRUCTURE PROJECT ASSETS**



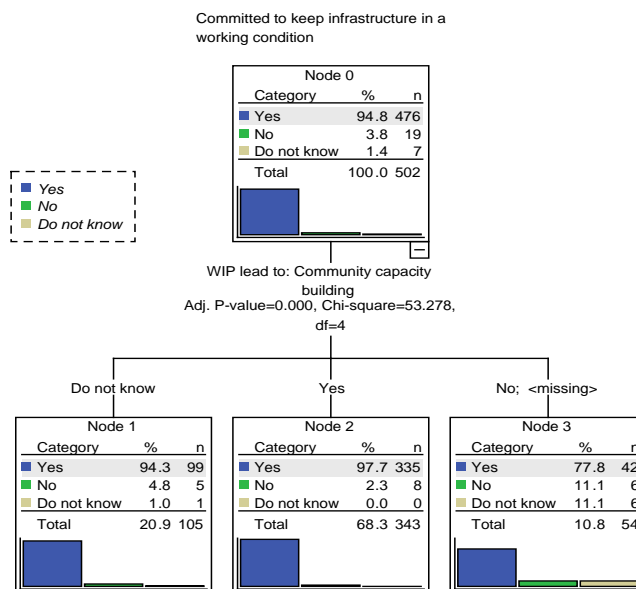
**GRAPH 24**  
**COMMITTED TO KEEP THE INFRASTRUCTURE IN WORKING CONDITION**



An overwhelming majority (94.8%) of villagers indicated that they are committed to keep the infrastructure in a working condition, reflective of a very high-level of buy-in to assist with the sustainability of the project. A Chaid-analysis indicated that none of the demographic or household variables is significantly associated with this commitment, indicative of a relatively homogeneous mindset among the different villages.

Another Chaid-analysis was executed, using impact (Personal and Community) as well as the opinions on the consequences (reduction in water borne-diseases, hygiene behaviour, job creation, etc). The only significant segmentation variable extracted is that of people’s opinion on whether the project created community capacity. Villagers that feel that the water project did not create community capacity tend to be less committed (77.8%) than those villagers feeling that the community benefited (97.7%).

**FIGURE 23**  
**SEGMENTATION: COMMITMENT TO WATER PROJECT**



## 4.1.7 PERCEPTIONS ON FUTURE SUSTAINABILITY

A very important aspect is the future sustainability of the water project. A specific open-ended question was included to quantitatively probe into the perceived potential problems facing the project. The results, depicted in Table 11, suggest that the villagers gave a wide range of opinions.

In total approximately 40% of the villagers interviewed, did not foresee any problems in future with the Water Infrastructure project.

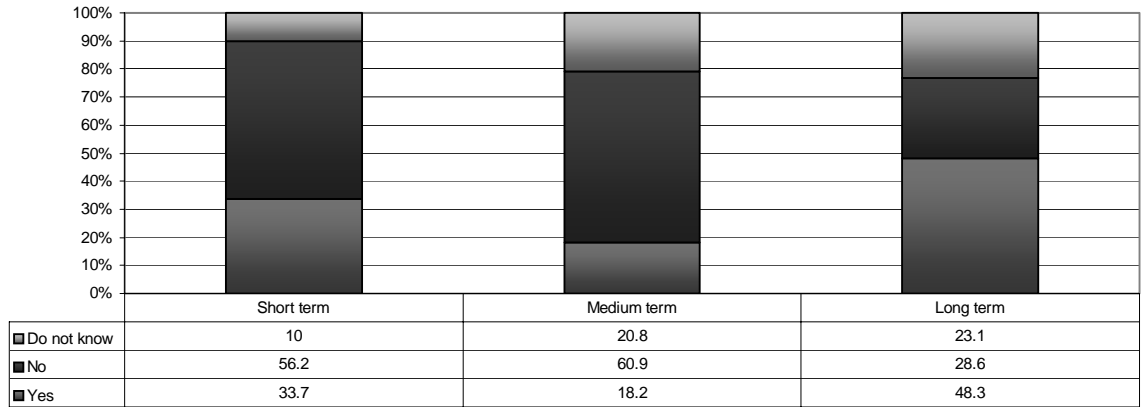
**TABLE 11**  
**OPINIONS ON THE MAIN PROBLEM FACING THE FUTURE SUSTAINABILITY OF WATER INFRASTRUCTURE PROJECT**

		N	1 %
Main problem facing continuous working of WIP	Not answered	4	.8%
	Children/schoolchildren playing near taps	28	5.9%
	Pipe bursts/pipe leaks/pipes broken	74	15.6%
	Engin failure	17	3.6%
	Carelessness	4	.8%
	Roads	1	.2%
	Pipe blockages	7	1.5%
	Taps broken	27	5.7%
	Vandalism	31	6.5%
	People doing washing near tapstands	4	.8%
	Poor maintenance	5	1.1%
	Water interruptions	9	1.9%
	Not working as now	10	2.1%
	Electrical Failure	6	1.3%
	Problem at reservoir	8	1.7%
	Water quality (Clarity, dirty, cleanliness)	4	.8%
	Tasteless water	1	.2%
	Taste	1	.2%
	Blocking of water underground	1	.2%
	Pumps not in good condition	3	.6%
	Blocked drains	7	1.5%
	Fencing	2	.4%
	Misuse by community	3	.6%
	Broken pumps	1	.2%
	No problem	189	39.8%
	Do not know	28	5.9%
Total		475	100.0%

The most frequently mentioned problems centered around technical aspects:

- ❑ Leaking, broken pipes or pipes bursts (15.6%)
- ❑ Broken communal tap mechanisms (5.7%)
- ❑ Some references has also been made on other technical problems such as:
  - Pumps that does not work
  - Electrical failures
  - Blocked drains and pipes
  - Problems experienced at reservoir
  - It will not work in future, as it is currently not working, and poor maintenance.
- ❑ Apart from the technical aspects some community related problems are also foreseen, such as:
  - The possibility of vandalism (6.5%)
  - Children are playing around the communal taps (5.9%),
  - Misuse by community (0.6%) or
  - Households doing their washing near the tapstands (0.8%).

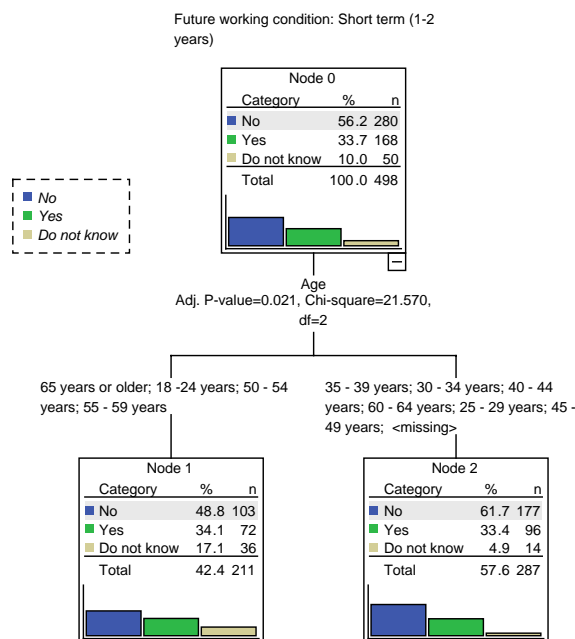
**GRAPH 25  
FUTURE SUSTAINABILITY OF WATER INFRASTRUCTURE PROJECT**



Graph 25 shows that a more positive opinion exists in terms of the Water Infrastructure’s project’s Long-term sustainability than the Short and especially the Medium term. About 48.3% of villagers indicated that the project would be sustainable over a ten-year period, whereas only 18% believe so in the medium term, and 33.7% in short term. It might be attributed to the current situation where certain villages are not having access to water due to technical problems, and that villagers actually believe that these current problems will be sorted out in the long run.

The Chaid-analysis indicates that no significant segments exist in terms of Medium and Long-term sustainability, indicative of relatively homogeneous opinions. In terms of the Short-term sustainability, age plays a role, with proportionally more younger people feeling that it will not be sustainable in future (61.7% versus 48.8%).

**FIGURE 24  
SEGMENTATION: SHORT-TERM SUSTAINABILITY OF WATER PROJECT**



## 4.1.7 SUMMARY: EVALUATION OF WATER INFRASTRUCTURE PROJECT

The findings on the opinions and perceptions regarding the Water Infrastructure project suggest that:

- Relative high levels of awareness exist towards development projects in the villages; while the same tendency exist towards specifically the Water Infrastructure project itself.
- It appears as if the Water Infrastructure project has followed a very detailed and involved community consultation process as the findings suggest that:
  - A very large proportion of villagers that are aware of the Water Infrastructure project indicated that their community needs were assessed before and during the project.
  - The perceptions exist that the community had sufficient opportunity, together with other role-players, to decide on the type of water project.
  - High satisfaction levels were displayed on the consultation processes followed.
  - Most villagers have received information on the maintenance and operations of the project, and they know whom to contact when infrastructure breaks.
- The findings on the Health and Hygiene workshops showed that:
  - Only about a fifth of the villagers are aware of the health and hygiene workshops that were held as part of the project.
  - These villagers however, expressed high satisfaction levels on these workshops.
  - Most villagers feel that it addressed various aspects such as safe water chain, transmission of water-borne diseases, safe storage and waste disposal adequately.
- In terms of operations and maintenance of the project, the findings suggest that:
  - Relative high satisfaction levels were expressed towards maintenance and operational aspects, as well as water quality. The least positively aspect evaluated (although still positive) is that of water interruptions.
- With regard to the project's perceived impact:
  - An overwhelming majority of villagers believes that the project made their lives easier or that it impacted positively on them as a community. These positive opinions are related to the perceptions that they are now receiving clean-purified water; that they no longer have to struggle to fetch water due to the convenient proximity of the tapstands, the health implications such as cleanliness and being free of germs and water-borne related diseases.

- Although villagers do not feel that the project has really lead to new business developments, it did create jobs and contributed to community capacity building. The perceptions exist that the water project impacted in the form of creating better lifestyles, and that it reduced the prevalence of water-borne diseases, increased knowledge and behaviour on hygiene and sanitation aspects. In some villages, the prevalence of illegal water connections has been highlighted, which on the long run (if indeed so) could impact negatively on the sustainability of the project.
- Community accountability and commitment has successfully been created as the results suggest that:
  - An overwhelming majority of villagers feels that it is fair for them to look after the assets of the Water Infrastructure.
  - Most villagers are committed to the functioning of the project in future.
- In terms of the project's future sustainability, the following picture emerges:
  - A number of potential problems can in future impact negatively on the project. Most of the perceived problems are based on technical problems such as leaking/broken pipes, broken tap mechanisms, blockages, problems at the reservoirs and pumps associated with electrical failures.
 

On a social level misuse and vandalism of infrastructure, children playing around the infrastructure or villagers washing clothes nearby facilities have been identified as potential problem areas.
  - Perceptions exist that the long-term future of the project is much better than the short and medium term, indicating that the perception exist that the current problems experienced will eventually be sorted out.

The above conclusions generally depict a very positive evaluation of the Water Infrastructure project, with no major antagonism towards the project itself. Villagers are highly appreciative of the fact that they have access to clean water; that is easier accessible to them, and that it have major advantages for them in terms of their health and lifestyle. This despite the fact that certain villages are experiencing water interruptions.

# 4.2 QUALITY OF LIFE

This section of the research findings focuses on specifically on Quality of Life (QoL) as defined by the theory developed (see Figure 1). The analysis will attempt to determine the status quo in this regard, as well as the underlying dynamics of it. It will also focus amongst other things on:

- Qualitative perceptions versus Quantitative Subjective satisfaction levels
- Objective Indicators.

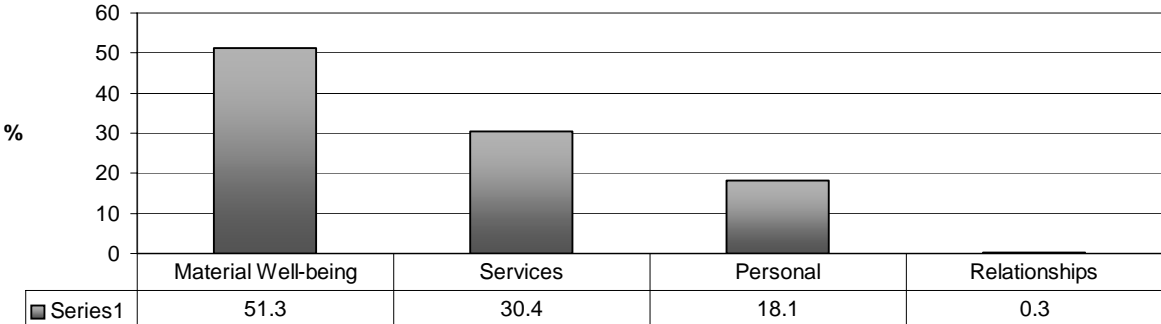
The section will also attempt to determine whether the Water Infrastructure project’s perceived impact on people and the village communities are related to QoL, and specific statistical models will be tested in this regard.

## 4.2.1 QUALITATIVE EVALUATION OF QUALITY OF LIFE

Based on the findings of the literature study, it was decided to exploratively determine what rural people in the selected villages perceive as the drivers of a better Quality of Life for them. These findings will provide a description on a qualitative level on what people perceive to be important for them in their lives.

The following two graphs depict the answers on this very important question. Graph 26 shows the responses, based on multiple response answers, per percentage responses provided, while Graph 27 indicates the answer in terms of the percentage of cases.

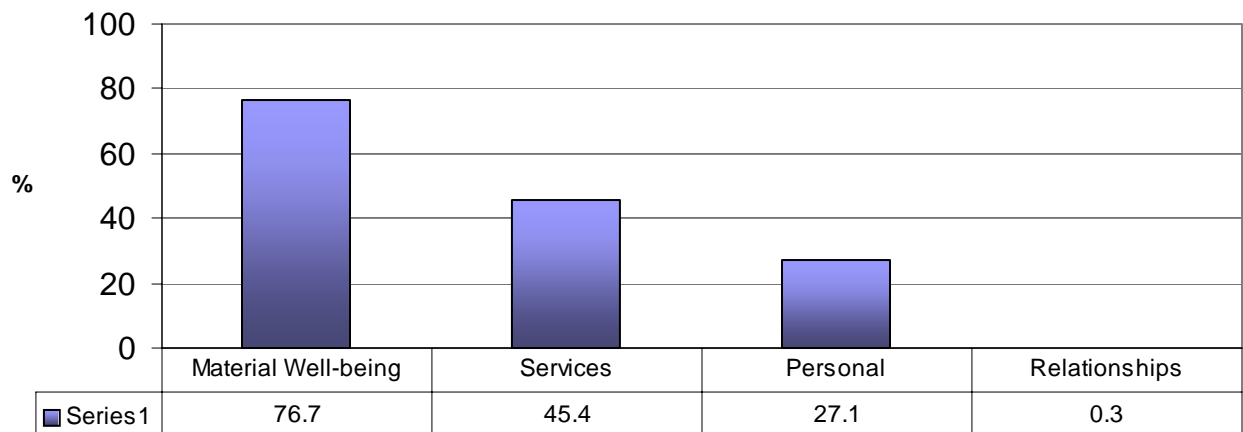
**GRAPH 26**  
**QUALITY OF LIFE: PERCENTAGE OF MULTIPLE RESPONSES**



Numerous responses were as expected, provided in terms of what contributes to a better Quality of Life in these rural villages. These responses were re-coded into the four QoL Domains, as per theoretical model developed based on the literature study.

The findings indicate that the Material Well-being Domain is seen as the most important driver of QoL, as just over half of the responses were based on some of the relevant sub-domains (51.3%). Services formed the second most mentioned Domain (30.4%), while approximately 18.1% of the responses centered on Personal functioning. An interesting finding is that relationships, both family and community interactions, have not at all been viewed as important drivers of better Quality of Life in these rural villages.

**GRAPH 27**  
**QUALITY OF LIFE: PERCENTAGES OF CASES**



The above-mentioned multiple response results, once again indicate that:

- ❑ The prevalence of Material Well-being as one of the most important drivers of better Quality of Life, as nearly 77% of villagers mentioned it.
- ❑ The importance of Basic Services is also displayed in the above graph as at least 45% of the villagers have mentioned it.
- ❑ This is followed by 27% of the villagers mentioning personal issues, while
- ❑ Only .3% of the villagers mentioned Relationships. This latter results are in line with the previous table's results, indicative that various forms of relationship tend not be viewed as important among these rural village communities

Each of the mentioned Quantified domains consists of a range of issues, as shown in Table 12 (based on % cases). Seven aspects form the core of QoL according to the findings, Jobs/Employment opportunities (35%), money (25.8%) also referring to the fact that they need some income from jobs and other sources such as grants, Education (7%), Health clinics (9.5%), Housing (8.3%), Access to clean water (8.7%) and nutrition/food (13%).

**TABLE 12  
ISSUES PER QoL DOMAIN**

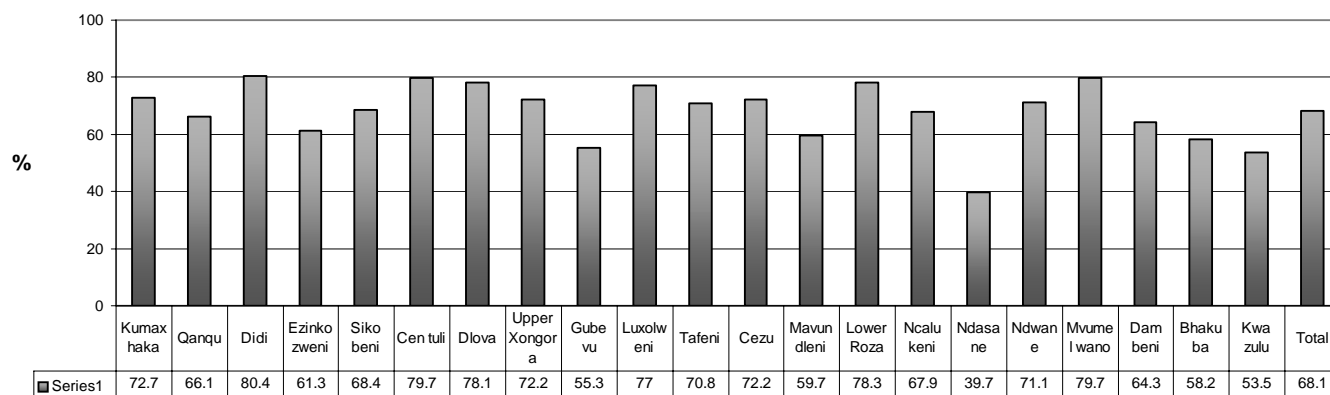
Material-Well-being	Services	Personal functioning	Relationships
<b>Jobs/Employment (35%)</b>	<b>Health clinics (9.5%)</b>	<b>Nutrition/food (13%)</b>	Church
<b>Money (25.8%)</b>	<b>Clean water (8.7%)</b>	Cleanliness	Community respect
<b>Education (7%)</b>	<b>Housing (8.3%)</b>	Self caring	
Owning a car	Electricity	Lifestyle	
Grants	Crime prevention	Hygiene	
Own business	Justice	Exercising	
Living conditions	Sanitation	Happiness	
Appliances (TV/Stove)	Roads	Customs	
	Public Phones		
	Library		
	Water in house/taps		
	Agriculture		

The above results clearly indicate the importance of job creation and the need for some sort of an income in these poverty stricken villages.

## 4.2.2 QUANTITATIVE EVALUATION OF QUALITY OF LIFE

The following discussion is based on the QoL theory adopted by the study, focusing on the quantification or the extent there off.

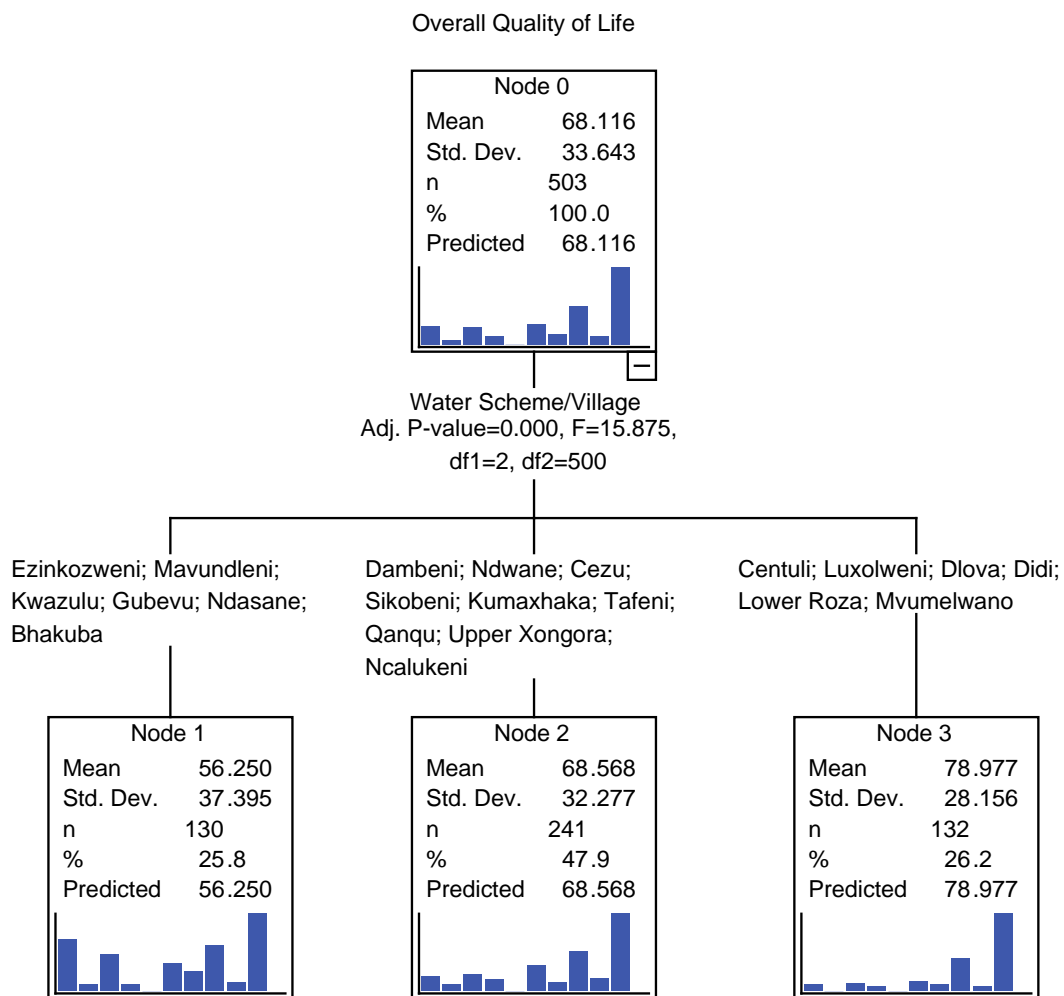
**GRAPH 28  
OVERALL QUALITY OF LIFE**



A relatively moderate score of 68.1% was obtained on the Overall Quality of Life Index, indicating that villagers are moderately happy with the lives they live and the perceived quality of their own lives.

The segmentation analysis indicates that the variable, village is significantly associated with overall perception of Quality of Life. The most negative village segments were those in Ezinkozweni, Mavundleni, Kwazulu, Gubevu, Ndasane and Bhakuba, with a relative low overall QoL score of 56.2%, while residents living in Dambeni, Ndwane, Cesu, Sikobeni, Kumaxhaka, Tafeni, Qanqu, Upper Xongora and Ncalukeni expressed a moderate perception (68.5%). Residents living in Centuli, Luxolweni, Dlova, Didi, Lower Rosa and Mvumelwano expressed the highest subjective Overall Quality of Life (78.9%). No other segmentation variables were significantly extracted.

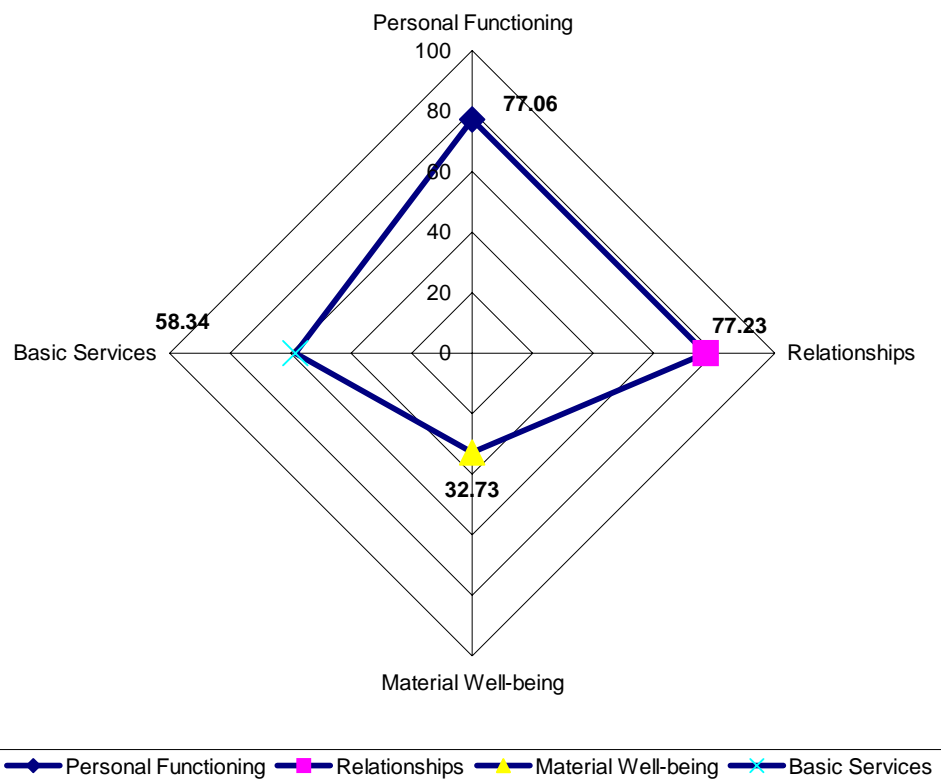
**FIGURE 25**  
**SEGMENTATION: OVERALL QoL**



## 4.2.2.1 FIRST ORDER DOMAINS OF QUALITY OF LIFE

Graph 29 depicts the results for the four 1<sup>st</sup> order Domains of Quality of life. It is quite evident that diverse satisfaction levels were expressed on these QoL domains, indicating major variation on a Subjective QoL level.

**GRAPH 29**  
**SATISFACTION: FIRST ORDER DOMAINS OF QUALITY OF LIFE**



The results generally suggest that:

- In line with the existing high poverty levels in the Oliver Tambo District Municipal area, villagers expressed a very low satisfaction of only 32.73% on their Material Well-being.
- Relative moderate satisfaction levels were expressed in terms of Basic Services received (58.4%%) by these villagers.
- In contrast, relatively high satisfaction levels were expressed in terms of their Personal/Individual functioning (77.06%) as well as Relationships (77.23%).

The above results suggest, in terms of Material Well-being, that villagers are especially dissatisfied with their level of education and skills obtained; local job and business opportunities; the extent to which they can provide for their families; being financially vulnerable and actually being dissatisfied with their existing living standards.

The interpretation of these Subjective 1<sup>st</sup> Order QoL Satisfaction levels, however need to be viewed taking into account their perceived importance as QoL drivers.

**GRAPH 30**  
**FIRST ORDER PERCIEVED DRIVERS AND SATISFACTION LEVELS**



The above results suggest that an inverse correlation exists in terms of the perceived QoL drivers and actual subjective satisfaction levels. The more important the drivers are being perceived, the less satisfied the villagers tend to be on them, and vice versa. The smallest gap in terms of importance and satisfaction levels is on “Services”.

Thus, the high level of negativity in terms of Subjective Material Well-being is a very important finding in view of its perceived importance on a Quantitatively level of Overall QoL. The underlying dynamic might be that villagers feel that the lack of money impacts on the other domains of their life. The actual correlations between Material-well being and the remaining three first order domains indicate that it is significantly related to Satisfaction with Services (0.494), followed by Relationships (0.298) and Personal functioning (0.264), supporting such a possible notion.

As in the case of Material Well-being, in view of its perceived importance of Basic Services in creating a better Quality of life, results suggest that cognizance should be taken of the relatively moderate satisfaction levels obtained in terms of it.

The positive results on Subjective Personal functioning, indicate that villagers are relatively satisfied with their Physical health; their Spiritual and emotional well-being, and that they tend to be Altruistically orientated in life. However, these positive opinions should take into cognizance of the relative low level of perceived importance in terms of creating a better Quality of Life in these rural villages.

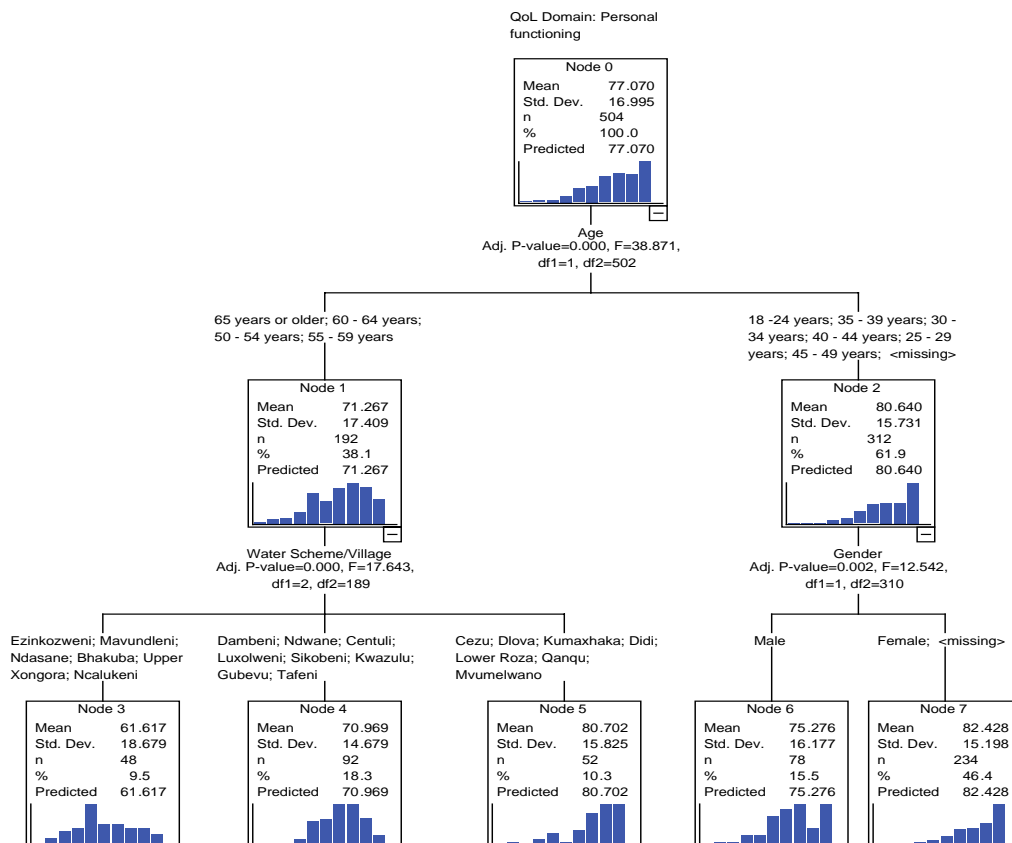
The same principles apply to Relationship, being evaluated quite positively, but not being viewed as an important driver of Quality of Life among these villagers.

#### 4.2.2.2.1 SEGMENTING THE FIRST ORDER DOMAINS OF QUALITY OF LIFE

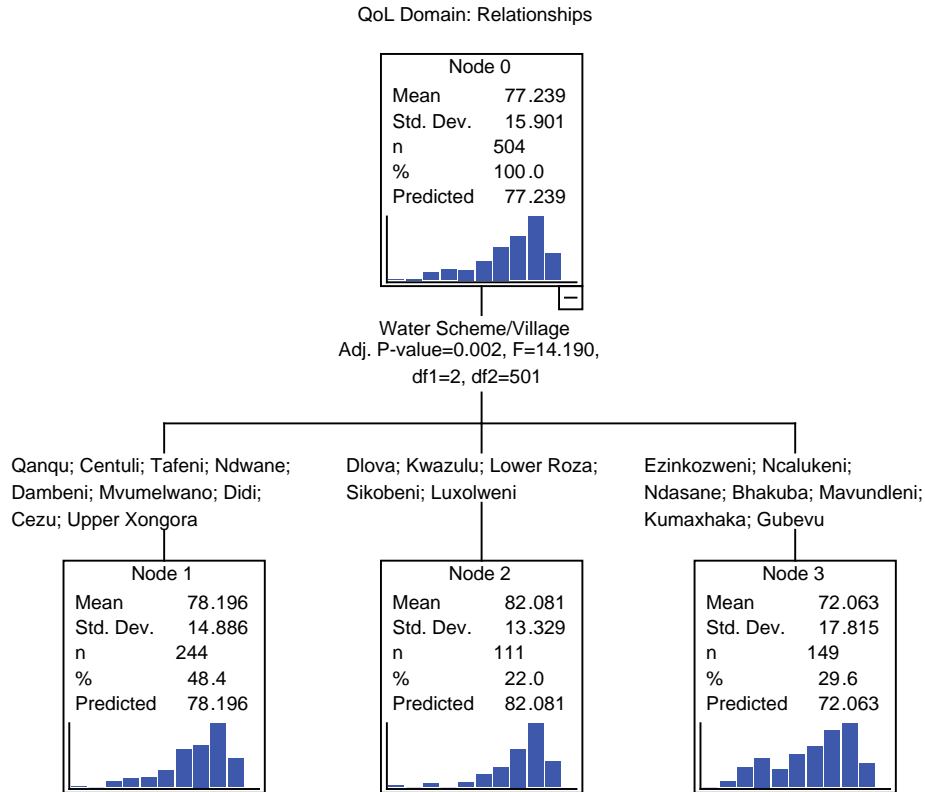
The Chaid-analysis (Figure 26) indicates that a combination of three variables have been extracted as significant segmentation variables of Personal Functioning. However, age is the most important segmentation variable of Personal functioning, indicative that:

- ❑ The older people (50 years and older) tend to be less positive compared with people younger than 50 years of age (71.2% versus 80.6%). Among both age groups a further significant split were made.
- ❑ Among the elderly people, the village they live in impacts on Personal functioning. It seems as if the elderly in specifically Ezinkozweni, Mavundleni, Ndasane, Bhakuba, Upper Xongora and Ncalukeni villages tend to be the least positive (61.6%) while the other two groups of villages tend to be moderately to very positively oriented on Personal functioning.
- ❑ Among the younger villagers, gender plays a role, indicating that younger woman tend to be more positive than their younger male counter parts (82.4% versus 75.2%).

**FIGURE 26**  
**SEGMENTING: SATISFACTION WITH PERSONAL FUNCTIONING**

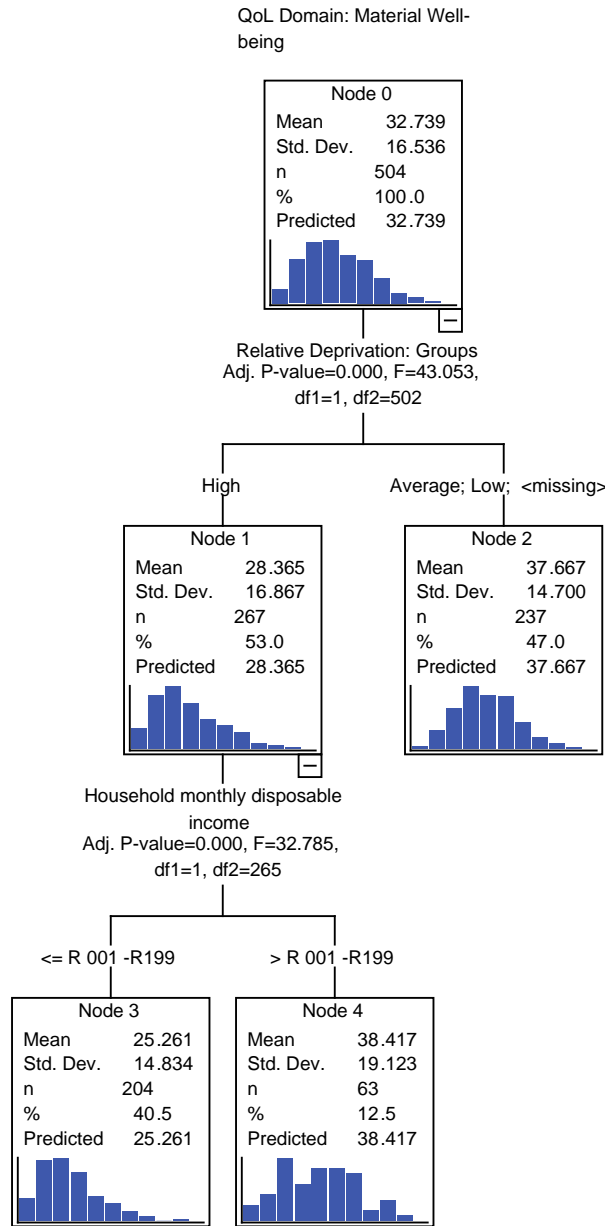


**FIGURE 27**  
**SATISFACTION: RELATIONSHIPS**



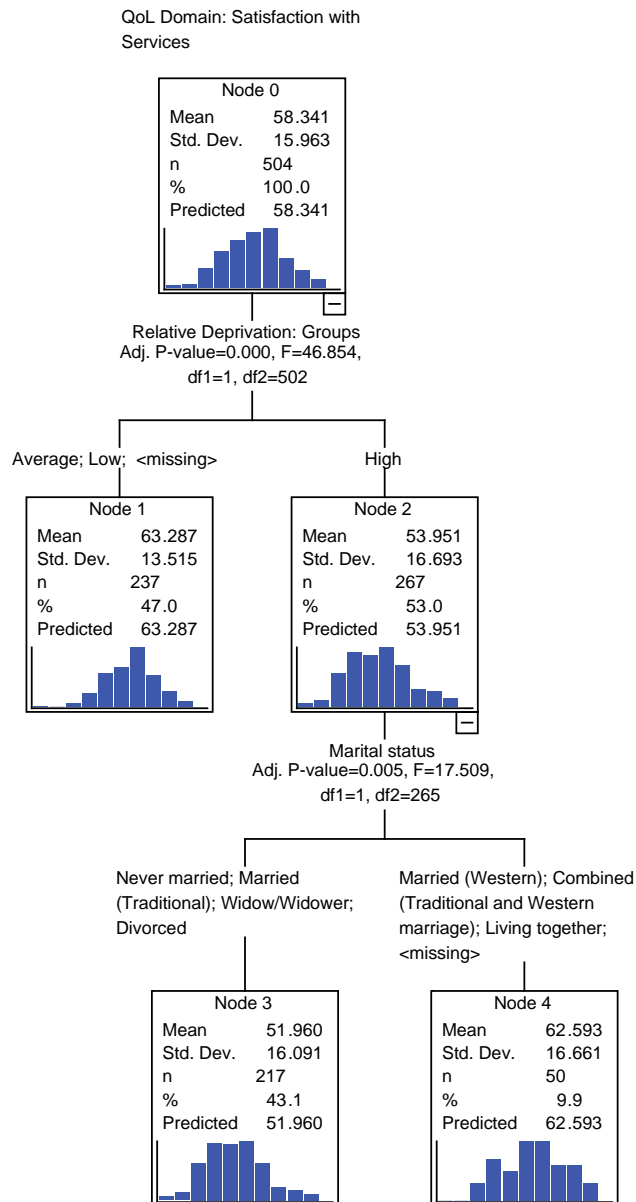
- The chaid-analysis indicates that village is the most important segmentation variable of Relationships.
- Villagers in the Ezinkozweni, Mavundleni, Kumaxhaka, Gubevu, Ndasane, Bhakuba and Ncalukeni villages tend to be the least positive in the regard. They expressed a moderate satisfaction level of 72.06%.
- Residents in Dlova, Kwazulu, Lower Roza, Sikobeni and Luxolweni were the most positive (82%), while those in the remaining villages moderately satisfied (78.1%)

**FIGURE 28**  
**SATISFACTION: MATERIAL WELL BEING**



- The most significant segmentation variable of Material Well-being is Relative deprivation. The villagers displaying high levels of relative deprivation are, as expected, the most negative on their status of Material Well-being (28.36% compared with 37.66%) of the averaged and low relatively deprived residents.
- Among the highly deprived residents, the villagers with the lowest disposable household incomes (equal of less than R200 per month) were more negative in terms of their Material Well-being, than those with a disposable household income of more than R200 per month (25.2% versus 38.4%).

**FIGURE 29**  
**SATISFACTION WITH BASIC SERVICES**



- The most significant segmentation variable of Satisfaction with Basic Services is once again Relative deprivation. The villagers displaying high levels of relative deprivation expressed the most negative sentiments on Basic Services (53.9% versus the average and less deprived residents of 63.2%).
- Among the highly relatively deprived beneficiaries, marital status played a secondary role. It appears that the villagers that never got married, or are divorced or married in traditional way or widow/widower are the least satisfied segment with basic services (51.9%).

## 4.2.2.1.2 PREDICTING QoL BY FIRST ORDER DOMAINS

Table 13 shows the correlations between the four 1<sup>st</sup> order QoL domains and Overall Quality of Life perceptions.

**TABLE 13**  
**CORRELATION: QoL AND 1<sup>ST</sup> ORDER DOMAINS**

		Correlations				
		Overall Quality of Life	QoL Domain: Personal functioning	QoL Domain: Relationships	QoL Domain: Material Well-being	QoL Domain: Satisfaction with Services
Overall Quality of Life	Pearson Correlation	1	.474**	.390**	.199**	.180**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	503	503	503	503	503
QoL Domain: Personal functioning	Pearson Correlation	.474**	1	.397**	.264**	.293**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	503	504	504	504	504
QoL Domain: Relationships	Pearson Correlation	.390**	.397**	1	.298**	.300**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	503	504	504	504	504
QoL Domain: Material Well-being	Pearson Correlation	.199**	.264**	.298**	1	.494**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	503	504	504	504	504
QoL Domain: Satisfaction with Services	Pearson Correlation	.180**	.293**	.300**	.494**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	503	504	504	504	504

\*\* . Correlation is significant at the 0.01 level (2-tailed).

- The above table shows that all four first order domains correlate significantly with Overall Quality of Life. All these correlations are positive indicating that the higher the satisfaction with Quality of life, the higher the satisfaction with each of these domains.
- However, the highest correlation with Overall Quality of Life is Personal functioning (0.474), followed by Relationships (0.390), Material-well being (0.199), followed lastly by Satisfaction with Services (0.180).

The most important finding is that all four domains are positively and significantly related to Overall Quality of Life. Table 14 indicates the correlation between Relative deprivation and the perceived Impact of the Water Infrastructure project with Overall QoL.

**TABLE 14**  
**CORRELATION: QoL, RELATIVE DEPRIVATION AND PERCEIVED IMPACT OF PROJECT**

		Correlations		
		Overall Quality of Life	QoL: Impact of JWIP	Relative Deprivation
Overall Quality of Life	Pearson Correlation	1	.143**	-.025
	Sig. (2-tailed)	.001	.584	.502
	N	503	502	502
QoL: Impact of JWIP	Pearson Correlation	.143**	1	-.122**
	Sig. (2-tailed)	.001	.006	.502
	N	502	503	502
Relative Deprivation	Pearson Correlation	-.025	-.122**	1
	Sig. (2-tailed)	.584	.006	.502
	N	502	502	503

\*\* . Correlation is significant at the 0.01 level (2-tailed).

- The above results indicate a non-significant negative correlation between QoL and Relative deprivation. Of importance is the fact that the perceived Impact of the Water Infrastructure project correlates with QoL (0.143). The higher the perceived impact, the higher the QoL and vice versa.

A series of two-regression analysis was executed to determine the best combination of predictors of Overall QoL. The first regression analysis used only the four first order domains and relative deprivation as possible predictor variables.

**Table 15**  
**STEPWISE REGRESSION MODEL: QoL and 4 DOMAINS, RELATIVE DEPRIVATION**

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.474 <sup>a</sup>	.225	.223	29.66929	.225	145.109	1	500	.000
2	.522 <sup>b</sup>	.273	.270	28.76710	.048	32.854	1	499	.000

a. Predictors: (Constant), QoL Domain: Personal functioning

b. Predictors: (Constant), QoL Domain: Personal functioning, QoL Domain: Relationships

The results in Table 15 suggest that:

- ❑ A combination of only two domains in combination with each other predicts Overall Quality of Life
- ❑ The multiple correlation coefficient of .522 indicates that these two variables explain 27.3% of the variation in Quality of life.
- ❑ The two variables are Personal Functioning and Relationships. Personal functioning tend to be the most important predictor as it explains on its own 22.5% of the variation in Quality of Life, while Relationships only 4.8%.

Table 16 indicates the regression coefficients. The two respective correlation coefficients (0.379 and 0.239) suggest that both variables are positively correlated with Overall Quality of life. Thus, the more satisfied resident are with their lives, the more satisfied they are with Relationships and their Personal functioning in general

**Table 16**  
**STEPWISE REGRESSION COEFFICEINTS: QoL and 4 DOMAINS, RELATIVE DEPRIVATION**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.178	6.149		-.679	.497
	QoL Domain: Personal functioning	.938	.078	.474	12.046	.000
2	(Constant)	-28.616	7.329		-3.904	.000
	QoL Domain: Personal functioning	.750	.082	.379	9.108	.000
	QoL Domain: Relationships	.504	.088	.239	5.732	.000

a. Dependent Variable: Overall Quality of Life

Of importance, here is the fact that Relative deprivation, as well as Satisfaction with basic Services and Material Well-being was not selected as significant predictors of Overall Quality of life, although they correlated with QoL on their own. This despite the fact that they were indicated on a Qualitative level as the major drivers of QoL.

The second regression analysis used the four first order domains, Relative deprivation and the perceptions on the Impact of the Water Infrastructure project. The results in Table 17 suggest that:

- A combination of three variables in combination with each other predicts Overall Quality of Life.

**TABLE 17**

**MULTIPLE REGRESSION MODEL: QoL and 4 DOMAINS, RELATIVE DEPRIVATION, IMPACT**

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.473 <sup>a</sup>	.224	.222	29.69331	.224	143.912	1	499	.000
2	.522 <sup>b</sup>	.272	.269	28.78606	.048	32.950	1	498	.000
3	.529 <sup>c</sup>	.280	.275	28.66195	.008	5.322	1	497	.021

a. Predictors: (Constant), QoL Domain: Personal functioning  
 b. Predictors: (Constant), QoL Domain: Personal functioning, QoL Domain: Relationships  
 c. Predictors: (Constant), QoL Domain: Personal functioning, QoL Domain: Relationships, QoL: Impact of JWIP

- The multiple correlation coefficient of .529 indicates that these three variables explain 28% of the variation in Quality of life.
- The three variables are Personal Functioning, Relationships and the Perceived impact of the Water Infrastructure project. Personal functioning tend to be the most important predictor as it explains on its own 22.4% of the variation in Quality of Life, while Relationships only 4.8%, and Impact of the rural water supply project 0.8% over and above the already variance explained.

The correlation coefficients (Table 18) suggest that all three variables are positively correlated with Overall QoL. Thus, the more satisfied resident are with their lives, the more satisfied they tend to be with Relationships, their Personal functioning and the perceived Impact of the Water project.

**TABLE 18**

**MULTIPLE REGRESSION COEFFICIENTS: QoL and 4 DOMAINS, RELATIVE DEPRIVATION, IMPACT**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.064	6.159		-.660	.510
	QoL Domain: Personal functioning	.937	.078	.473	11.996	.000
2	(Constant)	-28.528	7.336		-3.889	.000
	QoL Domain: Personal functioning	.747	.083	.378	9.053	.000
	QoL Domain: Relationships	.506	.088	.239	5.740	.000
3	(Constant)	-50.104	11.867		-4.222	.000
	QoL Domain: Personal functioning	.742	.082	.375	9.021	.000
	QoL Domain: Relationships	.486	.088	.230	5.516	.000
	QoL: Impact of JWIP	.245	.106	.088	2.307	.021

a. Dependent Variable: Overall Quality of Life

This latter finding on the perceived impact of the Water Infrastructure project is very important, since the fact that Basic Services on its own was not selected as a predictor variable. This finding thus shows the importance of perceptions on specific service delivery projects in shaping QoL perceptions.

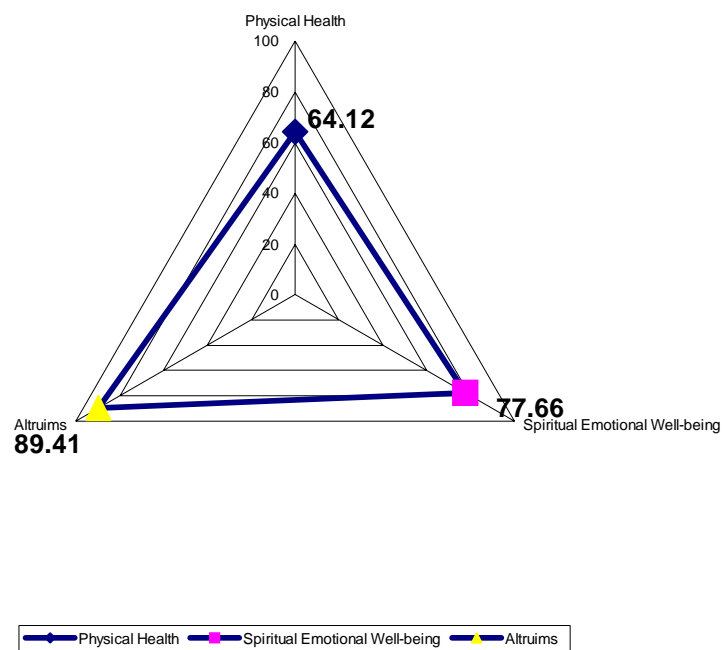
## 4.2.2.2 SECOND ORDER DOMAINS OF QUALITY OF LIFE

The following sections shows the findings for each of the twelve 2<sup>nd</sup> Order domain, focusing on their recorded satisfaction levels, segmentation and correlations as well as predictions of QoL.

### 4.2.2.2.1 PERSONAL FUNCTIONING

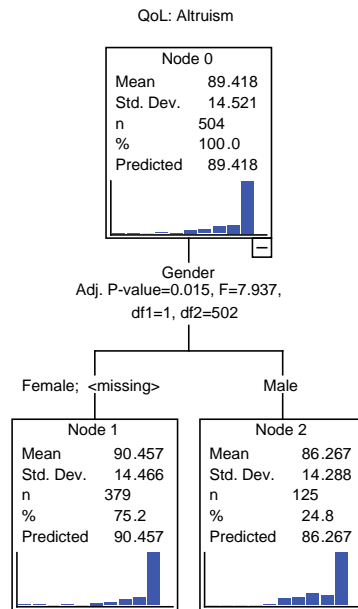
The results in Graph 31 indicate that moderate to high satisfaction levels were expressed on the three aspects of Personal Functioning.

**GRAPH 31**  
**SATISFACTION WITH 2<sup>nd</sup> ORDER SUB DOMAINS: PERSONAL FUNCTIONING**



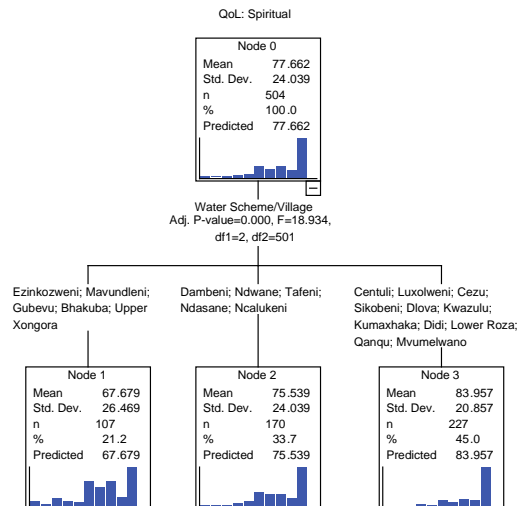
- In terms of Physical health aspects, a moderate satisfaction level of 64.12% was expressed, while relatively high satisfaction levels were obtained in terms of Spiritual Emotional Well-being and especially Altruism levels (respectively 77.6% and 89.41%).
- The results on Altruism suggest that villagers to a large extent believe that they have a caring attitude towards other people, especially towards the less fortunate people, feeling that people in those circumstances cannot be ignored.
- The high satisfaction level on the Spiritual Emotional Well-being sub-domain (77.66%) indicates that villagers are generally satisfied with themselves from a psychological viewpoint, they feel that their lives are meaningful, and that their beliefs and customs provide meaning to their lives.

**FIGURE 30**  
**SEGMENTATION: ALTRUISM**



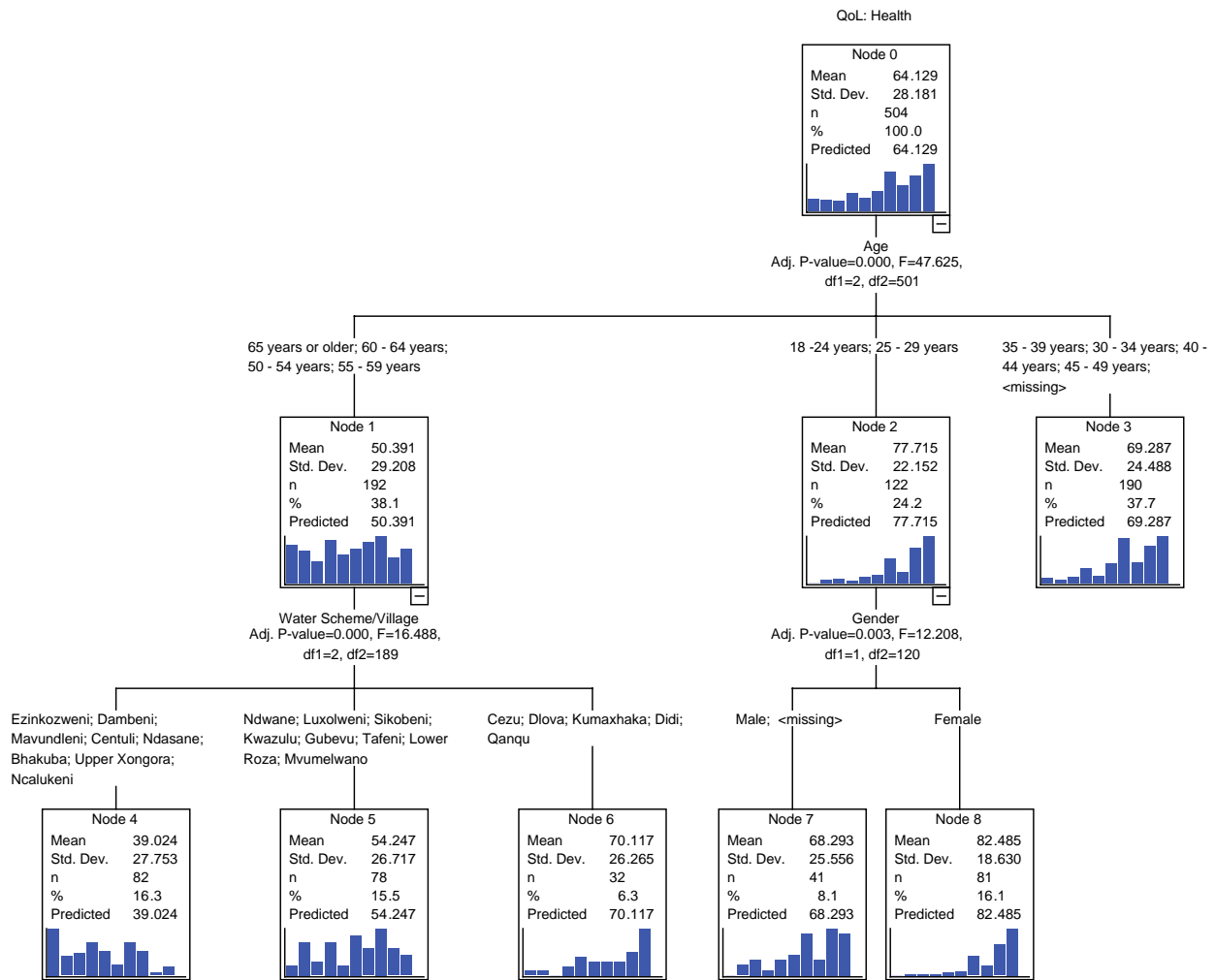
- The most important segmentation variable of Altruism is Gender. It appears that females are on average more altruistically orientated than the male villagers (90.4% versus 86.2%).

**FIGURE 31**  
**SEGMENTATION: SPIRITUAL EMOTIONAL WELL-BEING**



- The above results indicate that Satisfaction levels on the Spiritual Emotional Well-being domain can be segmented according to village. The villagers in Ezinkozweni, Mavundleni, Gubevu, Bhakuba, and Upper Xongora tend to be the least positive in this regard, by displaying moderate satisfaction levels (67.6%). In contrast, the other villages displayed high satisfaction levels on their Spiritual Emotional Well-being.

**FIGURE 32**  
**SEGMENTATION: PHYSICAL HEALTH**



- The most important segmentation variable of Physical Health is Age. The results indicate a linear association between Age and Health. This association suggests that the older the villagers the less satisfied they are with their health, while the younger the more satisfied.
- Among the elderly (that is the least satisfied group) village plays a further significant role. The elderly in Ezinkozweni, Dambeni, Mavundleni, Centuli, Ndasane, Bhakuba, Upper Xongora and Ncalukeni are on average the most negative towards their Physical health (39% satisfaction level).
- Among the younger villagers (18-29 years age group) gender plays a further role. The younger males tend to be much less positive than the younger females (68.2% versus 82.4%).



The Table below indicates the correlations between each of the Personal Functioning domains and Overall Quality of life.

**TABLE 19**  
**CORRELATIONS: PERSONAL FUNCTIONING AND QoL**

		Correlations			
		Overall Quality of Life	QoL: Altruism	QoL: Spiritual	QoL: Health
Overall Quality of Life	Pearson Correlation	1	.099*	.399**	.465**
	Sig. (2-tailed)		.026	.000	.000
	N	503	503	503	503
QoL: Altruism	Pearson Correlation	.099*	1	.279**	.138**
	Sig. (2-tailed)	.026		.000	.002
	N	503	504	504	504
QoL: Spiritual	Pearson Correlation	.399**	.279**	1	.523**
	Sig. (2-tailed)	.000	.000		.000
	N	503	504	504	504
QoL: Health	Pearson Correlation	.465**	.138**	.523**	1
	Sig. (2-tailed)	.000	.002	.000	
	N	503	504	504	504

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

- The above results suggest that each of the three Personal Functioning sub-domains is significantly related to Quality of life. However, the highest correlations with QoL are with Health (.465) and Spiritual Emotional Well-being (.399) domains. Altruism displayed a very low, but significant correlation with QoL.

A regression analysis was executed to determine the best combination of predictors of Overall Quality of life, using the three sub-order domains of Personal functioning, together with relative deprivation.

**TABLE 20**  
**MULTIPLE REGRESSION MODEL: QoL and 2<sup>nd</sup> ORDER PERSONAL FUNCTIONING DOMAINS**

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.466 <sup>a</sup>	.217	.216	29.81777	.217	138.700	1	500	.000
2	.500 <sup>b</sup>	.250	.247	29.20983	.033	22.029	1	499	.000

a. Predictors: (Constant), QoL: Health

b. Predictors: (Constant), QoL: Health, QoL: Spiritual

**TABLE 21**  
**MULTIPLE REGRESSION COEFFICIENTS: QoL and 2<sup>d</sup> ORDER PERSONAL FUNCTIONING DOMAINS**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	32.535	3.304		9.847	.000
	QoL: Health	.556	.047	.466	11.777	.000
2	(Constant)	17.877	4.498		3.975	.000
	QoL: Health	.422	.054	.354	7.775	.000
	QoL: Spiritual	.299	.064	.214	4.694	.000

a. Dependent Variable: Overall Quality of Life

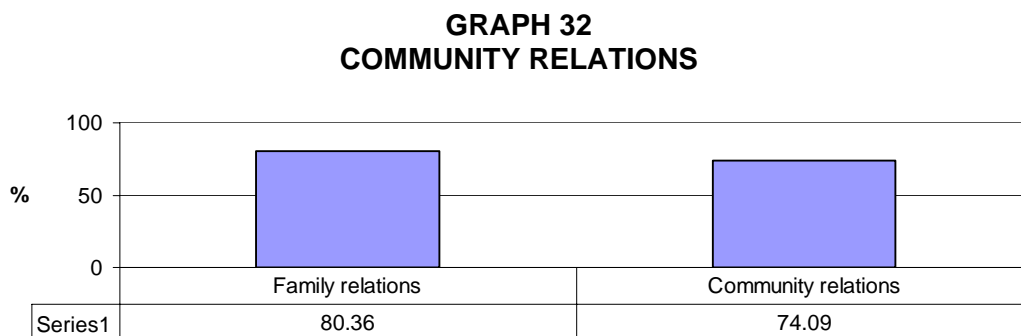
The results (Table 20 and 21) suggest that:

- A combination of only two sub-domains in combination with each other predicts Overall Quality of Life, namely Physical Health and Spiritual Emotional Well-being.

- ❑ The multiple correlation coefficient of .500 indicates that these two variables explain 25% of the variation in Quality of life.
- ❑ Physical health tend to be the most important predictor as it explains on its own 21.7% of the variation in Quality of Life, while Spiritual Emotional Well-being only 3.3%.
- ❑ The correlation coefficients suggest that both variables are positively correlated with Overall Quality of life. Thus, the more satisfied villagers are with their lives; the more satisfied they are with their Physical health and level of Spiritual Emotional Well-being.
- ❑ Of importance, here is the finding that Altruism levels was not selected as a significant QoL predictor.

## 4.2.2.2.2 RELATIONSHIPS

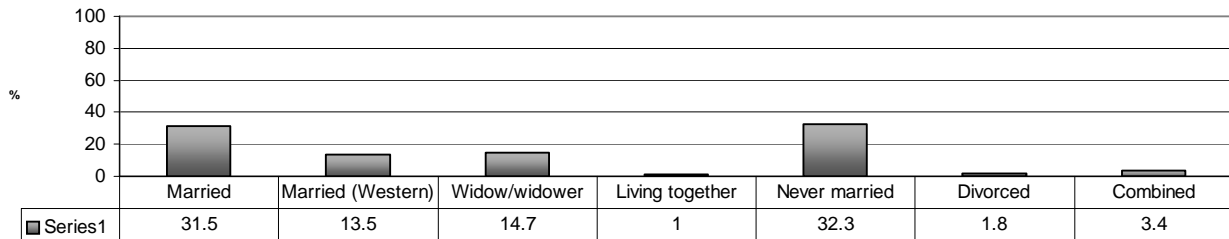
The results in Graph 32 indicate that high satisfaction levels were expressed in terms of both sub-domains of Relationships. A satisfaction level of 74% was recorded on Community relations, while even higher satisfaction levels on Family relationships (80.3%).



In view of the high levels of Altruism among the residents (89.4%), it is quite surprisingly that only a moderate level of Community relations were expressed. One of the reasons is the fact that some mistrust does exist within the communities itself. For example, only about 36.7% of the villagers indicated that that most people can be trusted when dealing with them, while 61.4% actually indicated that they need to be careful when dealing with other villagers.

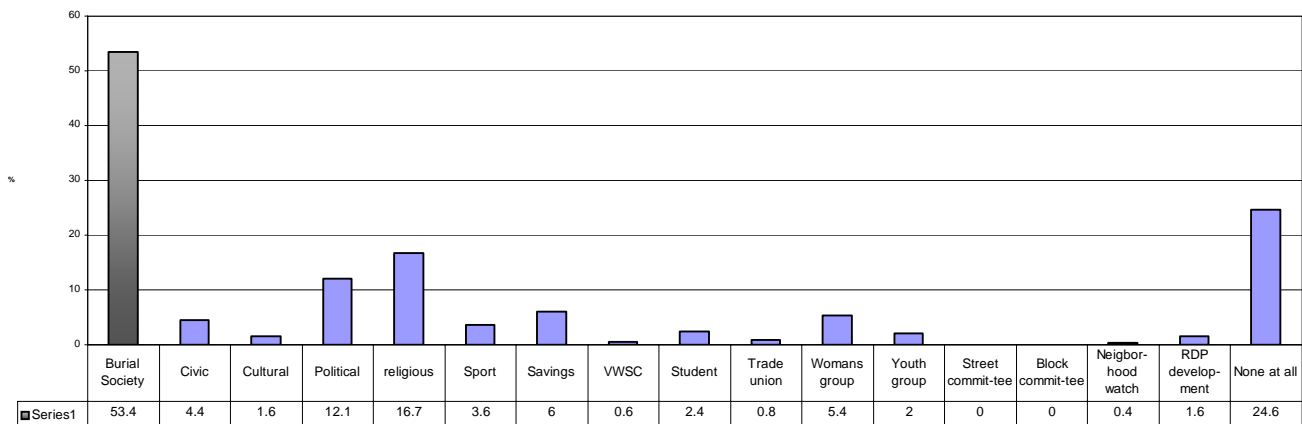
Graphs 33 and 34 depict some Objective indicators of Family relations and community relations within the villages.

**GRAPH 33**  
**OBJECTIVE INDICATOR: FAMILY RELATIONS (MARITAL STATUS)**



The high level of subjective satisfaction levels with Family relations are, reinforced by the fact that only 1.8% of the interviewed villagers indicated that they are divorced, suggesting relative stable family lives.

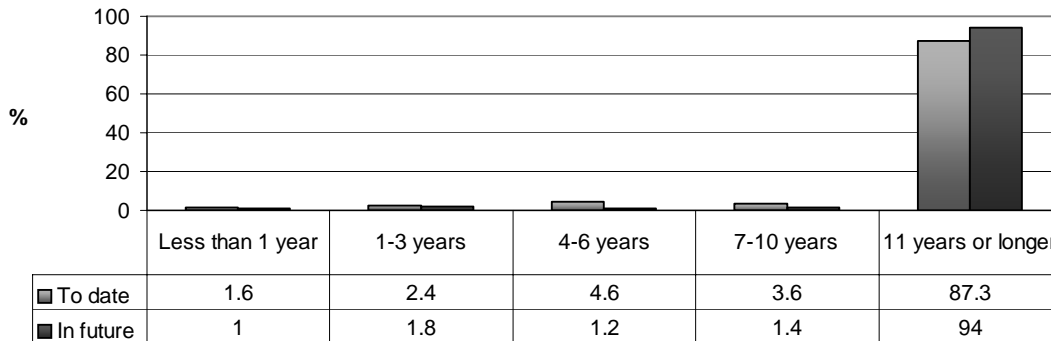
**GRAPH 34**  
**OBJECTIVE INDICATOR: COMMUNITY RELATIONS (ORGANISATIONS BELONGING TO)**



The above objective QoL indicator suggests that community involvement in community organizations tend to be low. In total 24.6% of the villagers indicated that they are not involved in any community organizations. The organization that are the most popular in terms of membership is Burial Societies (53.4%), followed by Religious organizations (16.7%), Political organizations (12.1%) and to a lesser extent Woman’s groups (5.4%) and savings clubs (6%).

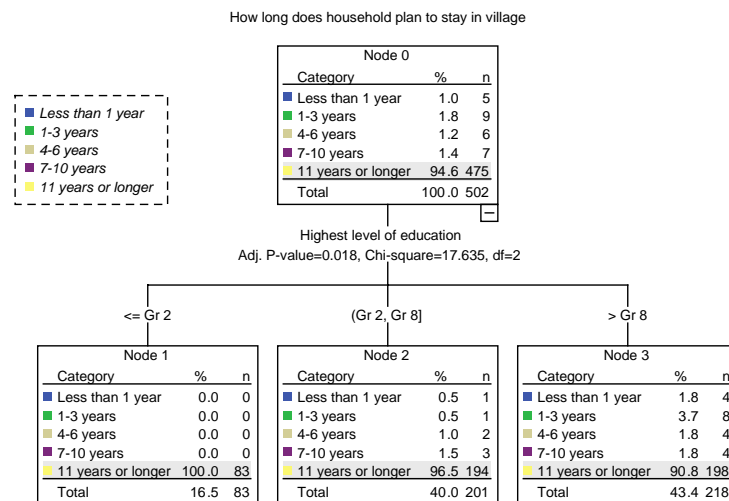
Another objective indicator of Community relations is the relatively stable villages in terms of mobility levels.

**GRAPH 35**  
**YEARS LIVED IN VILLAGE AND PLANNING TO LIVE**



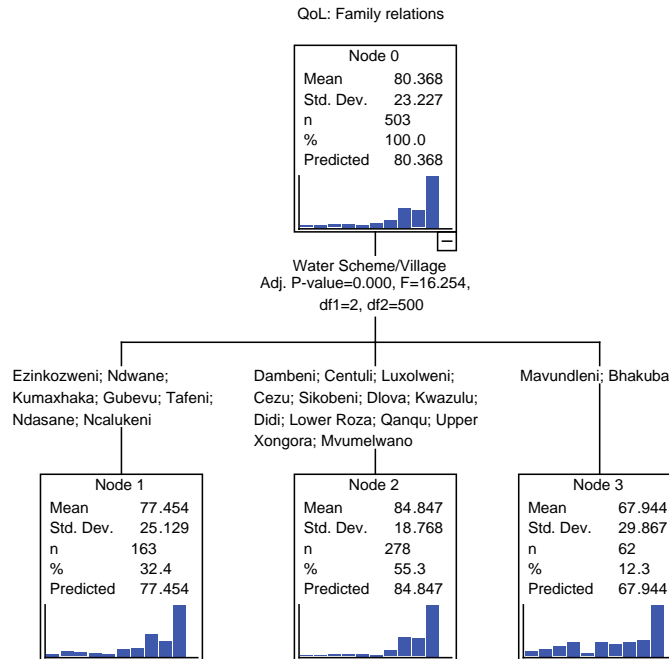
The above results suggest that an overwhelming majority of villagers have lived in their village for the past 11 or more years (87.3%), while only 4% have moved to the village during the past 3 years. This reflects to some extent the social stability in the community, and is even more emphasized by their opinions on whether they will remain in future in these villages. About 94% of villagers indicated that they plan to stay in their village for long term (11 or more years).

**FIGURE 33**  
**SEGMENTATION: PLAN TO STAY IN VILLAGE IN FUTURE**



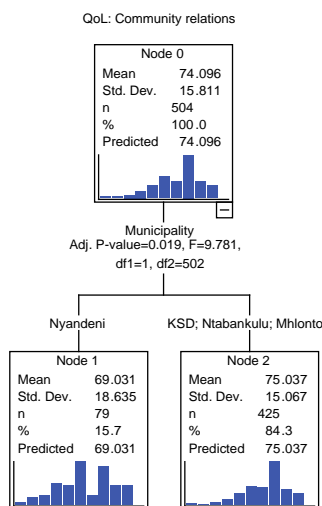
The above results suggest that educational level is the only significant segmentation variable. The results indicate that the highest educated groups (Gr 8 or higher) are less inclined to stay long in their village, while those with a qualification lower than Gr 2 are the most inclined to stay in their village.

**FIGURE 34**  
**SEGMENTATION: FAMILY RELATIONS**



- The most important segmentation variable on Family relations is the village in which people reside in. Those living in Mavundleni and Bhakuba are on average the least positive in terms of Family relations (67.94%), while the remaining villages were re-grouped into two groups (with 84.8% and 77.4% satisfaction levels).

**FIGURE 35**  
**SEGMENTATION: COMMUNITY RELATIONS**



- Only one variable was extracted as a significant segmentation variable, namely municipality. Villagers in the Nyandeni municipal area displayed moderate satisfaction levels (69%) on community relations, while the remaining villages obtained high satisfaction levels (75%).

Table 22 displays the correlations with Overall Quality of Life and the two 2<sup>nd</sup> order domains of Relationships.

**TABLE 22**  
**CORRELATION BETWEEN QoL AND 2<sup>nd</sup> ORDER DOMAINS OF RELATIONSHIPS**

Correlations

		Overall Quality of Life	QoL: Family relations	QoL: Community relations
Overall Quality of Life	Pearson Correlation	1	.407**	.186**
	Sig. (2-tailed)		.000	.000
	N	503	503	503
QoL: Family relations	Pearson Correlation	.407**	1	.303**
	Sig. (2-tailed)	.000		.000
	N	503	503	503
QoL: Community relations	Pearson Correlation	.186**	.303**	1
	Sig. (2-tailed)	.000	.000	
	N	503	503	504

\*\* . Correlation is significant at the 0.01 level (2-tailed).

- The above table indicates that both 2<sup>nd</sup> order domains of Relationships correlated significantly with Overall Quality of Life. Both these correlations are positive indicating that the higher the satisfaction with QoL, the higher the satisfaction with each of these domains.
- However, the highest correlation with Overall Quality of Life is Family relations (.407).

A regression analysis was executed to determine the best combination of predictors of Overall Quality of life, using the two 2<sup>nd</sup> order domains of Relationships and Relative deprivation.

**TABLE 23**  
**MULTIPLE REGRESSION MODEL: QoL and 2<sup>nd</sup> ORDER RELATIONS DOMAINS, RELATIVE DEPRIVATION**

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.407 <sup>a</sup>	.166	.164	30.75739	.166	99.620	1	501	.000

a. Predictors: (Constant), QoL: Family relations

**TABLE 24**  
**MULTIPLE REGRESSION COEFFICIENTS: QoL and 2<sup>nd</sup> ORDER RELATIONS DOMAINS, RELATIVE DEPRIVATION**

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	20.707	4.944		4.188	.000
	QoL: Family relations	.590	.059	.407	9.981	.000

a. Dependent Variable: Overall Quality of Life

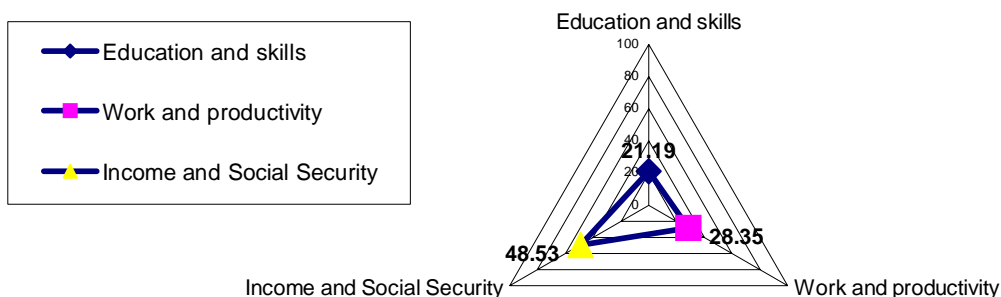
The results suggest that:

- Only one variable, namely Family life predicts Overall Quality of Life. The multiple correlation coefficient of .407 indicates that this variable explain 16.6% of the variation in Quality of life.
- Of importance, here is the fact that Satisfaction with Community relations were not selected as a significant predictor of Overall Quality of life, although it correlated with QoL on its own.

## 4.2.2.2.3 MATERIAL WELL-BEING

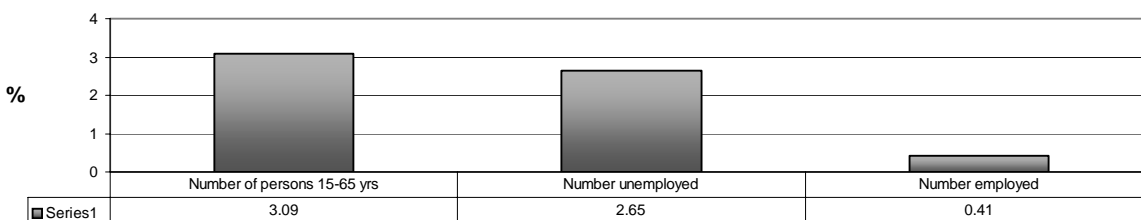
The results in Graph 36 indicate that very low satisfaction levels were expressed in terms of all three the respective 2<sup>nd</sup> order Domains of Material Well-being. The lowest satisfaction level has been expressed in terms of Educational and Skills training (21.1%) followed by Work and Productivity (28.35%). The results on Income and Social Security once again indicate a rather negative satisfaction level (48.5%).

**GRAPH 36**  
**MATERIAL WELL-BEING 2<sup>nd</sup> ORDER DOMAINS**



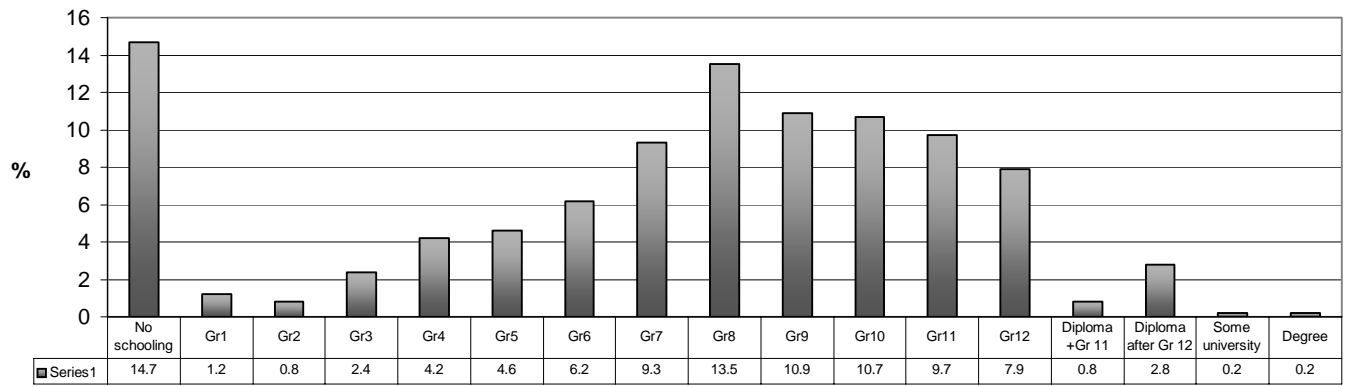
- ❑ The above results suggest that the villagers are highly dissatisfied with their educational status, as well as with skills training opportunities.
- ❑ In terms of Work and productivity, the opinion exists that very few job opportunities exist for them, with severe negative consequences on their income levels and the ability to look after their family in the future.

**GRAPH 37**  
**OBJECTIVE MEASURES OF WORK AND PRODUCTIVITY: UNEMPLOYMENT LEVELS**



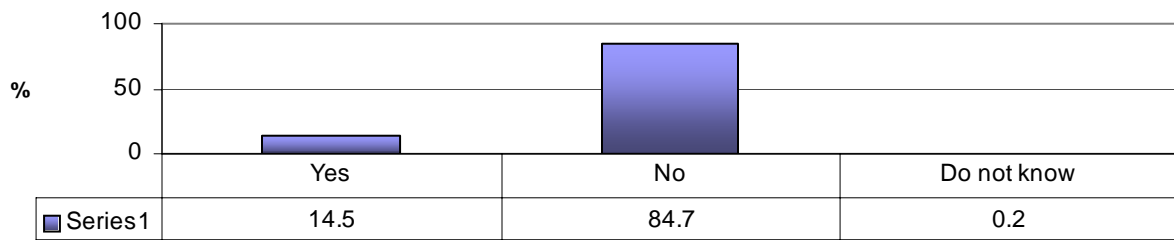
The subjective dissatisfaction levels on Work and Productivity can be understood, in view of the high levels of unemployment. The above findings indicate that a very high level of unemployment exists in the villages, as on average only 0.41 of 3.09 persons per household are employed, that is about 85.7% unemployment rate. However, if the migrant workers are included the unemployment levels drop to about 64.7% (which is nevertheless quite high).

**GRAPH 38  
OBJECTIVE MEASURES OF EDUCATION AND SKILLS: HIGHEST EDUCATIONAL LEVEL OBTAINED**



- It is clear that educational levels tend to be relatively low in these villages. On average just less than 15% of adult villagers never attended any schools, while only 3.2% have a Diploma or degree obtained after attending school. The largest proportion of villagers (13.5%) obtained a Gr8 level.

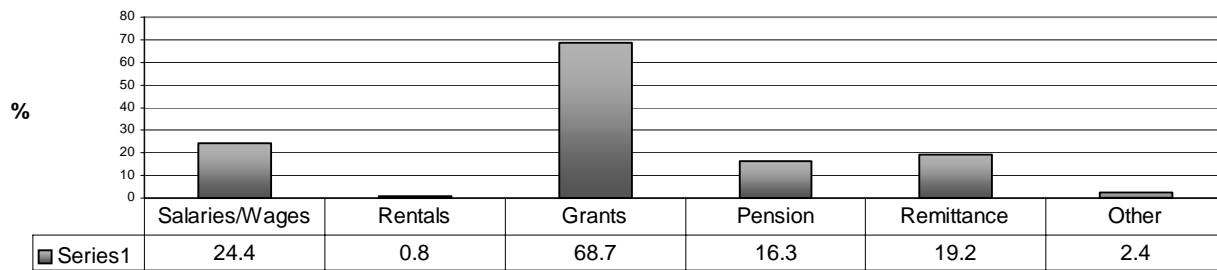
**GRAPH 39  
OBJECTIVE MEASURES OF EDUCATION AND SKILLS: SKILLS TRAINING**



- Only 14.5% of the villagers attended some skills training course in the past few years, while an overwhelming majority of 84.7% did not. A range of courses was attended ranging from building (1.8%), sewing (1.8%), business skills (1.6%), plastering (0.8%), admin (0.6%), financial management (.6%), etc.

The above objective measures on Education and skills training re-emphasize the rather negative feelings on a subjective level.

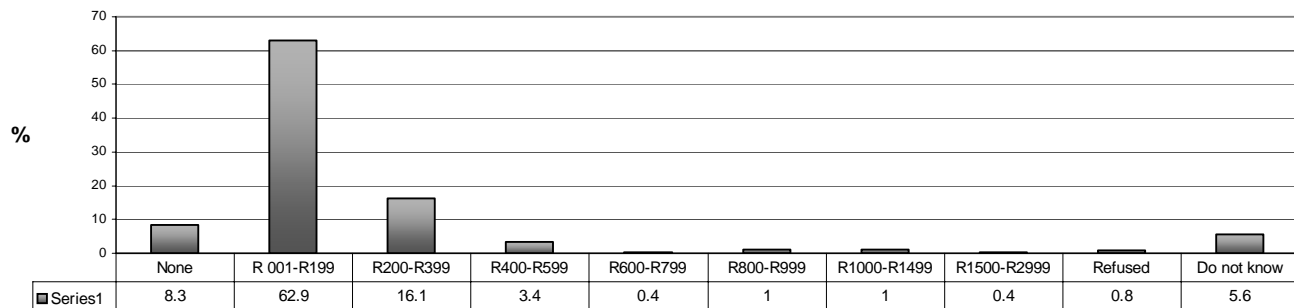
**GRAPH 40**  
**OBJECTIVE MEASURE OF INCOME AND SOCIAL SECURITY: INCOME SOURCES**



The above results suggest that four major sources of income exist.

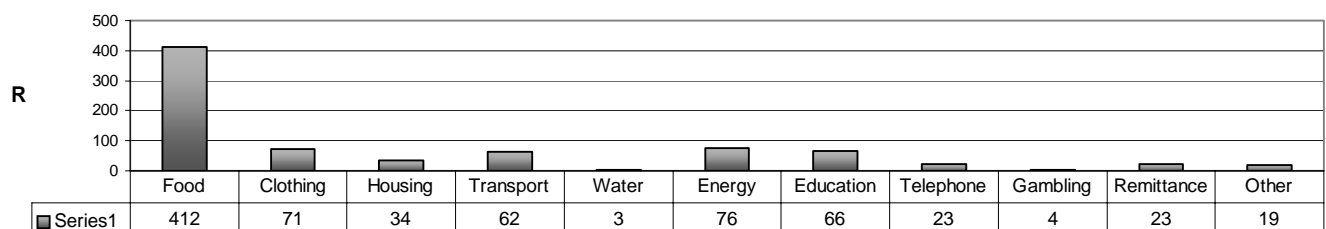
- In line with the low levels of employment, only 24.4% of households indicated that they have salaries or wages as part of their income.
- Majority of houses are dependent on Government subsidies as 68.7% of households are currently receiving grants, while 16.3% received some pensions.
- Nearly a fifth of households receive income based on remittance. This is in line with the number of households with migrant workers.

**GRAPH 41**  
**OBJECTIVE MEASURE OF INCOME AND SOCIAL SECURITY: DISPOSABLE MONTHLY INCOME**



The results indicates that households have a low level of disposable income in general, as about 8% of household have no disposable monthly income, nearly two-thirds have less than R200 per month, while about 6.2% have a disposable income higher than R400 per month.

**GRAPH 42**  
**OBJECTIVE MEASURE OF INCOME AND SOCIAL SECURITY: MONTHLY HOUSEHOLD EXPENDITURE**



On average, each household spends approximately R793 per month. The findings show that:

- Food is the item on which the most money is spent, namely R412 per month on average (that is about 50% of all expenditure).
- Apart from food, money is mainly spent on five items. These items are:
  - Energy: R 76 or 9.5% of monthly expenditure,
  - Clothing: R71 or 8.9% of monthly expenditure
  - Education: R66 or 8.3% of monthly expenditure
  - Transport: R62 or 7.8% of monthly expenditure, and
  - Housing: R34 or 4.2% of monthly expenditure

Table 25 shows the current expenditure levels versus previous 2002 levels per village.

**TABLE 25**  
**OBJECTIVE EXPENDITURE MONTHLY IN RANDS**

Water Scheme/Village	Current Expenditure	Previous expenditure
Kumaxhaka	1014	720
Qanqu	1098	637
Didi	948	570
Ezinkozweni	684	994
Sikobeni	642	2010
Centuli	806	877
Dlova	736	575
Upper Xongora	476	1036
Gubevu	543	671
Luxolweni	783	998
Tafeni	810	573
Cezu	601	760
Mavundleni	569	607
Lower Roza	843	809
Ncalukeni	810	514
Ndasane	800	1291
Ndwane	858	448
Mvumelwano	871	1705
Dambeni	734	683
Bhakuba	778	1577
Kwazulu	823	495
Total	791	894

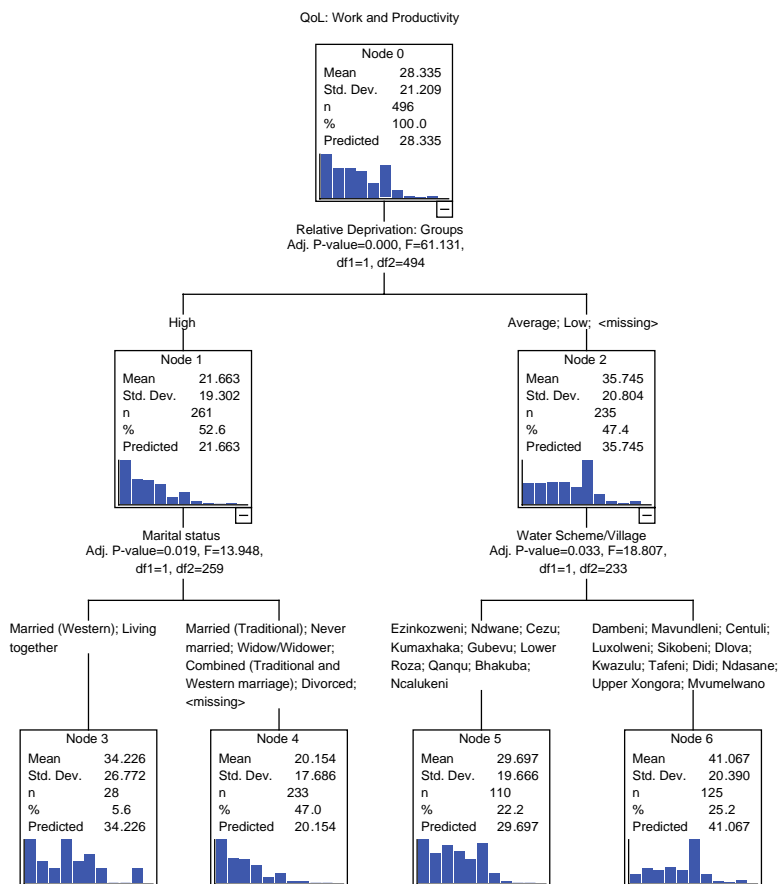
- About 50% of villages recorded a higher average of household monthly expenditure as compared to the 2002 Japanese report, while the rest actually lower.
- Of importance, here is the variation in household expenditure by village (ranging between R476- R1098).

These objective measures on Income and expenditure are in line with the subjective feelings on Income and Social Security. Relatively high poverty levels exist in these villages, and it would have even been much worse without any support from Government. The above results once again indicate the importance of migrant workers and remittance in the lives of villagers, as a mean of income.

**PICTURE 19-20**  
**BASIC FOOD PROVISION**

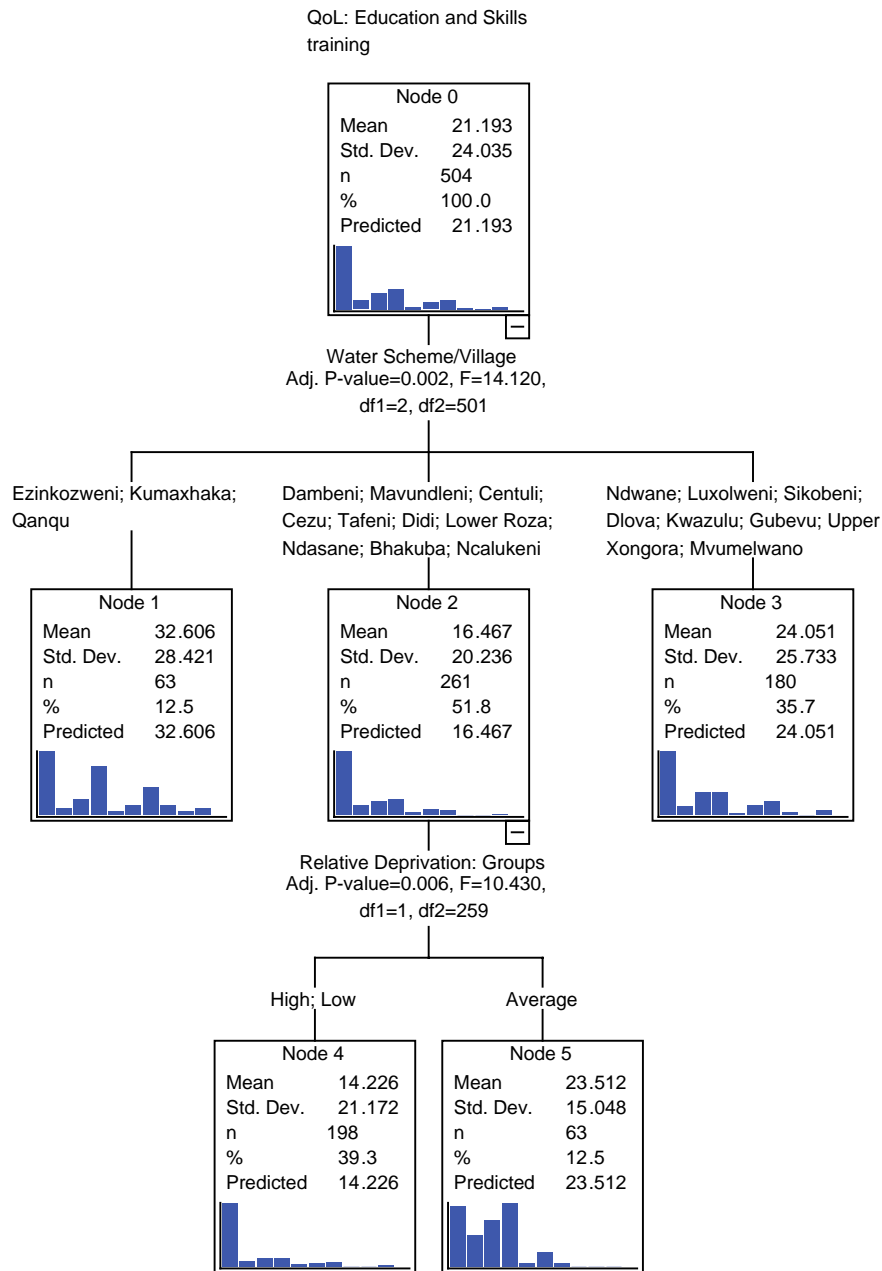


**FIGURE 36**  
**SEGMENTATION: WORK AND PRODUCTIVITY**



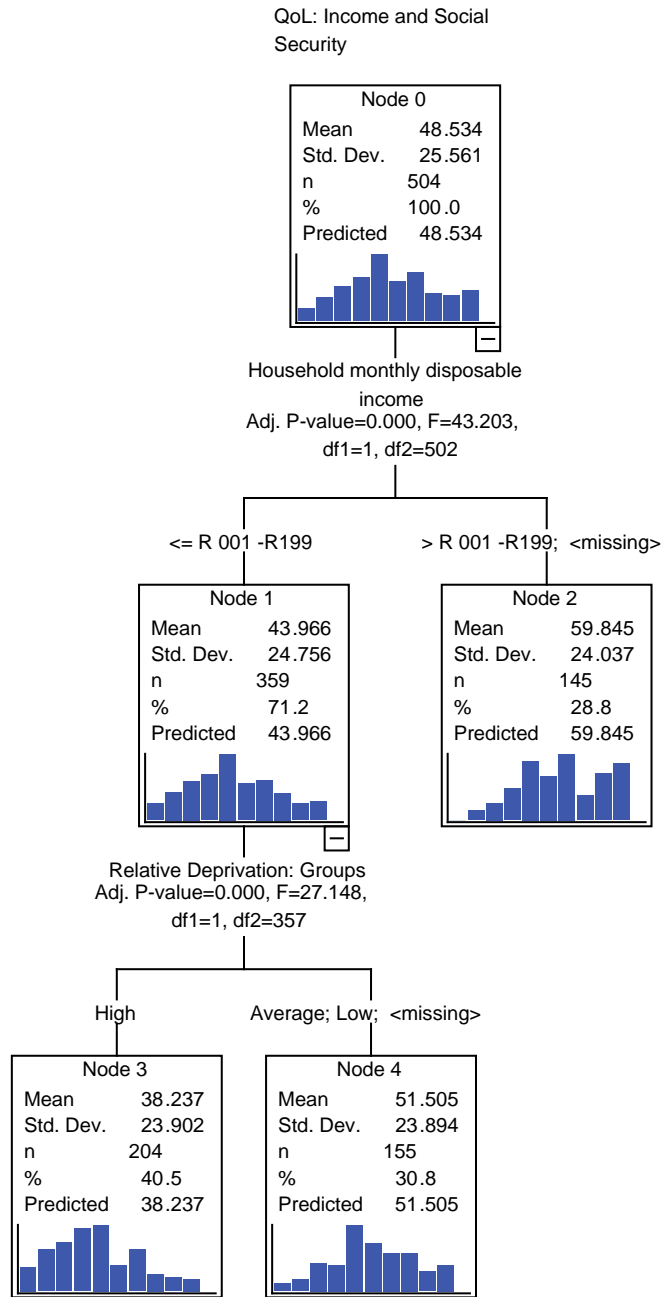
- ❑ The above results suggest that the higher the perceived household deprivation levels, the more dissatisfied people are with the Work and productivity domain. Among the highly deprived villagers, marital status plays a role. Villagers living together or married in Western tradition tend to be slightly less dissatisfied, than the rest (34.2% versus 20.15%).
- ❑ Among the least and average deprived villagers, village plays a role in terms of the Work and productivity domain.

**FIGURE 37**  
**SEGMENTATION: EDUCATION AND SKILLS TRAINING**



- The above results suggest that a combination of two variables, Village and perceived Relative deprivation tend to contribute to satisfaction levels on the Education and skills training Domain.
- Villagers in Dambeni, Mavundleni, Centuli, etc village group are the least negative (16.4%) against the two remaining village groups. (32.6% and 24%), while relative deprivation plays a further role on a secondary level.

**FIGURE 38**  
**SEGMENTATION: INCOME AND SOCIAL SECURITY**



- As expected a combination of two variables segment villagers in terms of their Income and Social Security levels. Those are Household monthly disposable income and Relative deprivation. Villagers having no disposable income or less than R200 per month, tend to be the most negative (43.9%), and especially those that feel highly deprived (38.2%).

Table 26 indicates the correlations between Overall Quality of life and the three sub-domains of Material Well-being.

**TABLE 26**  
**CORRELATION BETWEEN QoL AND 1<sup>ST</sup> ORDER DOMAINS OF MATERIAL WELL-BEING**

		Correlations			
		Overall Quality of Life	QoL: Work and Productivity	QoL: Education and Skills training	QoL: Income and Social Security
Overall Quality of Life	Pearson Correlation	1	.072	.062	.269**
	Sig. (1-tailed)		.056	.084	.000
	N	503	495	503	503
QoL: Work and Productivity	Pearson Correlation	.072	1	.184**	.288**
	Sig. (1-tailed)	.056		.000	.000
	N	495	496	496	496
QoL: Education and Skills training	Pearson Correlation	.062	.184**	1	.215**
	Sig. (1-tailed)	.084	.000		.000
	N	503	496	504	504
QoL: Income and Social Security	Pearson Correlation	.269**	.288**	.215**	1
	Sig. (1-tailed)	.000	.000	.000	
	N	503	496	504	504

\*\* . Correlation is significant at the 0.01 level (1-tailed).

- The above results indicate two of the 2<sup>nd</sup> order Material Well-being domains are not significantly related with Overall Quality of Life. The only significantly correlated variable is Income and Social Security (0.269). The higher the satisfaction with QoL, the higher the satisfaction with Income and Social Security, and vice versa.

A regression analysis was executed to determine the best combination of predictors of Overall Quality of life, using the three 2<sup>nd</sup> order Material-Well-being domains.

**TABLE 27**  
**MULTIPLE REGRESSION MODEL: QoL and 2<sup>nd</sup> ORDER MATERIAL WELL-BEING DOMAINS, RELATIVE DEPRIVATION**

Model Summary						Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		R Square Change	F Change	df1	df2	Sig. F Change
1	.264 <sup>a</sup>	.070	.068	32.25472		.070	36.817	1	492	.000

a. Predictors: (Constant), QoL: Income and Social Security

**TABLE 28**  
**MULTIPLE REGRESSION COEFFICIENTS: QoL and 2<sup>nd</sup> ORDER MATERIAL WELL-BEING DOMAINS, RELATIVE DEPRIVATION**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	51.680	3.110		16.617	.000
	QoL: Income and Social Security	.344	.057	.264	6.068	.000

a. Dependent Variable: Overall Quality of Life

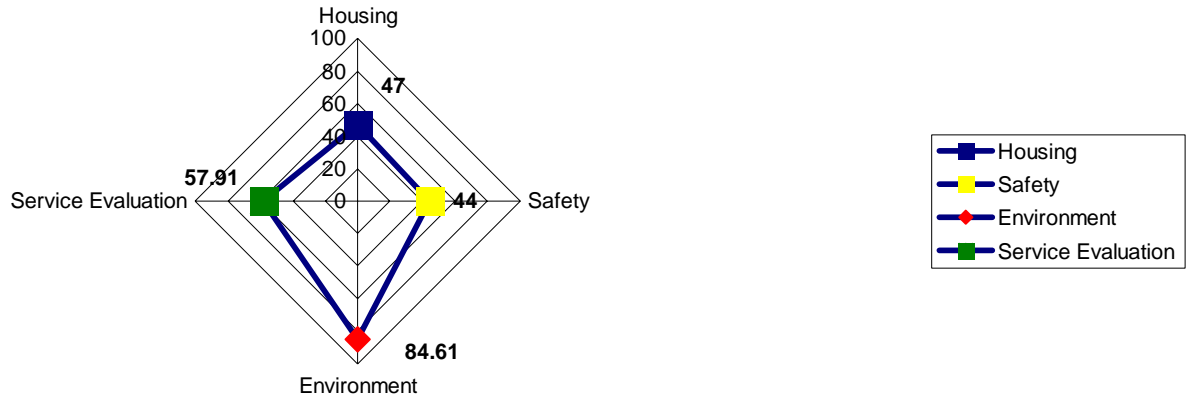
The regression results suggest that:

- Income and Social Security is the only variable that predicts Overall Quality of Life.
- The multiple correlation coefficient of .263 indicates that this variable explains 7% of the variation in Quality of life. Positive coefficient identified between these two variables.
- Of importance, here is the finding that satisfaction with Education and Skills training nor Work and Productivity were selected as significant predictors of Overall Quality of life, although they correlated with QoL on their own.

## 4.2.2.2.4 SATISFACTION WITH SERVICES

Results in Graph 44 indicate that diverse satisfaction levels were expressed in terms of the different sub-domains of Basic Service Provision.

**GRAPH 43**  
**SATISFACTION LEVELS WITH SUB-DOMAINS OF SERVICES**



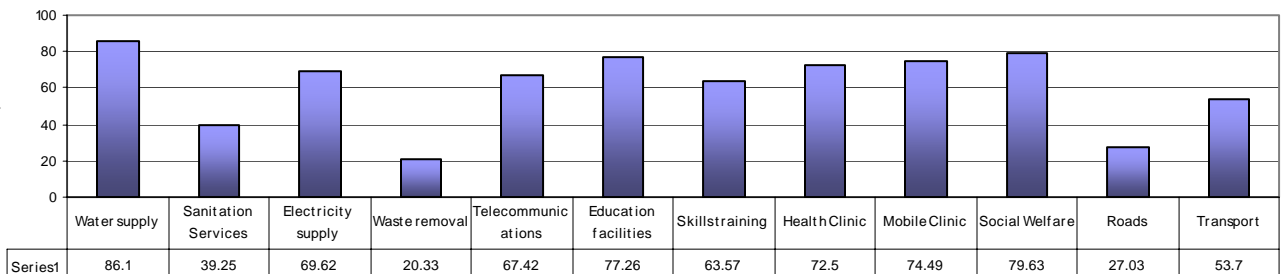
The above results indicate that:

- Villagers generally are highly satisfied with the way their natural environment are managed and the levels of water and air pollution in their respective villages (84.6%).
- In sharp contrast to this positive finding, some moderate satisfaction levels have been expressed towards Services evaluation (such as water, sanitation, policing, health, roads, transport, etc) 57.9%, while
- Very low satisfaction levels exist on Safety (44%) and Housing (47%).

The following number of Graphs attempts to determine the underlying dynamics of satisfaction levels and correlating it with other objective QoL measures.

Graph 44 portrays the satisfaction levels with selected services within the villages.

**GRAPH 44**  
**SATISFACTION LEVELS WITH SERVICES**

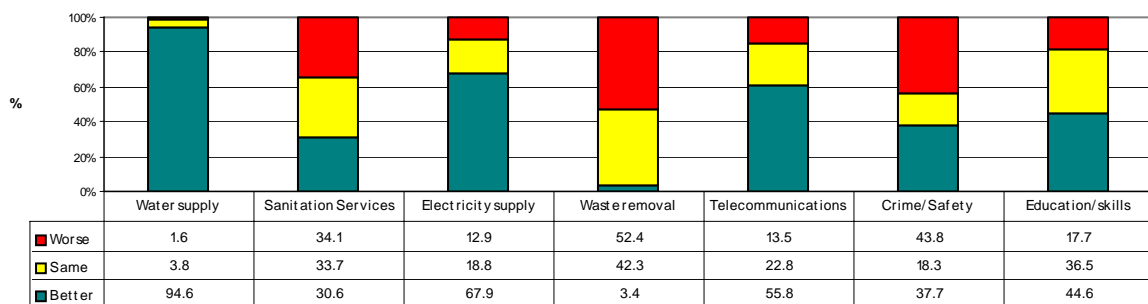


- The highest satisfaction levels were expressed in terms of Water supply (86.1%) indicative of the potential impact of the Water Infrastructure Project, followed by Social Welfare (79.6%), Educational facilities (77.26%), and the Clinics (74.5% and 72.5%).

- Moderate satisfaction levels were expressed on Electricity supply (69.9%), Telecommunications (67.4%), Skills training facilities (63.57%) and local Transport facilities (53.7%).
- Very negative perceptions have been expressed towards three services, namely Sanitation services (39.2%) and Roads (27.03%) and especially Waste removal (20.3%).

To determine the perceived impact over the past 5 years, since the implementation of the Water Infrastructure project and other development initiatives, a question was asked on core service improvements. The following graph indicates the opinions in this regard.

**GRAPH 45  
OPINIONS ON SERVICE IMPROVEMENTS**



The above results portrays some very important findings:

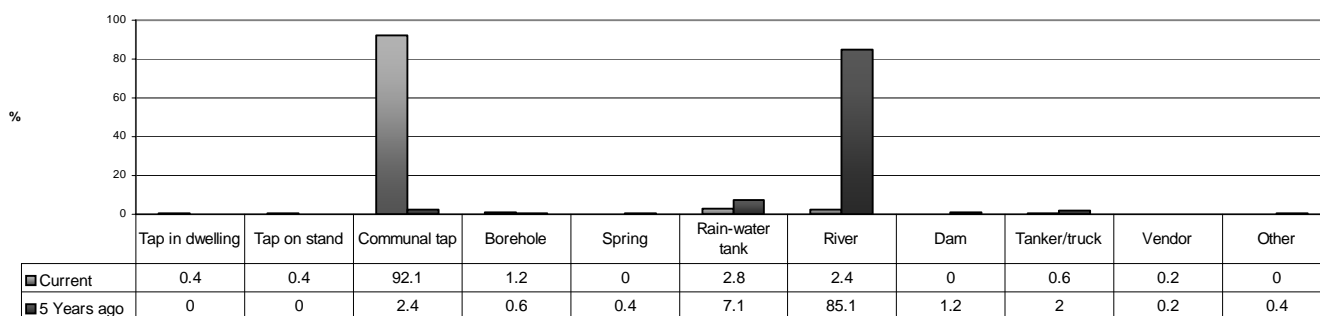
- The perceived impact of the Water Infrastructure Project is quite evident as service improvements on water supply over the past 5 years was experienced by 94.6% of the villagers.
- This is followed by improvements in Electricity supply (67.9%) and Telecommunications (55.8%), and to a lesser extent Education/skills facilities (44.6%)
- However, with regard to three services residents felt that it worsened rather than improved:
  - Sanitation services (34.1% versus 30.6%),
  - Waste removal (52.4% versus 3.4%), and
  - Crime/safety (43.8% versus 37.7%).

**PICTURE 21-24**

**BAASIC SEVICES PROVIDED: TELEPHONE, SCHOOLS, SANITATION, AND ELECTRICITY**



**GRAPH 46  
OBJECTIVE INDICATORS: MAIN WATER SOURCES**



The above results clearly suggest that the Water Infrastructure had a major impact, in terms of the percentage of households no longer using rivers, but rather the communal standpipes.

Before the Implementation of the Water Infrastructure project, about 85.1% of households used rivers as their main source of water. However, five years later only 2.4% still use rivers (estimated 126 households) as their main source, while an overwhelming majority of 92.1% use the communal tapstands currently (estimated 4 890 households).

The following table displays the previous main water sources (as per the 2002 Japanese Water Project Report) and current usage.

**TABLE 29  
WATER SOURCE: PREVIOUSLY AND CURRENTLY**

Village	Previously	Currently
Kumaxhaka	Spring, river	Standpipe, borehole/tank
Qanqu	River, tank	Standpipe, tap in yard/house, tank, tanker
Didi	River, tank	Standpipe, Vendor
Ezinkozweni	River, spring	Standpipe, tank/river
Sikobeni	River, tank	Standpipe, tank
Centuli	River, spring	Standpipe, river
Dlova	River	Standpipe, tank
Upper Xongora	River, tank	Standpipe
Gubevu	River, tank	Standpipe
Luxolweni	River, tank	Standpipe
Tafeni	Tank,	Standpipe, borehole
Cezu	River, Public water supply	Standpipe
Mavundleni	River, spring	Standpipe
Lower Roza	River, spring	Standpipe, tank
Ncalukeni	River, tank	Standpipe, tank
Ndasane	River, tank	Standpipe, borehole
Ndwane	River, tank	Standpipe
Mvumelwano	River, Dam	Standpipe, tank
Dambeni	River, Spring	Standpipe, borehole
Bhakuba	River, Spring	Standpipe
Kwazulu	River, spring	Standpipe, river, tank

The above results indicate that a major shift took place from using rivers, tanks, springs to communal standpipes, and range of other sources. During the present fieldwork phase it was found that most households use communal standpipes as their main water sources, but that they complement it with others such as rain water tanks, rivers, for non-drinking purposes (washing of clothing for example).

**TABLE 30  
WATER SOURCE: CURRENTLY VERSUS 2001 BASELINE (CENSUS 2001)**

	Current		2001 Census					
	Communal tap	River	River	Spring	Tanks	Community stand	Borehole	Vendor
Qanqu	62.5		54.4				33	
Didi	93.8	4.2	66.8		10			22.5
Ezinkozweni	90.9	4.5	59.5	29				
Sikobeni	95.7			70.7			16.9	
Centuli	93.1	6.9	90					
Dlova	85.7			100				
Upper Xongora	100			26.3		71		
Gubevu	100		100					
Luxolweni	100		5.9	3.5	11.9		71	
Tafeni	95		12	62.9	13.2			
Cezu	100		100					
Mavundleni	100		75					
Lower Roza	96.3		78.8		16.7			
Ncalukeni	91.3		47.6	25	12			
Ndwane	100		57.7		26			
Mvumelwano	90.5		64.7		31.9			
Dambeni	95.0		88.3					
Bhakuba	100		95					
Kwazulu	57.1	38.1	65.9			23.8		

The above table once again suggest that a major shift took place since 2001 (based on the 2001 Census data). In most instances a shift occurred from the usage of rivers, springs, tanks, and boreholes to the newly built communal tapstands

**PICTURE 25-27  
CURRENT ALTERNATIVE WATER SOURCES**



The current study also shows that the Water Infrastructure project had impacted dramatically on some other aspects of water usage. Table 31 indicates the estimated time that it takes to fetch water per day.

**TABLE 31  
TIME TO FETCH WATER PER DAY (Minutes)**

Water Scheme/Village	CURRENTLY	PREVIOUSLY (as per Japanese report)
Kumaxhaka	10.71	28
Qanqu	25.09	23
Didi	13.53	18
Ezinkozweni	10.90	32
Sikobeni	18.05	20
Centuli	12.38	20
Dlova	14.46	24
Upper Xongora	12.00	22
Gubevu	9.21	33
Luxolweni	16.36	22
Tafeni	14.83	21
Cezu	11.11	15
Mavundleni	10.33	60
Lower Roza	16.12	124
Ncalukeni	10.14	15
Ndasane	13.45	15
Ndwane	11.53	10
Mvumelwano	17.00	62
Dambeni	13.88	24
Bhakuba	14.40	45
Kwazulu	10.00	26
Total	13.84	30

According to the 2002 Japanese Report, the average time to fetch water per day was about 30 minutes. The current 13.84 minutes therefore indicate that the time to fetch water was reduced by more than 16 minutes (that is more than a 50% reduction) during the past 5 years. This on its own surely had a very positive impact on their Quality of Life. No negativity was picked up during the interviews, in terms of the reduction of time. Some possible negativity could be that villagers are no longer interacting with each other at the water sources, due to shortened time.

Another very important indicator of impact is the amount of water used. The following Table indicates the per capita usage of water per day, compared with 5 years ago (as per 2002 Japanese Report). The results indicate that the per capita increased from 9 lit/cap/day to 13.6 lit/cap/day.

**TABLE 32  
WATER USAGE PER CAPITA PER DAY**

Water Scheme/Village	Current usage	Previous usage
Kumaxhaka	12.6639	7.3
Qanqu	14.4059	8.9
Didi	8.5337	5.2
Ezinkozweni	11.1501	10
Sikobeni	13.0799	5.3
Centuli	9.2483	8.5
Dlova	10.4116	8.6
Upper Xongora	14.0370	17.3
Gubevu	10.2891	5.5
Luxolweni	12.4416	8.6
Tafeni	19.0288	8.8
Cezu	15.0635	9
Mavundleni	13.4762	9
Lower Roza	17.7465	14.2
Ncalukeni	17.6066	7.7
Ndasane	19.7338	8.2
Ndwane	11.1681	8.7
Mvumelwano	16.7309	10.8
Dambeni	12.9641	10.6
Bhakuba	15.0853	11.1
Kwazulu	15.9219	10.5
Total	13.6236	9.1

The above results indicate an increase of about 50% increase (as measured by the per capita/per day) in water usage over the past five years. In 2002 on average about 9.1 litres of water used per capita/per day, while presently about 13.6 litres. This increase was observed in all the villages except for Upper Xongora.

The results in Tables 31 and 32 clearly suggest some major positive changes due to the Water Infrastructure project in terms of the amount of water used and the time that it takes to fetch water. While the time was reduced by 50%, the per capita usage was increased by 50%. Another aspect that could impact on people's Quality of Life is on whose shoulders it rests to fetch water.

The 2002 socio-economic survey indicated that woman mainly fetched water previously at all but one village (Cesu-where girls mainly fetch water). The current results suggest that the workload might have been shifted from mainly woman, to other groups also, such as daughters and even males and sons. The present study indicate that 49.3% of the people fetching water are women, 16.8% daughters/daughter in laws, 7.8% males and 2.2% the sons. Just less than 30% of the villagers indicated that no one specific person fetches water, while children plays quite a role in fetching water.

**TABLE 33  
PERSONS MAINLY FETCHING WATER**

		Main person fetching water								Total
		Adult (female)	Adult (Male)	Son	Daughter	Daughter in law	Other male	Other female	No one person	
		%	%	%	%	%	%	%	%	%
Water Scheme/Village	Kumaxhaka	52.9	11.8	11.8	11.8	5.9			5.9	100.0
	Qanqu	52.2	13.0	4.3	21.7		4.3	4.3		100.0
	Didi	40.0	6.7		20.0	6.7		20.0	6.7	100.0
	Ezinkozweni	52.4		4.8	9.5			19.0	14.3	100.0
	Sikobeni	17.4			13.0	4.3		4.3	60.9	100.0
	Centuli	44.8			10.3	6.9		3.4	34.5	100.0
	Dlova	32.1			7.1	3.6		14.3	42.9	100.0
	Upper Xongora	55.6				11.1		22.2	11.1	100.0
	Gubevu	57.1	21.4		7.1	7.1		7.1		100.0
	Luxolweni	41.7			25.0	8.3			25.0	100.0
	Tafeni	54.2	4.2		4.2		4.2	4.2	29.2	100.0
	Cezu	66.7			11.1			11.1	11.1	100.0
	Mavundleni	55.6	11.1						33.3	100.0
	Lower Roza	33.3	7.4		11.1			11.1	37.0	100.0
	Ncalukeni	34.8	8.7		26.1	8.7		8.7	13.0	100.0
	Ndasane	45.5	9.1	9.1	9.1	9.1			18.2	100.0
	Ndwane	46.2	3.8	3.8	13.5	5.8		5.8	21.2	100.0
	Mvumelwano	38.1	9.5	4.8	14.3			14.3	19.0	100.0
	Dambeni	31.7	3.3	3.3	11.7	8.3	1.7	6.7	33.3	100.0
	Bhakuba	41.5	3.8	1.9	11.3	3.8	1.9	5.7	30.2	100.0
Kwazulu	28.6			14.3			14.3	42.9	100.0	
Total		41.3	4.8	2.2	12.4	4.4	.8	8.0	26.1	100.0

**PICTURE 28-32  
PERSONS FETCHING WATER**



A T-test for two independent groups was executed (Tables 34 and 35) to determine whether households using the communal tapstands experience QoL and its domains differently or not from those still using rivers. The analysis indicates that:

- QoL differs significantly between these two groups of villagers. Those still using river water are significantly less positive on their Overall QoL than those using communal tap water (55.2 % versus 67.9%).

**TABLE 34**  
**OVERALL QoL by WATER SOURCE**

Group Statistics

	Water source: Current	N	Mean	Std. Deviation	Std. Error Mean
Overall Quality of Life	Communal tap	463	67.9806	33.04118	1.53555
	River	12	55.2083	45.68243	13.18738
QoL: Altruism	Communal tap	464	89.2601	14.27862	.66287
	River	12	95.1389	7.50281	2.16587
QoL: Spiritual	Communal tap	464	77.1193	23.83597	1.10656
	River	12	81.2500	31.00281	8.94974
QoL: Health	Communal tap	464	64.3094	27.66955	1.28453
	River	12	58.3333	36.95949	10.66929
QoL Domain: Personal functioning	Communal tap	464	76.8963	16.90314	.78471
	River	12	78.2407	19.11778	5.51883
QoL: Family relations	Communal tap	463	79.8056	23.28803	1.08229
	River	12	85.9375	23.25211	6.71231
QoL: Community relations	Communal tap	464	74.2469	15.23624	.70732
	River	12	66.0710	27.68995	7.99340
QoL Domain: Relationships	Communal tap	464	77.0346	15.76885	.73205
	River	12	76.0043	20.69148	5.97312
QoL: Work and Productivity	Communal tap	458	28.3388	21.03289	.98280
	River	11	21.2121	25.10081	7.56818
QoL: Education and Skills training	Communal tap	464	21.0533	24.19623	1.12328
	River	12	22.3958	22.94463	6.62354
QoL: Income and Social Security	Communal tap	464	47.6509	25.15933	1.16799
	River	12	48.3333	32.02154	9.24382
QoL Domain: Material Well-being	Communal tap	464	32.3931	16.56687	.76910
	River	12	30.9375	18.21964	5.25956
QoL: Housing	Communal tap	464	45.1554	33.26660	1.54436
	River	12	57.8125	34.24562	9.88586
QoL: Safety	Communal tap	464	43.9386	29.12038	1.35188
	River	12	38.1944	26.46189	7.63889
QoL: Environment	Communal tap	462	84.4336	19.03360	.88552
	River	12	84.0278	23.42469	6.76213
QoL: Basic Services	Communal tap	464	58.3686	17.32302	.80420
	River	12	38.9840	18.12433	5.23204
QoL Domain: Satisfaction with Services	Communal tap	464	57.9419	15.72992	.73024
	River	12	54.7547	12.19094	3.51922

**TABLE 35**  
**OVERALL QoL by WATER SOURCE: SIGNIFICANCE LEVEL**

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Overall Quality of Life	Equal variances assumed	6.108	.014	1.308	473	.191	12.77223	9.76284	-6.41168	31.95614
	Equal variances not assumed			.962	11.300	.356	12.77223	13.27648	-16.35466	41.89911
QoL: Altruism	Equal variances assumed	2.817	.094	-1.420	474	.156	-5.87883	4.13963	-14.01312	2.25546
	Equal variances not assumed			-2.595	13.154	.022	-5.87883	2.26504	-10.76632	-.99135
QoL: Spiritual	Equal variances assumed	.531	.467	-.588	474	.557	-4.13075	7.02498	-17.93469	9.67320
	Equal variances not assumed			-.458	11.339	.656	-4.13075	9.01789	-23.90686	15.64537
QoL: Health	Equal variances assumed	4.658	.031	.732	474	.464	5.97611	8.16342	-10.06486	22.01709
	Equal variances not assumed			.556	11.321	.589	5.97611	10.74633	-17.59480	29.54703
QoL Domain: Personal functioning	Equal variances assumed	.408	.523	-.271	474	.786	-1.34449	4.95820	-11.08725	8.39827
	Equal variances not assumed			-.241	11.449	.814	-1.34449	5.57434	-13.55505	10.86607
QoL: Family relations	Equal variances assumed	.050	.823	-.901	473	.368	-6.13188	6.80899	-19.51150	7.24773
	Equal variances not assumed			-.902	11.579	.385	-6.13188	6.79900	-21.00556	8.74179
QoL: Community relations	Equal variances assumed	20.307	.000	1.788	474	.074	8.17591	4.57232	-.80862	17.16043
	Equal variances not assumed			1.019	11.173	.330	8.17591	8.02463	-9.45290	25.80471
QoL Domain: Relationships	Equal variances assumed	2.084	.149	.222	474	.825	1.03030	4.64902	-8.10493	10.16553
	Equal variances not assumed			.171	11.333	.867	1.03030	6.01781	-12.16749	14.22810
QoL: Work and Productivity	Equal variances assumed	1.451	.229	1.106	467	.270	7.12667	6.44644	-5.54095	19.79429
	Equal variances not assumed			.934	10.340	.372	7.12667	7.63172	-9.80237	24.05571
QoL: Education and Skills training	Equal variances assumed	.056	.814	-.190	474	.849	-1.34249	7.06632	-15.22768	12.54269
	Equal variances not assumed			-.200	11.642	.845	-1.34249	6.71812	-16.03015	13.34516
QoL: Income and Social Security	Equal variances assumed	1.968	.161	-.092	474	.927	-.68247	7.40891	-15.24085	13.87590
	Equal variances not assumed			-.073	11.354	.943	-.68247	9.31732	-21.11202	19.74708
QoL Domain: Material Well-being	Equal variances assumed	.002	.962	.300	474	.764	1.45564	4.85565	-8.08562	10.99690
	Equal variances not assumed			.274	11.475	.789	1.45564	5.31549	-10.18483	13.09611
QoL: Housing	Equal variances assumed	.028	.867	-1.300	474	.194	-12.65715	9.73336	-31.78303	6.46873
	Equal variances not assumed			-1.265	11.543	.231	-12.65715	10.00576	-34.55388	9.23959
QoL: Safety	Equal variances assumed	2.266	.133	.676	474	.499	5.74413	8.49711	-10.95252	22.44079
	Equal variances not assumed			.740	11.700	.474	5.74413	7.75759	-11.20647	22.69474
QoL: Environment	Equal variances assumed	.193	.661	.072	472	.942	.40584	5.59870	-10.59562	11.40731
	Equal variances not assumed			.060	11.380	.954	.40584	6.81986	-14.54358	15.35527
QoL: Basic Services	Equal variances assumed	.006	.939	3.823	474	.000	19.38464	5.07054	9.42113	29.34814
	Equal variances not assumed			3.662	11.526	.003	19.38464	5.29349	7.79826	30.97101
QoL Domain: Satisfaction with Services	Equal variances assumed	1.655	.199	.696	474	.487	3.18720	4.57782	-5.80813	12.18253
	Equal variances not assumed			.887	11.967	.393	3.18720	3.59419	-4.64625	11.02065

- The above results suggest that villagers using Communal tapstand water as their main source of water have rated their Physical health as well as Community relations significantly more positive, than those still using rivers.
- None of the other domains of QoL, however, differed significantly between households using communal tapstand and the rivers.

Apart from water services, some other services have been upgraded during the past couple of years. Sanitation is one of those services. Table 36 provides a comparison of estimates regarding the present situation and the former situation (5 years ago, as measured by the current study and the 2002 Japanese Socio-economic study and 2001 Census). The comparison, based on households without any sanitation facilities, indicates vast improvements in most villages, except maybe for Ndasane.

**TABLE 36  
SANITATION: NO SANITATION FACILITIES**

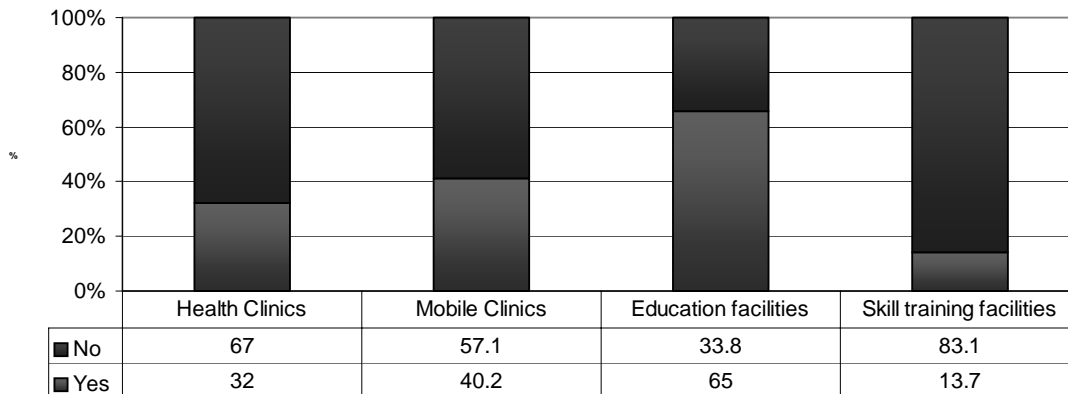
Water Scheme/Village	Current usage	Previous usage	Previous usage (Japanese Study)	Previous usage (Census 2001)
Kumaxhaka	11.8	47.1	82	Not available
Qanqu	16.7	43.5	26	52.7
Didi	6.3	50	18	30.1
Ezinkozweni	4.5	36.4	16	29.4
Sikobeni	4.3	56.5	20	100
Centuli	3.4	72.4	89	10
Dlova	3.6	71.4	96	0
Upper Xongora	0	88.9	20	56.2
Gubevu	0	50	9	51.9
Luxolweni	8.3	8.3	20	0
Tafeni	4.2	29.2	31	21.8
Cezu	0	66.7	84	73.6
Mavundleni	44.4	62.5	53	83
Lower Roza	22.2	40.7	20	35.9
Ncalukeni	39.1	47.8	47	52.2
Ndasane	81.8	81.8	40	Not available
Ndwane	13.5	30.8	36	68
Mvumelwano	5	20	7	79
Dambeni	56.7	68.3	95	86.5
Bhakuba	30.2	55.8	47	43.2
Kwazulu	47.6	57.1	87	45.6

**PICTURE 33-34  
UPGRADED SANITATION FACILITIES**



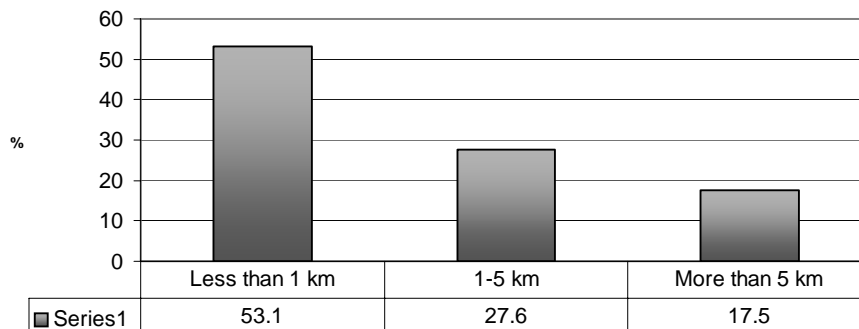
Graphs 46 and 47 depict some other objective indicators on services that could contribute to Service satisfaction levels.

**GRAPH 46  
OBJECTIVE INDICATORS: ACCESS TO FACILITIES**



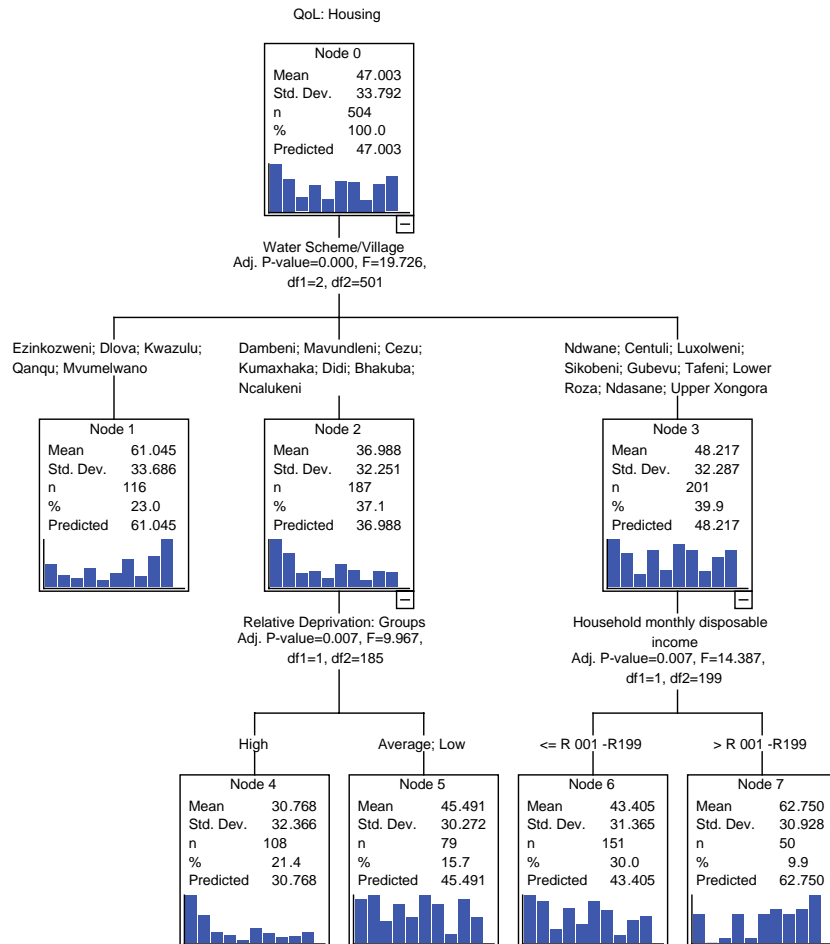
The results suggest that a large number of villagers have access to health related facilities (either Health clinics or mobile clinics-32% versus 40%), as well as educational facilities (65%). On the other hand, relatively few villagers have access to skills training centers (13.7%). Social welfare services are also available to most villagers. Results in Graph 49 indicate the distance to the nearest social welfare service. It is evident that the nearest social welfare points are relatively near, with the exception of 17.5% of households that have to travel more than 5km.

**GRAPH 47  
DISTANCE TO SOCIAL WELFARE**



The results in Figure 39 suggest that satisfaction levels with Housing are related to the village in which people are living. The villagers in Dambeni, Mavundleni, Cezu, Kumaxhaka, Didi, Bhakuba and Ncalukeni tend to be the most negative (36.9%), while those in Ezinkozweni, Dlova, Kwazulu, Qanqu and Mvumelwano the most positive (61%). Relative deprivation plays a role in the first group of villages, where the highly deprived households feel more dissatisfied with their housing situation, than the average or low level deprived households. Household income also plays a secondary role in a certain group of villages, with those earning less than R200 per month, being the most negative, and those earning more than R200 per month, being more positive.

**FIGURE 39**  
**SEGMENTATION: SATISFACTION WITH HOUSING**

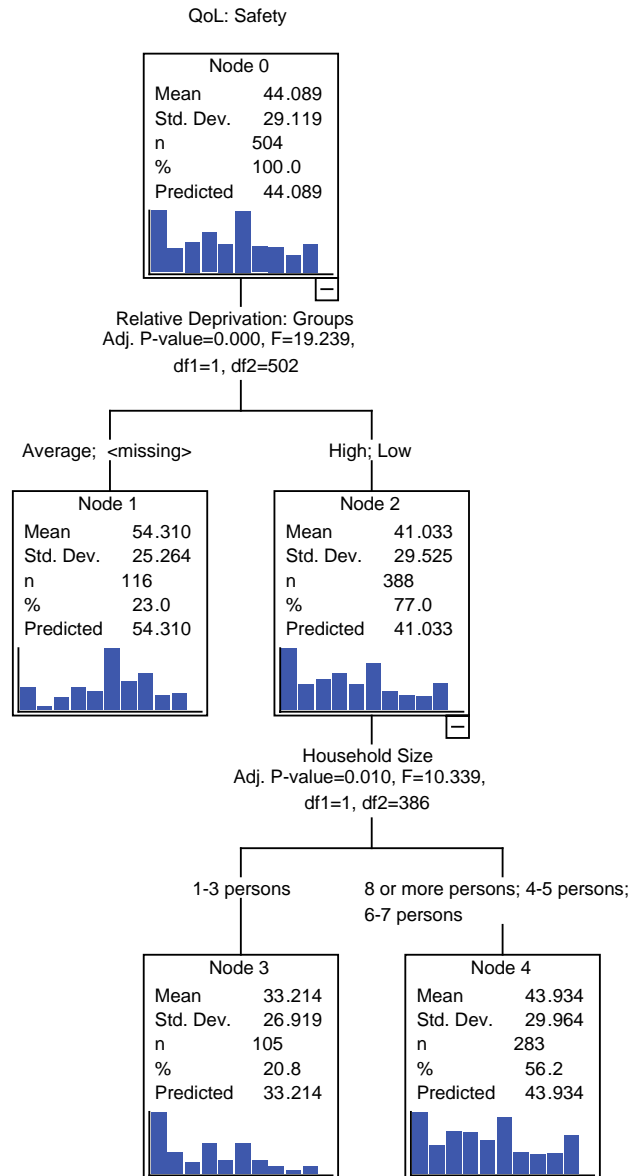


The study indicated that 66.5% of houses has corrugated iron roofs, while 32.4% has thatched roofs. In terms of the walls, only 25% has bricks/blocks and cements, while an overwhelming majority has mud walls (71.8%). These findings to some extent support the negativity as proper housing tend not to be available. Housing still tends to be traditional type of structures, mud and thatching combinations, or a combination between traditional and formal dwellings. On average houses consist of 4.74 rooms each.

**PICTURE 35-37**  
**RANGE OF DWELLINGS**

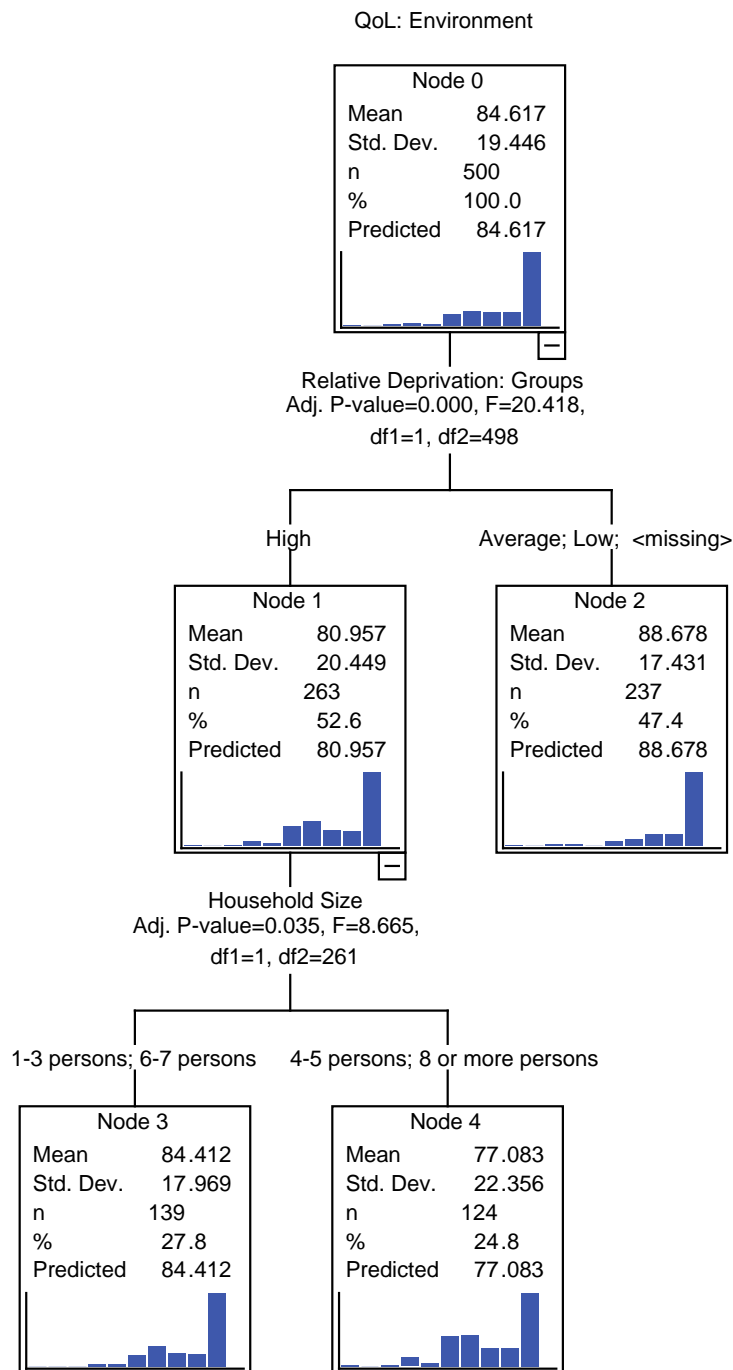


**FIGURE 40**  
**SEGMENTATION: SATISFACTION WITH SAFETY**



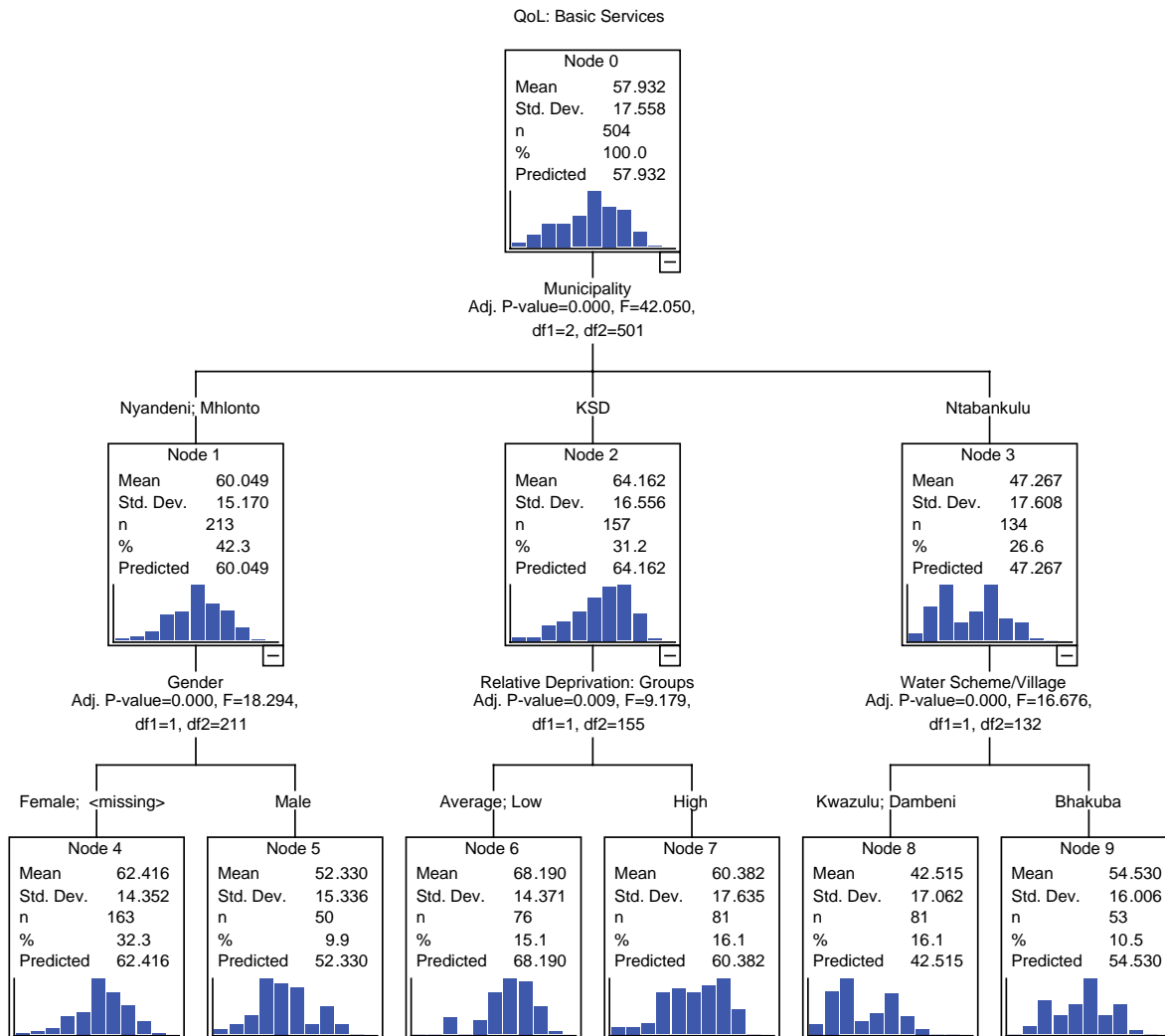
- The Chaid-analysis suggests that Relative deprivation is the most important segmentation variable. The households with the lowest and highest levels of deprivation, are the most dissatisfied with the levels of safety in the villages, while those households with average levels of relative deprivation, the least negative (41% versus 54.3%). Household size plays a role within the low and highly deprived households, with smaller households (1-3 persons) being the most negative (33.2%)
- The above negative perceptions are supported further by the fact that an estimated 13.7% of household's indicated that at least one of their household members have been a victim of crime during the past year, which is high for these rural communities.

**FIGURE 41**  
**SEGMENTATION: SATISFACTION WITH THE ENVIRONMENT**



- Once again, the results indicate that Relative deprivation is the most important segmentation variable. The households that experience the highest levels of deprivation tend to be less satisfied (80.9%). Among this, less satisfied group household size plays a role, with larger households being less satisfied towards the management of the environment.

**FIGURE 42**  
**SEGMENTATION: SATISFACTION WITH SERVICE EVALUATION**



- The above results indicate satisfaction levels with Services evaluation are related to Municipal area. Villagers living in the Ntabankulu municipal area is the least satisfied (47.2%) with services, while those in KSD the most positive (64.1%), while Nyandeni and Mhlonto villagers in-between (60%).
- Within Nyandeni and Mhlonto villages, the males tend to be much less positive than the females (52.3% versus 62.4%).
- Within KSD municipal area the highly deprived households tend to be the least satisfied (60.3%), while
- Within the Ntabankulu municipal area, the villagers in Bhakuba are the least negative (54.5%) while those in Kwazulu and Dambeni the most negative on service delivery (42.5%).

The table below shows the correlations between each of the 2<sup>nd</sup> order sub-domains of Basic Service provision and Overall Quality of Life.

**TABLE 37  
CORRELATION BETWEEN BASIC SERVICE SATISFACTION AND QoL**

**Correlations**

		Overall Quality of Life	QoL: Housing	QoL: Safety	QoL: Environment	QoL: Basic Services
Overall Quality of Life	Pearson Correlation	1	.211**	-.067	.124**	.239**
	Sig. (2-tailed)		.000	.133	.006	.000
	N	503	503	503	499	503
QoL: Housing	Pearson Correlation	.211**	1	.152**	.138**	.365**
	Sig. (2-tailed)	.000		.001	.002	.000
	N	503	504	504	500	504
QoL: Safety	Pearson Correlation	-.067	.152**	1	.045	.264**
	Sig. (2-tailed)	.133	.001		.314	.000
	N	503	504	504	500	504
QoL: Environment	Pearson Correlation	.124**	.138**	.045	1	.156**
	Sig. (2-tailed)	.006	.002	.314		.000
	N	499	500	500	500	500
QoL: Basic Services	Pearson Correlation	.239**	.365**	.264**	.156**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	503	504	504	500	504

\*\* . Correlation is significant at the 0.01 level (2-tailed).

- The above correlations indicate that Safety is the only variable that does not correlate significantly with Quality of Life in the villages.
- The highest correlation with QoL is with Services provision (0.239), followed by Housing (0.211), and the Environment (0.124). These three variables each correlates positively with QoL, thus the more satisfied the villagers are with each of these basic services the more positive they are on QoL.
- These findings are very important, as it show the potential impact of basic services on people lives, including that of water supply.

A regression analysis was executed to determine the best combination of predictors of Overall Quality of life, using the 2<sup>nd</sup> order Service Evaluation domains and relative deprivation.

**TABLE 38**  
**MULTIPLE REGRESSION MODEL: QoL and 2<sup>nd</sup> ORDER SERVICES DOMAINS, RELATIVE DEPRIVATION**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.246 <sup>a</sup>	.060	.058	32.57738	.060	31.830	1	496	.000
2	.283 <sup>b</sup>	.080	.076	32.26446	.020	10.668	1	495	.001
3	.314 <sup>c</sup>	.098	.093	31.97526	.018	9.994	1	494	.002

- a. Predictors: (Constant), QoL: Basic Services
- b. Predictors: (Constant), QoL: Basic Services, QoL: Housing
- c. Predictors: (Constant), QoL: Basic Services, QoL: Housing, QoL: Safety

**TABLE 39**  
**MULTIPLE REGRESSION COEFFICIENTS: QoL and 2<sup>nd</sup> ORDER SERVICES DOMAINS, RELATIVE DEPRIVATION**

**Coefficients <sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	40.867	5.042		8.105	.000
	QoL: Basic Services	.469	.083	.246	5.642	.000
2	(Constant)	39.874	5.003		7.970	.000
	QoL: Basic Services	.364	.088	.190	4.115	.000
	QoL: Housing	.151	.046	.151	3.266	.001
3	(Constant)	42.876	5.049		8.493	.000
	QoL: Basic Services	.429	.090	.225	4.765	.000
	QoL: Housing	.158	.046	.159	3.454	.001
	QoL: Safety	-.162	.051	-.140	-3.161	.002

a. Dependent Variable: Overall Quality of Life

The regression analysis indicates that:

- ❑ A combination of three Service domains in combination with each other predicts Overall Quality of Life, namely Basic Service satisfaction, Housing and Safety
- ❑ The multiple correlation coefficient of 0.314 indicates that these three variables explain 9.8% of the variation in Quality of life.
- ❑ Basic Service evaluation tend to be the most important predictor as it explains on its own 6% of the variation in Quality of Life, followed by housing 2%, Safety (1.8%)
- ❑ The correlation coefficients suggest that with the exception of Safety, the remaining two variables are positively related to QoL.

## 4.2.2.3 PREDICTING QOL BY 2<sup>nd</sup> ORDER DOMAINS

A series of two regression analysis were executed to determine the possible combination of 2<sup>nd</sup> order Domains predicting overall QoL. The first regression analysis was executed to determine the combination of all 2<sup>nd</sup> order Domains, including Relative Deprivation as predictors of QoL.

**TABLE 40**  
**MULTIPLE REGRESSION MODEL: QoL and all 2<sup>nd</sup> ORDER DOMAINS, RELATIVE DEPRIVATION**

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.466 <sup>a</sup>	.217	.215	29.50068	.217	135.490	1	489	.000
2	.554 <sup>b</sup>	.306	.304	27.79342	.089	62.921	1	488	.000
3	.571 <sup>c</sup>	.326	.322	27.42002	.020	14.382	1	487	.000
4	.585 <sup>d</sup>	.343	.337	27.11356	.016	12.071	1	486	.001
5	.597 <sup>e</sup>	.356	.350	26.85373	.014	10.450	1	485	.001

a. Predictors: (Constant), QoL: Health

b. Predictors: (Constant), QoL: Health, QoL: Family relations

c. Predictors: (Constant), QoL: Health, QoL: Family relations, QoL: Basic Services

d. Predictors: (Constant), QoL: Health, QoL: Family relations, QoL: Basic Services, QoL: Spiritual

e. Predictors: (Constant), QoL: Health, QoL: Family relations, QoL: Basic Services, QoL: Spiritual, QoL: Safety

**TABLE 41**  
**MULTIPLE REGRESSION COEFFICIENTS: QoL and all 2<sup>nd</sup> ORDER DOMAINS, RELATIVE DEPRIVATION**

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	33.042	3.315		9.967	.000
	QoL: Health	.550	.047	.466	11.640	.000
2	(Constant)	4.468	4.768		.937	.349
	QoL: Health	.437	.047	.371	9.369	.000
	QoL: Family relations	.447	.056	.314	7.932	.000
3	(Constant)	-8.815	5.865		-1.503	.133
	QoL: Health	.411	.047	.348	8.811	.000
	QoL: Family relations	.437	.056	.306	7.841	.000
	QoL: Basic Services	.273	.072	.143	3.792	.000
4	(Constant)	-14.914	6.059		-2.462	.014
	QoL: Health	.329	.052	.279	6.357	.000
	QoL: Family relations	.382	.057	.268	6.664	.000
	QoL: Basic Services	.252	.071	.132	3.525	.000
	QoL: Spiritual	.219	.063	.157	3.474	.001
5	(Constant)	-12.336	6.054		-2.038	.042
	QoL: Health	.326	.051	.276	6.367	.000
	QoL: Family relations	.389	.057	.273	6.843	.000
	QoL: Basic Services	.314	.073	.165	4.286	.000
	QoL: Spiritual	.214	.062	.153	3.422	.001
	QoL: Safety	-.141	.043	-.122	-3.233	.001

a. Dependent Variable: Overall Quality of Life

The regression analysis indicates that a combination of five 2<sup>nd</sup> order domains best predicts Overall QoL. This combination of variables with a multiple correlation of 0.597 predicts 35.6% of the variation in QoL:

- ❑ The most important predictor was Health (explaining 21.7%), followed by
- ❑ Family relations (8.9%),
- ❑ Basic Services (2%), and
- ❑ Spiritual Well-being (1.7%),
- ❑ Safety (1.3%) and

All the predictor variables, except for Safety have a positive correlation with QoL.

A final Stepwise was done using all 2<sup>nd</sup> order domains, including relative deprivation as well as the perceptions on the Impact of the Water Infrastructure project. This was done to determine whether, the Water Infrastructure project, over and above the existing predictors, improves the variance explained in QoL.

**TABLE 42**  
**MULTIPLE REGRESSION COEFFICIENTS: QoL and all 2<sup>nd</sup> ORDER DOMAINS, RELATIVE DEPRIVATION AND IMPACT**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.465 <sup>a</sup>	.216	.214	29.52588	.216	134.276	1	488	.000
2	.553 <sup>b</sup>	.306	.303	27.80957	.090	63.094	1	487	.000
3	.570 <sup>c</sup>	.325	.321	27.44212	.020	14.129	1	486	.000
4	.584 <sup>d</sup>	.342	.336	27.13693	.016	11.993	1	485	.001
5	.596 <sup>e</sup>	.356	.349	26.87379	.014	10.544	1	484	.001
6	.601 <sup>f</sup>	.361	.353	26.78752	.005	4.122	1	483	.043

a. Predictors: (Constant), QoL: Health

b. Predictors: (Constant), QoL: Health, QoL: Family relations

c. Predictors: (Constant), QoL: Health, QoL: Family relations, QoL: Basic Services

d. Predictors: (Constant), QoL: Health, QoL: Family relations, QoL: Basic Services, QoL: Spiritual

e. Predictors: (Constant), QoL: Health, QoL: Family relations, QoL: Basic Services, QoL: Spiritual, QoL: Safety

f. Predictors: (Constant), QoL: Health, QoL: Family relations, QoL: Basic Services, QoL: Spiritual, QoL: Safety, QoL: Impact of JWIP

**TABLE 43**  
**MULTIPLE REGRESSION COEFFICIENTS: QoL and all 2<sup>nd</sup> ORDER DOMAINS, RELATIVE DEPRIVATION AND IMPACT**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	33.088	3.320		9.967	.000
	QoL: Health	.549	.047	.465	11.588	.000
2	(Constant)	4.471	4.770		.937	.349
	QoL: Health	.435	.047	.369	9.303	.000
	QoL: Family relations	.448	.056	.315	7.943	.000
3	(Constant)	-8.726	5.872		-1.486	.138
	QoL: Health	.409	.047	.347	8.766	.000
	QoL: Family relations	.437	.056	.307	7.845	.000
	QoL: Basic Services	.271	.072	.142	3.759	.000
4	(Constant)	-14.824	6.068		-2.443	.015
	QoL: Health	.328	.052	.278	6.330	.000
	QoL: Family relations	.383	.057	.269	6.668	.000
	QoL: Basic Services	.250	.072	.131	3.496	.001
	QoL: Spiritual	.218	.063	.157	3.463	.001
5	(Constant)	-12.204	6.063		-2.013	.045
	QoL: Health	.325	.051	.275	6.336	.000
	QoL: Family relations	.390	.057	.274	6.853	.000
	QoL: Basic Services	.313	.073	.164	4.258	.000
	QoL: Spiritual	.213	.062	.153	3.408	.001
	QoL: Safety	-.141	.044	-.123	-3.247	.001
6	(Constant)	-29.803	10.567		-2.820	.005
	QoL: Health	.332	.051	.281	6.476	.000
	QoL: Family relations	.382	.057	.268	6.718	.000
	QoL: Basic Services	.296	.074	.156	4.023	.000
	QoL: Spiritual	.202	.063	.145	3.231	.001
	QoL: Safety	-.141	.043	-.123	-3.252	.001
	QoL: Impact of JWIP	.204	.101	.075	2.030	.043

a. Dependent Variable: Overall Quality of Life

This final regression analysis indicates that the Perceived Impact of the Water Infrastructure projects is significant in combination with the previous five QoL Domains predictor variables. In total, this combination of variables explains 36.1% of the variance in QoL. The Impact of the Water Infrastructure project is positively related to overall QoL, over and above the relationships of the 2<sup>nd</sup> order Domains.

## 4.2.3 SUMMARY OF QoL

The findings on QoL highlights the following:

- ❑ Material Well-being Domain is mainly seen as the most important driver of QoL in the minds of the villagers, followed by Service Provision. Personal functioning and especially Relationships were not perceived to be of importance to them.
- ❑ Villagers display a moderate level of Subjective happiness (Overall Quality of Life).
- ❑ In line with the high poverty levels in rural areas, the villagers displayed very low satisfaction levels on the Material Well-being domain of QoL, while moderate satisfaction exist in terms of the Services they receive. In sharp contrast, they tend to be very satisfied with their Personal Functioning and the Relationships domains of QoL. These findings are inversely correlated with what they believe to be the drivers of QoL.
- ❑ Although all four 1<sup>st</sup> order Domains correlate with QoL, Overall Quality of life is best predicted by a combination of Personal functioning and Relationships. The perceived impact of the Water Infrastructure project also contributed significantly to their Overall QoL, over and above the mentioned two domains.
- ❑ In terms of Personal functioning, moderate satisfaction levels were obtained on their Physical health, while high levels of Altruism and satisfaction with Spiritual Well-being. All three these sub-domains correlate with Overall Quality of Life, although only a combination of Physical Health and Spiritual Well-being predicts QoL.
- ❑ In terms of Relationships, high satisfaction levels have been displayed in terms of Community relations, but especially Family relations. The latter finding is reinforced by the fact that limited divorces exist in these communities. Both domains are significantly positively correlated with QoL, while only Family relations actually predicts QoL.
- ❑ In terms of Material Well-being, negative opinions were expressed on all three its sub-domains. Villagers tend to be dissatisfied with their Educational levels and skills training opportunities, with their Work situation, and Income and social security levels. The relatively low educational levels prevailing in these villages, the high level of unemployment and low disposable income levels as well as dependence on Government grants support the high subjective dissatisfaction levels on Material Well-being.

Satisfaction with Income and social security is the only domain that correlates and predicts QoL. The less satisfied villagers are with their Income and Social Security the less satisfied they are with their QoL.

- In terms of Basic Services, very positive opinions were expressed on Environmental management in the villages, while rather low satisfaction levels on Safety and Housing. Moderate satisfaction levels were expressed on Services that they receive.

In terms of Service evaluation, high levels of satisfaction were expressed towards water supply, and an overwhelming majority of villagers believes that water supply improved over the past 5 years.

On an objective level, it is clear that the majority households moved away from using rivers, springs and boreholes to the usage of communal tapstands as their main source of water. A very important finding is that villagers making use of Communal tapstands have rated their Overall QoL, as well as their Physical health, significantly higher, than those villagers still making use of rivers.

Since the implementation of the Water Infrastructure project, the time that families spend per day to fetch water has been dramatically shortened by more than 50%, while their per capita daily water usage have increased by 50%.

The role of woman in fetching water might be changing as children as well as males are now assisting.

With the exception of Safety, all three other Domains of Service correlates with QoL. A combination of three Service variables, Service Evaluation, Housing and Safety predicts Overall QoL.

- In terms of all 2<sup>nd</sup> order Domains a combination of 5 domains predict QoL significantly. These are Physical health, Family relations, Service Evaluation, Spiritual Emotional Well-being and Safety. The perceived impact of the Water Infrastructure project also contribute to QoL over and above these 5 domains, indicative of its role in creating QoL in these villages.

In general, the results show that QoL is determined by a range of Domains and that the perceived impact of the Water Infrastructure project cannot be under-estimated, while the usage of communal tap water is associated with QoL and Health perceptions.

## 4.3. OBSERVATIONS

Physical observations were conducted on communal tapstands, the water reservoirs and pump houses, in order to determine the general state of Maintenance and Operations of the infrastructure. It must be clarified, that these observations were not based on a full technical assessment.

### 4.3.1 COMMUNAL STANDPIPE OBSERVATIONS

Table 44 indicates the number of communal tapstands that were assessed, and confirmed to be built.

**TABLE 44  
NUMBER OF COMMUNAL TAPSTANDS EVALUATED**

	Water Scheme/Village	
	Count	%
Kumaxhaka	7	3.29%
Qanqu	9	4.23%
Didi	7	3.29%
Ezinkozweni	9	4.23%
Sikobeni	10	4.69%
Centuli	11	5.16%
Dlova	15	7.04%
Upper Xongora	6	2.82%
Gubevu	6	2.82%
Luxolweni	6	2.82%
Tafeni	11	5.16%
Cezu	8	3.76%
Mavundleni	6	2.82%
Lower Roza	10	4.69%
Ncalukeni	9	4.23%
Ndasane	5	2.35%
Ndwane	17	7.98%
Mvumelwano	7	3.29%
Dambeni	27	12.68%
Bhakuba	18	8.45%
Kwazulu	9	4.23%
Total	213	100.00%

In total only three communal tapstands were not evaluated. The above number of tapstands correlates with the number of communal tapstands as planned during the Japanese Water Infrastructure Project.

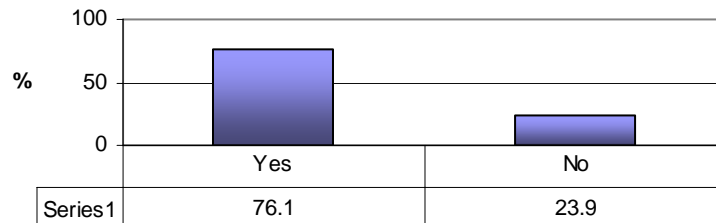
**TABLE 45  
LEAKING TAPSTANDS**

		Evaluate: Tapstand is leaking water				Total	
		Yes		No		N	%
		N	%	N	%		
Water Scheme/Village	Kumaxhaka			7	100.00	7	100.00
	Qanqu			9	100.00	9	100.00
	Didi			7	100.00	7	100.00
	Ezinkozweni			9	100.00	9	100.00
	Sikobeni			10	100.00	10	100.00
	Centuli			11	100.00	11	100.00
	Dlova			15	100.00	15	100.00
	Upper Xongora			6	100.00	6	100.00
	Gubevu			6	100.00	6	100.00
	Luxolweni			6	100.00	6	100.00
	Tafeni			11	100.00	11	100.00
	Cezu	1	14.29	6	85.71	7	100.00
	Mavundleni			6	100.00	6	100.00
	Lower Roza			10	100.00	10	100.00
	Ncalukeni			9	100.00	9	100.00
	Ndasane			5	100.00	5	100.00
	Ndwane			17	100.00	17	100.00
	Mvumelwano			7	100.00	7	100.00
	Dambeni			27	100.00	27	100.00
	Bhakuba			18	100.00	18	100.00
	Kwazulu			9	100.00	9	100.00
Total		1	.47	211	99.53	212	100.00

In terms of leakages, an overwhelming majority of 99.5% of communal tapstands was not leaking, while only one tap at Cesu was leaking at the time of the assessment. The back-checks confirmed this positive aspect of the tapstands maintenance.

However, some negative findings were recorded by the assessment in terms of whether the water flows when the tap is opened. It must be emphasized that this situation most probable changes on a weekly basis, as other problems are experienced with the infrastructure.

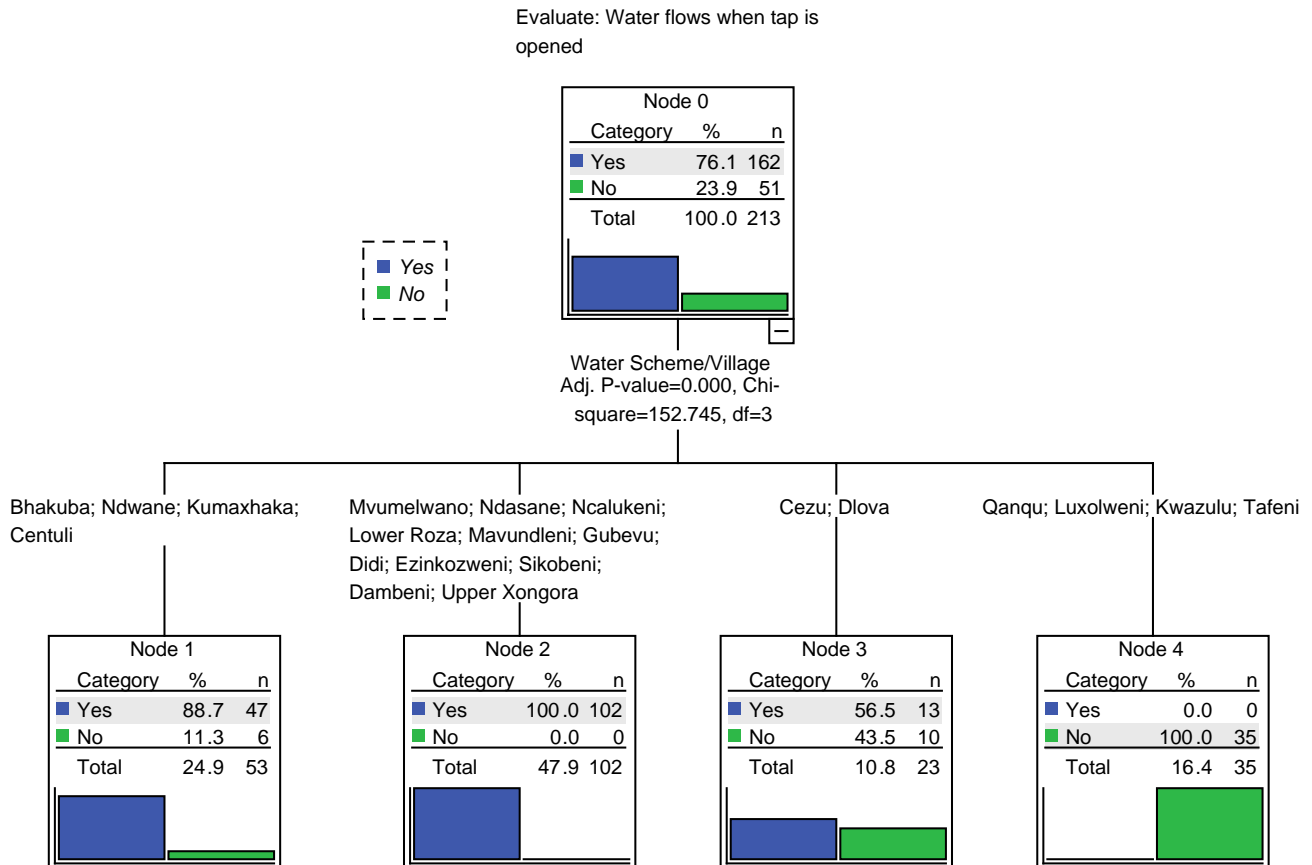
**GRAPH 48  
WATER FLOWS WHEN COMMUNAL TAPSTANDS IS OPENED**



In total about 23.9% of taps were dry, when opened during the assessment. This is due to taps not in working condition and villages where other problems in the water infrastructure exist, such as Qanqu, with electricity failures at the Water reservoirs and Pump Houses.

The Chaid-analysis indicates the villages with the most prevailing problems in this regard. Four villages, at the time of the assessment, had all their taps not working, when the taps were opened. In Cesu and Dlova about 43.5% of taps had no flows when opened.

**FIGURE 43**  
**SEGMENTATION: WATER FLOWS WHEN TAP IS OPENED**



It must be stated that these water interruptions are time-related, as with the back-checks the water was flowing again in Tafeni, while those at Bhakuba, Dambeni and Kwazulu did not flow at all.

The results below indicate that respectively 4.2% of taps have been vandalized or have mechanisms that are broken.

**TABLE 46  
NUMBER OF BROKEN AND VANDALISED COMMUNAL TAPSTANDS**

	Evaluate: Broken tapstand mechanism		Evaluate: Tapstand vandalised	
	N	%	N	%
Yes	9	4.2	9	4.2
No	204	95.8	204	95.8
Total	213	100.0	213	100.0

The following two tables indicate the villages with broken and vandalized tapstand mechanisms.

**TABLE 47  
NUMBER OF COMMUNAL TAPSTANDS WITH BROKEN TAPSTAND MECHANISMS**

	Evaluate: Broken tapstand mechanism				Total	
	Yes		No		N	%
	N	%	N	%		
Water Scheme/Village						
Kumaxhaka			7	100.0%	7	100.0%
Qanqu			9	100.0%	9	100.0%
Didi			7	100.0%	7	100.0%
Ezinkozweni			9	100.0%	9	100.0%
Sikobeni			10	100.0%	10	100.0%
Centuli	1	9.1%	10	90.9%	11	100.0%
Dlova	1	6.7%	14	93.3%	15	100.0%
Upper Xongora			6	100.0%	6	100.0%
Gubevu			6	100.0%	6	100.0%
Luxolweni			6	100.0%	6	100.0%
Tateni			11	100.0%	11	100.0%
Cezu	3	37.5%	5	62.5%	8	100.0%
Mavundleni			6	100.0%	6	100.0%
Lower Roza			10	100.0%	10	100.0%
Ncalukeni			9	100.0%	9	100.0%
Ndasane			5	100.0%	5	100.0%
Ndwane	1	5.9%	16	94.1%	17	100.0%
Mvumelwano			7	100.0%	7	100.0%
Dambeni			27	100.0%	27	100.0%
Bhakuba	3	16.7%	15	83.3%	18	100.0%
Kwazulu			9	100.0%	9	100.0%
Total	9	4.2%	204	95.8%	213	100.0%

Broken tapstand mechanisms were observed at 5 of the 21 villages, being the most prevalent in Cezu (37.5%) and Bhakuba (16.7%). During the back-checking process, some more broken tapstands were identified.

**PICTURE 38-42  
BROKEN TAPSTAND MECHANISMS**



**TABLE 48**  
**TAPSTANDS VANDALISED**

		Evaluate: Tapstand vandalised				Total		
		Yes		No		N	%	
		N	%	N	%			
Water Scheme/Village	Kumaxhaka			7	100.0%	7	100.0%	
	Qanqu			9	100.0%	9	100.0%	
	Didi			7	100.0%	7	100.0%	
	Ezinkozweni			9	100.0%	9	100.0%	
	Sikobeni			10	100.0%	10	100.0%	
	Centuli	2	18.2%	9	81.8%	11	100.0%	
	Dlova			15	100.0%	15	100.0%	
	Upper Xongora			6	100.0%	6	100.0%	
	Gubevu			6	100.0%	6	100.0%	
	Luxolweni			6	100.0%	6	100.0%	
	Tafeni			11	100.0%	11	100.0%	
	Cezu	3	37.5%	5	62.5%	8	100.0%	
	Mavundleni			6	100.0%	6	100.0%	
	Lower Roza			10	100.0%	10	100.0%	
	Ncalukeni			9	100.0%	9	100.0%	
	Ndasane			5	100.0%	5	100.0%	
	Ndwane	1	5.9%	16	94.1%	17	100.0%	
	Mvumelwano			7	100.0%	7	100.0%	
	Dambeni			27	100.0%	27	100.0%	
	Bhakuba	3	16.7%	15	83.3%	18	100.0%	
Kwazulu			9	100.0%	9	100.0%		
<b>Total</b>			9	4.2%	204	95.8%	213	100.0%

Vandalism has been observed at 4.2% of the communal tapstands, especially in Cesu and Centuli villages.

The following table indicates that only one communal tapstand have been blocked (0.47%). During the back-checks two more blocked drains was identified. However, it is of limited nature.

**TABLE 49**  
**NUMBER OF COMMUNAL TAPSTANDS WITH DRAINAGE PIPES BLOCKED**

		Evaluate: Tapstand's drainage pipe blocked (standing water)				Total	
		Yes		No		N	%
		N	%	N	%		
Water Scheme/Village	Kumaxhaka	1	14.29	6	85.71	7	100.00
	Qanqu			9	100.00	9	100.00
	Didi			7	100.00	7	100.00
	Ezinkozweni			9	100.00	9	100.00
	Sikobeni			10	100.00	10	100.00
	Centuli			11	100.00	11	100.00
	Dlova			15	100.00	15	100.00
	Upper Xongora			6	100.00	6	100.00
	Gubevu			6	100.00	6	100.00
	Luxolweni			6	100.00	6	100.00
	Tafeni			11	100.00	11	100.00
	Cezu			8	100.00	8	100.00
	Mavundleni			6	100.00	6	100.00
	Lower Roza			10	100.00	10	100.00
	Ncalukeni			9	100.00	9	100.00
	Ndasane			5	100.00	5	100.00
	Ndwane			17	100.00	17	100.00
	Mvumelwano			7	100.00	7	100.00
	Dambeni			27	100.00	27	100.00
	Bhakuba			18	100.00	18	100.00
Kwazulu			9	100.00	9	100.00	
<b>Total</b>		1	.47	212	99.53	213	100.00

**PICTURE 43-44**  
**BLOCKED DRAINS AT LUXOLWENI AND CENTULI**



**TABLE 50  
TAPSTANDS WITH REMOVED DRAIN COVERS**

		Evaluate: Tapstand's drain cover removed				Total	
		Yes		No		N	%
		N	%	N	%		
Water Scheme/Village	Kumaxhaka			7	100.0%	7	100.0%
	Qanqu			9	100.0%	9	100.0%
	Didi			7	100.0%	7	100.0%
	Ezinkozweni			9	100.0%	9	100.0%
	Sikobeni	3	30.0%	7	70.0%	10	100.0%
	Centuli			11	100.0%	11	100.0%
	Dlova			15	100.0%	15	100.0%
	Upper Xongora			6	100.0%	6	100.0%
	Gubevu			6	100.0%	6	100.0%
	Luxolweni			6	100.0%	6	100.0%
	Tafeni			11	100.0%	11	100.0%
	Cezu			8	100.0%	8	100.0%
	Mavundleni			6	100.0%	6	100.0%
	Lower Roza			10	100.0%	10	100.0%
	Ncalukeni			9	100.0%	9	100.0%
	Ndasane			5	100.0%	5	100.0%
	Ndwane			17	100.0%	17	100.0%
	Mvumelwano			7	100.0%	7	100.0%
	Dambeni			27	100.0%	27	100.0%
	Bhakuba			18	100.0%	18	100.0%
	Kwazulu			9	100.0%	9	100.0%
<b>Total</b>		<b>3</b>	<b>1.4%</b>	<b>210</b>	<b>98.6%</b>	<b>213</b>	<b>100.0%</b>

The above results indicate that only 1.4% of the drain covers have been removed, at one specific village, namely Sikobeni.

**TABLE 51  
WATER PRESSURE AT TAPSTANDS**

		Evaluate: Water pressure adequate				Total		
		Yes		No		N	%	
		N	%	N	%			
Water Scheme/Village	Kumaxhaka	6	100.0%			6	100.0%	
	Didi	7	100.0%			7	100.0%	
	Ezinkozweni	9	100.0%			9	100.0%	
	Sikobeni	8	80.0%	2	20.0%	10	100.0%	
	Centuli	8	80.0%	2	20.0%	10	100.0%	
	Dlova	8	100.0%			8	100.0%	
	Upper Xongora	3	50.0%	3	50.0%	6	100.0%	
	Gubevu	5	83.3%	1	16.7%	6	100.0%	
	Cezu	5	100.0%			5	100.0%	
	Mavundleni	6	100.0%			6	100.0%	
	Lower Roza	10	100.0%			10	100.0%	
	Ncalukeni	9	100.0%			9	100.0%	
	Ndasane	5	100.0%			5	100.0%	
	Ndwane	16	100.0%			16	100.0%	
	Mvumelwano	7	100.0%			7	100.0%	
	Dambeni	27	100.0%			27	100.0%	
	Bhakuba	15	100.0%			15	100.0%	
	<b>Total</b>		<b>154</b>	<b>95.1%</b>	<b>8</b>	<b>4.9%</b>	<b>162</b>	<b>100.0%</b>

Water pressure seems to be a problem at about 5% of the tapstands, although it is limited to four villages. Upper Xongora had about 50% of tapstands with inadequate water pressure at the time of the assessment.

**TABLE 52  
ACCESS TO TAPSTANDS**

		Evaluate: Easy access to Tapstand				Total	
		Yes		No		N	%
		N	%	N	%		
Water	Kumaxhaka	7	100.0%			7	100.0%
Scheme/Village	Qanqu	9	100.0%			9	100.0%
	Didi	7	100.0%			7	100.0%
	Ezinkozweni	9	100.0%			9	100.0%
	Sikobeni	10	100.0%			10	100.0%
	Centuli	9	90.0%	1	10.0%	10	100.0%
	Dlova	15	100.0%			15	100.0%
	Upper Xongora	6	100.0%			6	100.0%
	Gubevu	6	100.0%			6	100.0%
	Luxolweni	6	100.0%			6	100.0%
	Tafeni	11	100.0%			11	100.0%
	Cezu	7	87.5%	1	12.5%	8	100.0%
	Mavundleni	6	100.0%			6	100.0%
	Lower Roza	10	100.0%			10	100.0%
	Ncalukeni	9	100.0%			9	100.0%
	Ndasane	5	100.0%			5	100.0%
	Ndwane	17	100.0%			17	100.0%
	Mvumelwano	7	100.0%			7	100.0%
	Dambeni	27	100.0%			27	100.0%
	Bhakuba	17	94.4%	1	5.6%	18	100.0%
	Kwazulu	9	100.0%			9	100.0%
Total		209	98.6%	3	1.4%	212	100.0%

- ❑ Easy access to the majority of communal tapstands exists, as only 1.4% of the tapstands were difficult to reach during the assessment phase.

A very important finding is that the water quality (in terms of clarity, smell and taste) at all of the communal tapstands were rated as adequate.

In conclusion, the results on the communal tapstands suggest that:

- ❑ One fifth of tapstands do not have a water flow when opened. This is located at a number of villages, and seems to be time-related. This is due to not only non-working condition of tap mechanisms, but also rather other malfunctions in the reticulation infrastructure, such as electrical failures at reservoirs, and pump houses.
- ❑ Broken tap mechanisms play a role in some villages, although limited.
- ❑ Only a few communal tapstands drains are blocked, while most drain covers are still in place.
- ❑ Water quality is not a problem in these areas, while water pressure seem fine in most instances.

## 4.3.2 PUMP HOUSE OBSERVATIONS

Table 53 shows that eighteen of the pump houses as planned by the Water Infrastructure project were assessed, and confirmed to be built.

**TABLE 53  
NUMBER OF PUMPHOUSES ASSESSED**

	Water Scheme/Village	
	N	%
Kumaxhaka	1	5.56
Qanqu	2	11.11
Didi	1	5.56
Ezinkozweni	1	5.56
Sikobeni	1	5.56
Centuli	1	5.56
Dlova	1	5.56
Upper Xongora	1	5.56
Gubevu	1	5.56
Luxolweni	1	5.56
Dambeni	3	16.67
Kwazulu	1	5.56
Ndwane/Mvumelwano	1	5.56
Lower Roza/Ncaukeni/Ndasane	1	5.56
Cesu/Mavundleni	1	5.56
Total	18	100.00

**TABLE 54  
PUMP HOUSE ADEQUATELY FENCED OF**

		Evaluate: Pump house adequately fencedoff	
		Yes	
		N	%
Water Scheme/Village	Kumaxhaka	1	100.0
	Qanqu	2	100.0
	Didi	1	100.0
	Ezinkozweni	1	100.0
	Sikobeni	1	100.0
	Centuli	1	100.0
	Dlova	1	100.0
	Upper Xongora	1	100.0
	Gubevu	1	100.0
	Luxolweni	1	100.0
	Dambeni	3	100.0
	Kwazulu	1	100.0
	Ndwane/Mvumelwano	1	100.0
	Lower Roza/Ncaukeni/Ndasane	1	100.0
	Cesu/Mavundleni	1	100.0
	Total	18	100.0

In all instances, it was observed that the pump houses were adequately fenced off, and well-maintained.

**PICTURE 45-47  
FENCING AT PUMP HOUSES**



**TABLE 55  
PUMP HOUSE GATE IN WORKING CONDITION**

		Evaluate: Gate in working order at Pump House		Total	
		Yes		N	%
		N	%		
Water Scheme/Village	Kumaxhaka	1	100.0	1	100.0
	Qanqu	2	100.0	2	100.0
	Didi	1	100.0	1	100.0
	Ezinkozweni	1	100.0	1	100.0
	Sikobeni	1	100.0	1	100.0
	Centuli	1	100.0	1	100.0
	Dlova	1	100.0	1	100.0
	Upper Xongora	1	100.0	1	100.0
	Gubevu	1	100.0	1	100.0
	Luxolweni	1	100.0	1	100.0
	Dambeni	3	100.0	3	100.0
	Kwazulu	1	100.0	1	100.0
	Ndwane/Mvumelwano	1	100.0	1	100.0
	Lower Roza/Ncaukeni/Ndasane	1	100.0	1	100.0
	Cesu/Mavundleni	1	100.0	1	100.0
<b>Total</b>		<b>18</b>	<b>100.0</b>	<b>18</b>	<b>100.0</b>

Once again the observations show that all the gates at the pump houses were in a working condition, with no evidence of vandalism. All have been locked by proper padlocks.

**PICTURES 48-50  
GATES IN WORKING ORDER**



**TABLE 56  
GRASS BEEN CUT INSIDE PUMP HOUSE STAND**

		Evaluate: Grass has been cut inside Pump House				Total	
		Yes		No		N	%
		N	%	N	%		
Water Scheme/Village	Kumaxhaka	1	100.0			1	100.0
	Qanqu	1	50.0	1	50.0	2	100.0
	Didi	1	100.0			1	100.0
	Ezinkozweni	1	100.0			1	100.0
	Sikobeni	1	100.0			1	100.0
	Centuli	1	100.0			1	100.0
	Dlova			1	100.0	1	100.0
	Upper Xongora	1	100.0			1	100.0
	Gubevu	1	100.0			1	100.0
	Luxolweni	1	100.0			1	100.0
	Dambeni	3	100.0			3	100.0
	Kwazulu	1	100.0			1	100.0
	Ndwane/Mvumelwano	1	100.0			1	100.0
	Lower Roza/Ncaukeni/Ndasane	1	100.0			1	100.0
	Cesu/Mavundleni	1	100.0			1	100.0
<b>Total</b>		<b>16</b>	<b>88.9</b>	<b>2</b>	<b>11.1</b>	<b>18</b>	<b>100.0</b>

At two of the pump houses it was observed that the grass have not been cut properly. This could have been to the rainy weather during the time of the evaluation. At some pump houses water was standing, which could affect the foundations in future.

**PICTURES 51-55  
MAINTENANCE INSIDE**



**TABLE 57  
PADLOCKS IN PLACE**

		Evaluate: Pump padlock in place		Total	
		Yes		N	%
		N	%		
Water Scheme/Village	Kumaxhaka	1	100.0	1	100.0
	Qanqu	2	100.0	2	100.0
	Didi	1	100.0	1	100.0
	Ezinkozweni	1	100.0	1	100.0
	Sikobeni	1	100.0	1	100.0
	Centuli	1	100.0	1	100.0
	Dlova	1	100.0	1	100.0
	Upper Xongora	1	100.0	1	100.0
	Gubevu	1	100.0	1	100.0
	Luxolweni	1	100.0	1	100.0
	Dambeni	3	100.0	3	100.0
	Kwazulu	1	100.0	1	100.0
	Ndwane/Mvumelwano	1	100.0	1	100.0
	Lower Roza/Ncaukeni/Ndasane	1	100.0	1	100.0
	Cesu/Mavundleni	1	100.0	1	100.0
	<b>Total</b>	<b>18</b>	<b>100.0</b>	<b>18</b>	<b>100.0</b>

Once again, results suggest that the padlocks as well as the pump lids at all pump houses were in place. At one or two pump houses some padlocks on the inside were missing.

**PICTURES 56-59  
PADLOCKS IN PLACE**



**TABLE 58  
ILLEGAL CONNECTIONS (PIPES) BY COMMUNITY**

		Evaluate: Illegal connections (pipes) by community		Total	
		No		N	%
		N	%		
Water Scheme/Village	Kumaxhaka	1	100.0	1	100.0
	Qanqu	2	100.0	2	100.0
	Didi	1	100.0	1	100.0
	Ezinkozweni	1	100.0	1	100.0
	Sikobeni	1	100.0	1	100.0
	Centuli	1	100.0	1	100.0
	Dlova	1	100.0	1	100.0
	Upper Xongora	1	100.0	1	100.0
	Gubevu	1	100.0	1	100.0
	Luxolweni	1	100.0	1	100.0
	Dambeni	3	100.0	3	100.0
	Kwazulu	1	100.0	1	100.0
	Ndwane/Mvumelwano	1	100.0	1	100.0
	Lower Roza/Ncaukeni/Ndasane	1	100.0	1	100.0
	Cesu/Mavundleni	1	100.0	1	100.0
Total		18	100.0	18	100.0

- At none of the pump houses were any evidence of any illegal connections, indicative of the community's commitment to ensure sustainable water supply in future.

**TABLE 59  
PUMP HOUSE HAS BEEN VANDALISED**

		Evaluate: Pump house has been vandalised				Total	
		Yes		No		N	%
		N	%	N	%		
Water Scheme/Village	Kumaxhaka			1	100.0%	1	100.0%
	Qanqu			2	100.0%	2	100.0%
	Didi			1	100.0%	1	100.0%
	Ezinkozweni			1	100.0%	1	100.0%
	Sikobeni			1	100.0%	1	100.0%
	Centuli			1	100.0%	1	100.0%
	Dlova			1	100.0%	1	100.0%
	Upper Xongora			1	100.0%	1	100.0%
	Gubevu			1	100.0%	1	100.0%
	Luxolweni			1	100.0%	1	100.0%
	Dambeni	1	33.3%	2	66.7%	3	100.0%
	Kwazulu			1	100.0%	1	100.0%
	Ndwane/Mvumelwano			1	100.0%	1	100.0%
	Lower Roza/Ncaukeni/Ndasane			1	100.0%	1	100.0%
	Cesu/Mavundleni			1	100.0%	1	100.0%
Total		1	5.6%	17	94.4%	18	100.0%

- It is clear that vandalism does not play a major role in these villages. Only one pump house has been vandalized, and the extent actually was limited. Only a window was broken in this regard.

**PICTURES 60  
VANDALISM AT PUMP HOUSES**



In conclusion the results indicate that the pump houses are well-kept in most instances, although the inside areas in some instances need some attention in keeping it cleaner; limited vandalism exist while illegal connections does not play a role at all.

## 4.3.3 WATER RESERVOIR OBSERVATIONS

In total 20 water reservoirs were observed, as shown in Table 60.

**TABLE 60  
WATER RESERVOIR**

	Water Scheme/Village	
	Count	%
Kumaxhaka	1	5.0
Qanqu	1	5.0
Didi	1	5.0
Ezinkozweni	1	5.0
Sikobeni	1	5.0
Centuli	1	5.0
Dlova	3	15.0
Luxolweni	1	5.0
Mavundleni	2	10.0
Lower Roza	2	10.0
Ndasane	1	5.0
Mvumelwano	1	5.0
Bhakuba	3	15.0
Kwazulu	1	5.0
Total	20	100.0

All reservoirs are adequately fenced off, although some instances exist where goats have entered the premises through gaps between the ground and the fences.

**TABLE 61  
WATER RESERVOIR FENCED OFF**

Water Scheme/Village	Evaluate: Water Reservoir adequately fenced off		Total	
	Yes		N	%
	N	%		
Kumaxhaka	1	100.0	1	100.0
Qanqu	1	100.0	1	100.0
Didi	1	100.0	1	100.0
Ezinkozweni	1	100.0	1	100.0
Sikobeni	1	100.0	1	100.0
Centuli	1	100.0	1	100.0
Dlova	3	100.0	3	100.0
Luxolweni	1	100.0	1	100.0
Mavundleni	2	100.0	2	100.0
Lower Roza	2	100.0	2	100.0
Ndasane	1	100.0	1	100.0
Mvumelwano	1	100.0	1	100.0
Bhakuba	3	100.0	3	100.0
Kwazulu	1	100.0	1	100.0
Total	20	100.0	20	100.0

**PICTURE 61  
FENCING AT WATER RESERVOIRS**



**TABLE 62  
WATER RESERVOIR PADLOCKS IN PLACE**

		Evaluate: Water Reservoir padlock in place		Total	
		Yes		N	%
		N	%		
Water Scheme/Village	Kumaxhaka	1	100.0	1	100.0
	Qanqu	1	100.0	1	100.0
	Didi	1	100.0	1	100.0
	Ezinkozweni	1	100.0	1	100.0
	Sikobeni	1	100.0	1	100.0
	Centuli	1	100.0	1	100.0
	Dlova	3	100.0	3	100.0
	Luxolweni	1	100.0	1	100.0
	Mavundleni	2	100.0	2	100.0
	Lower Roza	2	100.0	2	100.0
	Ndasane	1	100.0	1	100.0
	Mvumelwano	1	100.0	1	100.0
	Bhakuba	3	100.0	3	100.0
	Kwazulu	1	100.0	1	100.0
	Total		20	100.0	20

- Once again all padlocks were in place at the gates, although within the water reservoirs some were not in place.

**PICTURES 62-67  
PADLOCKS AT WATER RESERVOIRS**



**TABLE 63  
WATER RESERVOIR GATE IN WORKING ORDER**

		Evaluate: Gate in working order at Reservoir				Total	
		Yes				N	%
		N	%	N	%		
Water Scheme/Village	Kumaxhaka	1	100.0	1	100.0	1	100.0
	Qanqu	1	100.0	1	100.0	1	100.0
	Didi	1	100.0	1	100.0	1	100.0
	Ezinkozweni	1	100.0	1	100.0	1	100.0
	Sikobeni	1	100.0	1	100.0	1	100.0
	Centuli	1	100.0	1	100.0	1	100.0
	Dlova	3	100.0	3	100.0	3	100.0
	Luxolweni	1	100.0	1	100.0	1	100.0
	Mavundleni	2	100.0	2	100.0	2	100.0
	Lower Roza	2	100.0	2	100.0	2	100.0
	Ndasane	1	100.0	1	100.0	1	100.0
	Mvumelwano	1	100.0	1	100.0	1	100.0
	Bhakuba	3	100.0	3	100.0	3	100.0
	Kwazulu	1	100.0	1	100.0	1	100.0
	<b>Total</b>		<b>20</b>	<b>100.0</b>	<b>20</b>	<b>100.0</b>	<b>20</b>

- The gates seemed to be in a working condition at all the reservoirs.

**TABLE 64  
GRASS HAS BEEN CUT INSIDE WATER RESERVOIR**

		Evaluate: Grass has been cut around the Water Reservoir				Total	
		Yes		No		N	%
		N	%	N	%		
Water Scheme/Village	Kumaxhaka	1	100.0			1	100.0
	Qanqu	1	100.0			1	100.0
	Didi	1	100.0			1	100.0
	Ezinkozweni	1	100.0			1	100.0
	Sikobeni	1	100.0			1	100.0
	Centuli	1	100.0			1	100.0
	Dlova			3	100.0	3	100.0
	Luxolweni			1	100.0	1	100.0
	Mavundleni	2	100.0			2	100.0
	Lower Roza	2	100.0			2	100.0
	Ndasane	1	100.0			1	100.0
	Mvumelwano	1	100.0			1	100.0
	Bhakuba	3	100.0			3	100.0
	Kwazulu	1	100.0			1	100.0
	<b>Total</b>		<b>16</b>	<b>80.0</b>	<b>4</b>	<b>20.0</b>	<b>20</b>

- In contrast with the previous results, some indication exist that the grounds are not always kept as neat, as it should be. About 20% of reservoirs had grounds with long grass or weeds.

**PICTURES 68-69  
GRASS HAS BEEN CUT AROUND RESERVOIR**



**TABLE 65  
ILLEGAL CONNECTIONS TO WATER RESERVOIR**

		Evaluate: Illegal connections (pipes) by community				Total		
		Yes		No		N	%	
		N	%	N	%			
Water Scheme/Village	Kumaxhaka			1	100.0	1	100.0	
	Qanqu			1	100.0	1	100.0	
	Didi			1	100.0	1	100.0	
	Ezinkozweni			1	100.0	1	100.0	
	Sikobeni			1	100.0	1	100.0	
	Centuli			1	100.0	1	100.0	
	Dlova			3	100.0	3	100.0	
	Luxolweni			1	100.0	1	100.0	
	Mavundleni			1	100.0	1	100.0	
	Lower Roza			2	100.0	2	100.0	
	Ndasane			1	100.0	1	100.0	
	Mvumelwano			1	100.0	1	100.0	
	Bhakuba	1	33.3	2	66.7	3	100.0	
	Kwazulu			1	100.0	1	100.0	
<b>Total</b>			<b>1</b>	<b>5.3</b>	<b>18</b>	<b>94.7</b>	<b>19</b>	<b>100.0</b>

- There is an indication that Illegal connections exist at one village (Bhakuba), while none at the rest.

**PICTURES 70-72  
ILLEGAL CONNECTIONS AT WATER RESERVOIRS**



**TABLE 66  
WATER RESERVOIR HAS BEEN VANDALISED**

		Evaluate: Water Reservoir has been vandalised		Total	
		No		N	%
		N	%		
Water Scheme/Village	Kumaxhaka	1	100.0	1	100.0
	Qanqu	1	100.0	1	100.0
	Didi	1	100.0	1	100.0
	Ezinkozweni	1	100.0	1	100.0
	Sikobeni	1	100.0	1	100.0
	Centuli	1	100.0	1	100.0
	Dlova	3	100.0	3	100.0
	Luxolweni	1	100.0	1	100.0
	Mavundleni	2	100.0	2	100.0
	Lower Roza	2	100.0	2	100.0
	Ndasane	1	100.0	1	100.0
	Mvumelwano	1	100.0	1	100.0
	Bhakuba	3	100.0	3	100.0
	Kwazulu	1	100.0	1	100.0
<b>Total</b>	<b>20</b>	<b>100.0</b>	<b>20</b>	<b>100.0</b>	

- No signs of vandalism were found at any of the water reservoirs.

**TABLE 67  
WATER RESERVOIR WATER LEVEL INDICATOR**

		Evaluate: Water Level Indicator						Total	
		Red		Orange		Green		N	%
		N	%	N	%	N	%		
Water Scheme/Village	Kumaxhaka					1	100.0	1	100.0
	Qanqu	1	100.0					1	100.0
	Didi			1	100.0			1	100.0
	Ezinkozweni			1	100.0			1	100.0
	Sikobeni			1	100.0			1	100.0
	Centuli					1	100.0	1	100.0
	Dlova	1	33.3			2	66.7	3	100.0
	Luxolweni	1	100.0					1	100.0
	Mavundleni	1	50.0	1	50.0			2	100.0
	Lower Roza			2	100.0			2	100.0
	Ndasane			1	100.0			1	100.0
	Mvumelwano					1	100.0	1	100.0
	Bhakuba			2	66.7	1	33.3	3	100.0
	Kwazulu	1	100.0					1	100.0
<b>Total</b>		<b>5</b>	<b>25.0</b>	<b>9</b>	<b>45.0</b>	<b>6</b>	<b>30.0</b>	<b>20</b>	<b>100.0</b>

- The water level Indicator were red in the case of five villages, namely: Qanqu, Dlova, Luxolweni, Mavundleni and Kwazulu at the time of the assessment. However, with the back-checks some of these have been rectified while others became red.

**PICTURES 73-79  
WATER LEVELS AT RESERVOIRS**



**TABLE 68  
WATER LEVEL INDICATOR AND TIME OF DAY**

		Evaluate: Water Level Indicator						Total	
		Red		Orange		Green		N	I%
		N	I%	N	I%	N	I%		
Time of day evaluated	9:30	1	20.0					1	5.0
	11:00	1	20.0			1	16.7	2	10.0
	11:30					1	16.7	1	5.0
	12:00	1	20.0					1	5.0
	12:55			1	11.1			1	5.0
	13:00					1	16.7	1	5.0
	13:30	1	20.0					1	5.0
	13:45					1	16.7	1	5.0
	14:00			2	22.2			2	10.0
	14:30			1	11.1			1	5.0
	15:00			1	11.1	1	16.7	2	10.0
	15:30	1	20.0					1	5.0
	15:45			1	11.1			1	5.0
	16:00					1	16.7	1	5.0
	16:30			1	11.1			1	5.0
	17:00			1	11.1			1	5.0
	17:15			1	11.1			1	5.0

In conclusion, the results on the water reservoirs suggest that:

- ❑ They are generally kept in good order, with the necessary safety measures in place.
- ❑ An aspect that needs some attention is the ground surrounding the reservoir itself. As in the case of some pump houses the grounds were not always kept neat, in terms of the removal of weeds and grass cutting.
- ❑ Some of the Water reservoirs were out of order due to Electrical failures and pump houses that were being repaired.
- ❑ Vandalism is non-existent, while illegal connection was found at one reservoir.

## 4.3.4 SUMMARY OF OBSERVATIONS

The observations of communal tapstands indicate that:

- ❑ Most of the communal tapstands are not leaking, while those that leak tend to be minor leaks.
- ❑ A problem exists in the sense that about 23.9% of taps are dry, when opened. This is due to a combination of reasons, of which malfunctions in the water reticulation system tend to be the most obvious. Many villages had no water, because electrical problems were experienced at the pump houses or water reservoir circumstances. These water interruptions seems to be not of a permanent nature as with back-checks many of these problems were rectified, although others appeared again.
- ❑ Apart from electrical failures, some broken tapstand mechanisms does exist. The observations indicate that the same number of tapstands has been vandalized - however, it might rather be attributed to poor maintenance than vandalism.
- ❑ Very few of the tapstands are blocked, while most tapstands drain covers are still in place.
- ❑ Water pressure seems to be more than adequate at most tapstands, while water quality (smell, taste and clarity) also seem to be good, Majority of tapstands is easily accessible.

The evaluation of communal tapstands generally indicates a positive picture, with the exception of possible water interruptions due to electrical failures (mostly) and broken tapstand mechanisms.

The observations of pump houses indicate that:

- ❑ All the pump houses were adequately fenced off and maintained. All the gates at the pump houses were in a working condition, with no evidence of vandalism. All have been locked by proper padlocks and the same with the padlocks inside the grounds.
- ❑ Maintenance of the grounds within certain pump houses can be improved by removing unnecessary weeds. In some pump houses water were freestanding, that could damage buildings in the long run.

- ❑ Vandalism does not play a major role in these villages. Only one pump house has been vandalized, and the extent actually was limited. No illegal water connections are made from any of the pump houses.

In general, the results once again indicate relative positive picture, as in the case of the communal tapstands. However, some pump houses were out of order due to electrical problems or general maintenance work.

The observations of the water reservoirs indicate that:

- ❑ All reservoirs are adequately fenced off, although some instances exist where goats have entered the premises through gaps between the ground and the fences.
- ❑ All padlocks were in place at the gates, although within the water reservoirs some were not in place.
- ❑ The gates seemed to be in a working condition at all the reservoirs.
- ❑ As in the case of the pump houses, the grounds are not always kept neat, as it should be.
- ❑ No signs of vandalism were found at any of the water reservoirs, while one illegal connection exist at Bhakuba.
- ❑ As in the case of Pump houses, some reservoirs were not working, impacting negatively on water supply.

The observations indicate a relatively positive picture except for the fact that some problems are experienced at certain villages with electricity supply.

In conclusion, the observations of the Water Infrastructure highlighted a situation where a community accepts its accountability for maintenance and operations of the water infrastructure. No real signs of vandalism or illegal water connections were found. The only worrying factor is possible water interruptions at certain villages due to problems experienced at the pump houses or water reservoirs. In some instances the grounds around the infrastructure needs to be attended to.

## 5. CONCLUSIONS

Based on the findings the following broad conclusions are made:

- Most pump houses and water reservoirs are basically in a good condition and seems to be managed effectively, though some problems does exist in terms of electricity supply and maintenance of the grounds. General maintenance work and electrical problems are the main factors contributing to water interruptions in the villages and cognizance should be taken thereof in terms of its potential impact on the communities. However, these water interruptions (with the exception of maybe electricity problems) tend to be of a short nature.

Vandalism appears to be of minimal nature at the pump houses, water reservoirs and even communal tapstands. As in the case of the pump houses and water reservoirs, majority of communal tapstand are still in a good condition and are easily accessible. Very few are leaking or are blocked, while the most prevalent problem is broken tapstand mechanisms. Special attention should be given to replace the broken tapstand mechanisms with quality mechanisms. Water pressure and water quality appears not be problem.

In terms of community accountability, no real threat was observed in terms of illegal connections, as only one illegal connection was found at only one of the reservoirs.

- A very important finding is that although water interruptions seem to occurs from time to time, and that some villages are experiencing water supply problems the findings on the opinions and perceptions regarding the Water Infrastructure project suggest that relatively positive attitudes are displayed by the community towards the project, with no major antagonism towards it. Villagers are highly appreciative of the fact that they have access to clean water; that is easier accessible to them, and that it have major advantages for them in terms of their health and lifestyle. These positive attitudes most probably could be attributed to the Mayo, or Hawthorne effect, in the sense of reaping rewards when you pay attention to people. The mere act of showing these villagers that government is concerned about their live circumstances spur them to positive attitudes, regardless of the actual outcomes of the developmental interventions.
- The Water Infrastructure Project has followed a very detailed and involved community consultation process, while the villagers that are aware of the Health and Hygiene workshops are highly satisfied with them.

Relative high satisfaction levels were expressed towards maintenance and operational aspects, as well as water quality. The least positively aspect evaluated (although still positive) as expected, in view of the technical observations, is that of water interruptions.

Community accountability and commitment has successfully been created, in line with the low level of actual vandalism of the Water Infrastructure. Most villagers feel that it is fair for them to look after the assets of the Water Infrastructure, and are committed to the functioning of the project in future.

In terms of the project's future sustainability, a number of potential problems have been highlighted ranging from technical to social related problems. The villagers feel that the long-term future of the project is much better than the short and medium term, indicating that the current problems experienced with the water interruptions, will eventually be sorted out.

A very important finding is that an overwhelming majority belief that the project made their lives easier or that it impacted positively on them as a community. These positive opinions are related to the perceptions that they are now receiving clean-purified water; that they no longer have to struggle to fetch water due to the convenient proximity of the tapstand, the health implications such as cleanliness and being free of germs and water-borne related diseases.

- The findings suggest that the perceived impact of the Water Infrastructure project on subjective evaluation of Overall QoL (live happiness) cannot be under-estimated as it significantly contributed to the variation in QoL over and above the relationships with the four QoL domains. The findings have indicate that the villager's current water sources usage patterns are significantly associated with QoL, and that those using the Communal tapstands are more satisfied with their Health, Community relations and Overall Quality of Life, than those still using the rivers as their main source of water.

Villagers display a moderate level of Subjective happiness (Overall Quality of Life). In line with the high poverty levels in rural areas, the villagers displayed very low satisfaction levels on the Material Well-being domain of QoL, while moderate satisfaction exist in terms of the Basic Services they receive. In sharp contrast, they tend to be very satisfied with their Personal Functioning and the Relationships domains of QoL.

In terms of the Personal functioning domain, moderate satisfaction levels were obtained on villagers' Physical health perceptions, while high levels of Altruism and satisfaction with Spiritual Well-being. All three these sub-domains correlate with Overall Quality of Life, although only a combination of Physical Health and Spiritual Well-being predicts QoL.

With regard to the Relationships domain, high satisfaction levels have been displayed on Community relations, but especially Family relations. Both domains are significantly positively correlated with QoL, while only Family relations actually predict QoL.

Rather negative opinions were expressed on all three sub-domains of Material Well-being, as villagers tend to be dissatisfied with their Educational levels and skills training opportunities, with their Work situation, and Income and social security levels. The relatively low educational levels prevailing in these villages, the high level of unemployment and low disposable income levels and dependence on Government grants support this dissatisfaction. Satisfaction with Income and social security is the only domain that correlates and predicts QoL.

In terms of Basic Services, very positive opinions were expressed on Environmental management in the villages; rather low satisfaction levels on Safety and Housing, while moderate satisfaction levels were expressed on Services Evaluation. With regard to Service evaluation, high levels of satisfaction were expressed towards water supply, and an overwhelming majority of villagers believes that water supply improved over the past 5 years. With the exception of Safety, all three other Domains of Basic Service correlates with QoL

On an objective QoL level, it is clear that the majority households moved away from using rivers, springs and boreholes to the usage of communal tapstands as their main source of water (4 890 households using communal tapstand). Some major water usage changes have been observed, since the implementation of the Water Infrastructure project, as the estimated time that families spend per day to fetch water has been dramatically shortened by more than 50%, while their per capita daily water usage have increased by 50%. The role of woman in fetching water might have changed as it evident that children, as well as males are now assisting.

In conclusion the findings suggest that the implementation of the Water Infrastructure project are positively viewed by most villagers, this despite the fact that some water interruptions occur due to maintenance and some other technical problems. In line with the perceived impact on the community and on a personal level, the findings have shown that there is a positive relationship between QoL and these perceptions on impact. The findings have also clearly shown that the project has impacted positively on the QoL of villagers, on an Overall QoL level as well as in terms of their subjective Physical health and Community relations, and on actual water usage patterns in general. Positive impacts were observed in terms of certain behavioral patterns and attitudes.

# 6. RECOMMENDATIONS

The following basic recommendations are made, based on the project findings:

## 1. Local, Project Level

- **Level and quality of the community facilitation was one of the most influential aspects of this project and contributed greatly to the perceived improved quality of life.**
- The relatively positive opinions and buy-in from the communities need to be maintained through the implementation of proper communication channels from WSA's through to village leaders and individual community members;
- Special efforts should be put in place to minimize interruptions to the water supply, by ensuring that broken electrical problems at some of the pump houses and water reservoirs are overcome. Broken communal tapstand mechanisms need to be replaced;
- The prevalence of the illegal water connection at one of the reservoirs needs to be addressed as this may set a precedence for other village communities, who may take advantage and engage in similar practices.

## 2. Operation and Maintenance

- An operational monitoring system should be put in place to ensure that problems with tapstands mechanisms and water supply are timeously identified and rectified;
- Communities should be timeously notified of possible water interruptions due to maintenance work, or other problems experienced in the water infrastructure/supply, in order to minimize levels of frustration and possible vandalism;
- Processes need to be put in place to identify major role players and define procedures to deal with malfunctions in the water infrastructure;

## 3. Future projects and planning

- The future sustainability of projects should take cognizance of the potential problems identified by the community and to have appropriate action plans in place in case of such problems;
- The design of tapstands needs to be more durable and the mechanisms more robust to withstand potential vandalism and failure due to heavy weights (e.g. 25 litre drums) hanging from the neck of the tapstands.
- To address the disruptions to the water supply caused by electricity failures, it is proposed where possible or relevant that each pump house be designed to include a standby generator, which would facilitate the provision of continuous water supply;
- Lastly, it is suggested that the impact of the project on the Quality of Life be continuously monitored (every 2 years) through the use of Process assessments and Quality of life surveys which should include in the different areas the gathering local information on relevant indicators such as the occurrence of water-borne diseases, number of home based care practitioners in area etc. The Quality of life surveys should also focus, apart from attitudes and behaviour, on aspects such as knowledge levels and personality characteristics such as locus of control, as well as group and individual relative deprivation levels in different domains of life.

**APPENDIX A:  
QUESTIONNAIRE**



# **QUALITY OF LIFE SURVEY EASTERN CAPE RURAL WATER SUPPLY PROJECT**

**OCTOBER 2006**

Good morning/afternoon/evening,

I am a community fieldworker ..... assisting the Department of Water Affairs and Forestry. They want to determine the effectiveness and the impact of the recently implemented Japanese funded Water Services Infrastructure Project that was undertaken in a number of Eastern Cape villages.

The Department of Water Affairs and Forestry has commissioned us to visit about 500 households in the Eastern Cape, therefore to conduct a survey into the local Socio-Economic and Living Conditions.

Your household has been selected, to take part in this study. I would like to interview one of the adults (18 years or older) in your household.

**Fieldworker:**

- 1. Select randomly applicable person (Adult, 18 years or older) to be interviewed**
- 2. If same person, continue with introduction**
- 3. If new person, re-introduce yourself and the need for the study.**

Your response to this questionnaire will be treated as **confidential**. Your name does not appear on the questionnaire.

Please answer all the questions as honestly as possible and remember that there are no right or wrong answers. We are only interested in your own opinions.

If you do not understand a question, please ask for the question to be clarified.

Thank you very much for your co-operation. We do appreciate your willingness to participate in this very important survey.

For Director General  
Department of Water Affairs and Forestry  
Date: 11/10/06

## SECTION A: AREA INFORMATION

INTERVIEWER: RECORD DETAILS FOR Q.1 - Q.4 BY OBSERVATION. PLEASE TICK APPROPRIATE BOXES.

### 1. WATER SCHEME/VILLAGE:

Kumaxhaka	-1	Tafeni	-11
Qanqu	-2	Cezu	-12
Didi	-3	Mavundleni	-13
Ezinkozweni	-4	Lower Roza	-14
Sikobeni	-5	Ncalukeni	-15
Centuli	-6	Ndasane	-16
Dlova	-7	Ndwane	-17
Upper Xongora	-8	Mvumelwano	-18
Gubevu	-9	Dambeni	-19
Luxolweni	-10	Bhakuba	-20
		Kwazulu	-21

### 2. COMMUNAL TAPSTAND NUMBER: (as per sample map)

### 3. DISTANCE FROM NEAREST STANDPIPE (as per sample layout):

Near (1st – 3 <sup>rd</sup> row houses)	-1
Intermediate (4 <sup>th</sup> – 5 <sup>th</sup> row houses)	-2
Far (6 <sup>th</sup> or more rows of houses)	-3

### 4. STAND NUMBER:

## SECTION B: BIOGRAPHICAL INFORMATION

INTERVIEWER: RECORD DETAILS FOR Q.5 BY OBSERVATION. PLEASE TICK APPROPRIATE BOXES.

### 5. GENDER:

Male	-1	Female	-2
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### 6. I would now like to ask you some general questions about yourself. Firstly, could you please tell me how old you are?

18 – 24 years	-01	45 – 49 years	-06
25 – 29 years	-02	50 – 54 years	-07
30 – 34 years	-03	55 – 59 years	-08
35 – 39 years	-04	60 – 64 years	-09
40 – 44 years	-05	65 years or older	-10

### 7. Your marital status?

Married (Traditional)	-01	Living together	-04
Married (Western)	-02	Never married	-05
Widow/Widower	-03	Other	-06

### 8. What is the highest level of education that you have completed? [SINGLE MENTION]

No formal schooling	-01	Gr10/Std 8/NTC 1	-11
Gr 1/Sub A	-02	Gr11/Std 9/NTC 2	-12
Gr 2/Sub B	-03	Gr12/Std 10/matric/NTC 3/	-13
Gr3/Std 1	-04	Diploma/certificate with Std 9 or less	-14

Gr4/Std 2	-05
Gr5/Std 3	-06
Gr6/Std 4	-07
Gr7/Std 5	-08
Gr8/Std 6	-09
Gr9/Std 7	-10

Diploma after matric	-15
Some university	-16
Degree	-17
Postgraduate degree	-18
Refused	-19
Don't know	-20

9. Did you go as far as you wanted to with your education?

Yes	-1
No	-2
Don't know	-3

10. Did you receive any skills training in the past few years?

Yes	-1	<b>GO TO Q11</b>
No	-2	<b>GO TO Q13</b>
Don't know	-3	<b>GO TO Q13</b>

11. If yes, what training did you receive?

**[DO NOT READ OUT - MULTIPLE MENTION]**

	Yes		Yes
Building	-1	Painting	-1
Carpentry	-1	Administration	-1
Plumbing	-1	Basic financial management	-1
Plastering	-1	Basic business skills	-1
Other	-1		

12. With the above training that you have received, could you get a job easier or not?

Yes	-1
No	-2
Don't know	-3

13. What is your current employment status? Are you currently working or not working? Which is the closest to your current situation? **[SINGLE MENTION]**

Working full-time	-1
Working part-time	-2
Casual/piece jobs	-3
Self-employed (Working for myself)	-4
Unemployed	-5
Pensioner	-6
Disabled (Getting a grant)	-7
Housewife/taking care of home full-time	-8
Other (specify): .....	-9

14. Which of the following clubs, societies and organisations, if any, are you a member of?

**[READ OUT EACH OPTION AND RECORD RESPONSE] [MULTIPLE MENTION]**

	Yes		Yes
Burial Society	-1	Student organisation	-1
Civic	-1	Trade union	-1
Cultural Organisation	-1	Women's group	-1
Environmental organisation	-1	Youth group	-1
Political organisation	-1	Street Committee	-1
Religious organisation/church	-1	Block Committee	-1
Sports club	-1	Neighbourhood Watch	-1
Savings club	-1	Local RDP/Development Committee	-1
Village Water Sanitation Committee	-1	None at all	-1

# SECTION C: HOUSEHOLD INFORMATION

15. Could you please tell me how many people live in this household including yourself? By household I mean all the people who live here permanently for at least four days a week, and who generally eat together and who take part in joint activities. .... (number)

16. Are there any of the above persons who are regarded as members of this household, but who are away for a month or more every year because they are migrant workers?

Yes	-1
No	-2
Don't know	-3

17. How many of your household members fall into each of the following categories?

Babies: 0 to 24 months	
Young children at home without educare	
Children attending a pre-school/educare/creche	
Children attending a primary school	
Children attending a secondary school	
Students (technikon/university/college)	
Disabled/unfit to work, at home during the day	
Employed: Formal Sector	
Employed: Informal Sector	
Unemployed, looking for work	
Housewife/childminder	
Retired/pensioner: at home during the day	
Other (specify)	
Total	

18. How many of your household members are 15-65 years old?

19. How many of the above (15-65 years old) household members are...?

Employed	
Unemployed	

20. Has there ever been a time in the past year when you did not have enough money to feed the children in your household?

Yes	-1
No	-2
Not applicable (no children in household)	-3

21. How many of the persons who live in your household, **including** yourself, usually earn an income?

..... ( )  
None/nobody -99

22. What is the source(s) of your household's income?

**[READ OUT EACH OPTION AND RECORD RESPONSE] [MULTIPLE MENTION]**

	Yes
Salary/wages	-1
Rentals	-1
Grants	-1
Pension	-1
Remittance (money sent to you)	-1
Other specify:.....	-1

23. Please tell me approximately how much money your household has as disposable income each month (by disposable income I mean the money [you have from wages/salaries/pension/subsidies/rentals] after tax and other deductions to spend on rent, food, bills and so on). **[HAND RESPONDENT CARD OR REPEAT CATEGORIES]**

Nothing	-01	R3000 – R3499	-09
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R001- R199	-02	R3500 – R3999	-10
R200 - R399	-03	R4000 – R6999	-11
R400 - R599	-04	R7000 – R9999	-12
R600 - R799	-05	R10000+	-13
R800 – R999	-06	Refused to answer	-14
R1000 - R1499	-07	Don't know	-15
R1500 - R2999	-08		

24. Please tell me approximately how much money this household spend, on average each month, on each of the following items? **[HAND RESPONDENT CARD OR REPEAT CATEGORIES]**

Food/groceries/beverages	R
Clothing/shoes	R
Housing and or land/traditional levies	R
Transport (bus/minibus/car/train)	R
Water	R
Electricity/Energy (candles/wood/coal/paraffin/gas)	R
Educational fees (school/university)	R
Telephone services/cellphones	R
Gambling (lotto/horseracing/casino etc.	R
Sending money elsewhere (remittance)	R
Other (specify): .....	R

25. Are your household .....?

	Willing to pay for water services in future	Willing to pay for sanitation services in future
Yes	-1	-1
No	-2	-2
Do not know	-3	-3

26. Why do you say so?

..... ( )

27. How long have you and your household lived ....?

	In this dwelling	In this village	Plan to stay in this village
Less than 1 year	-1	-1	-1
1-3 years	-2	-2	-2
4-6 years	-3	-3	-3
7-10 years	-4	-4	-4
11 years or longer	-5	-5	-5

## SECTION D: DWELLING AND SERVICE EVALUATION

Let us now talk a bit about your dwelling that you live in and the services in your village.

28. What is the total number of rooms in the dwelling(s) that the household occupies (include living rooms, bedrooms and kitchens **but exclude** bathrooms and toilets)?

..... (number)

29. What is the **main** material used for the roof and walls of the main dwelling?  
**[DO NOT READ OUT – SINGLE MENTION]**

	<b>ROOF</b>	<b>WALLS</b>
Bricks/blocks and Cement	-1	-1
Corrugated iron	-2	-2
Wood	-3	-3
Plastic	-4	-4
Mud	-5	-5
Thatching	-6	-6
Other materials (Specify):.....	-7	-7

30. Think about the physical condition or state of your dwelling. Would you say that it is:  
**[READ OUT - SINGLE MENTION]**

Good	-1
Fair	-2
Bad	-3

31. a. What **main** source of energy does this household use for lighting? **[DO NOT READ OUT – SINGLE MENTION]**  
 b. What **main** source of energy does this household use for cooking? **[DO NOT READ OUT – SINGLE MENTION]**

	Lighting	Cooking
Candles	-1	-1
Coal/Wood	-2	-2
Electricity	-3	-3
Gas	-4	-4
Paraffin/Primus Stove	-5	-5
Power from a generator or battery	-6	-6
Other (specify)	-7	-7
Nothing	-8	-8

32. Where do you **mainly** get water for household use?  
**[DO NOT READ OUT – SINGLE MENTION]**

	Current Source	Previous Source (Before village communal standpipes were installed)
Tap in dwelling	-01	-01
Tap in yard	-02	-02
Communal tap	-03	-03
Borehole	-04	-04
Spring	-05	-05
Rain-water tank	-06	-06
River	-07	-07
Dam	-08	-08
Tanker/truck	-09	-09
Vendor (selling water)	-10	-10
No regular source	-11	-11
Other (specify)	-12	-12

33. a. How long does it take you to fetch water per day? .....Hours ..... Minutes  
 b. How many trips is it per day? .....  
 c. How much water do you fetch per day (litres)? .....

34. Which **one** person currently **mainly/usually** fetches the water (if not in dwelling or yard)?  
**[DO NOT READ OUT – SINGLE MENTION]**

Adult (Female)	-1
Adult (Male)	-2
Son	-3
Daughter	-4
Daughter in law	-5
Other male	-6
Other female	-7
No one person	-8

35. Which of the following sanitation types does your household mainly use:  
**[READ OUT - SINGLE MENTION]**

	Currently	Previously (Before village communal standpipes were installed)
Flush toilet in dwelling	-1	-1
Flush toilet on site	-2	-2
Chemical toilet	-3	-3
Ventilated Improved Pit latrine	-4	-4
Pit latrine	-5	-5
Bucket toilet	-6	-6
Veld	-7	-7
Other (specify)	-8	-8

36. Are your household's rubbish removed by your local authority?

Yes	-1
No	-2
Don't know	-3

37. What do you do with your household's rubbish to get rid of it? Do you ...  
**[READ OUT - SINGLE MENTION]**

Dump it in bins on your stand	-1
Dump it in a communal rubbish dump	-2
Burn your rubbish	-3
Dig hole (inside or outside stand)	-4
Dump the rubbish in the veld	-5
Other (specify)	-6

38. How satisfied or dissatisfied are you and your household with the following services in your area?  
**[READ OUT - SINGLE MENTION PER SERVICE]**

	Water Supply	Sanitation Services	Electricity Supply	Waste Removal	Telecommunication
Very satisfied	-1	-1	-1	-1	-1
Fairly satisfied	-2	-2	-2	-2	-2
Just as satisfied as dissatisfied	-3	-3	-3	-3	-3
Fairly dissatisfied	-4	-4	-4	-4	-4
Very dissatisfied	-5	-5	-5	-5	-5

39. I would now like to know from you how, if at all, the overall situation in your area has changed during the past 5 years for each of following services. Has it got better, stayed the same or become worse?

	Water Supply	Sanitation Services	Electricity Supply	Waste Removal	Telecommunications	Crime/Safety situation	Education/skills training
Better	-1	-1	-1	-1	-1	-1	-1
Stayed the same	-2	-2	-2	-2	-2	-2	-2
Worse	-3	-3	-3	-3	-3	-3	-3

40. Are there facilities nearby your community where you or other members of your household can further their level of education (schools, colleges, universities, etc.)?

Yes	-1	<b>GO TO Q41</b>
No	-2	<b>GO TO Q42</b>
Don't know	-3	<b>GO TO Q42</b>

41. How satisfied or dissatisfied are you with these facilities to further your formal education?  
**[READ OUT - SINGLE MENTION]**

Very satisfied	-1
Fairly satisfied	-2
Just as satisfied as dissatisfied	-3
Fairly dissatisfied	-4
Very dissatisfied	-5

42. Are there facilities nearby your community where you or other members of your household can further their level of skills through some kind of training (colleges, training centres, community centres, etc.)?

Yes	-1	<b>GO TO Q43</b>
No	-2	<b>GO TO Q44</b>
Don't know	-3	<b>GO TO Q44</b>

43. Are you satisfied with the opportunities that are available to you and other members of your household to get any particular skills training? **[READ OUT - SINGLE MENTION]**

Very satisfied	-1
Fairly satisfied	-2
Just as satisfied as dissatisfied	-3
Fairly dissatisfied	-4
Very dissatisfied	-5

44. In terms of health care facilities that you are able to access, is there a health or mobile clinic in this community?

	Health Clinic	Mobile Clinic	
Yes	-1	-1	<b>GO TO Q45</b>
No	-2	-2	<b>GO TO Q48</b>
Don't know	-3	-3	<b>GO TO Q48</b>

45. Approximately how long does it take you to get to the health or mobile clinic from your dwelling?

	Health Clinic	Mobile Clinic
About 15 minutes or less	-1	-1
More than 15 minutes, but less than 30 minutes	-2	-2
More than 30 minutes, but less than 60 minutes	-3	-3
More than 60 minutes	-4	-4
Don't know	-5	-5

46. Thinking about the health/mobile clinic and the care that you receive, would you say that the following are problems that you have there? **[READ OUT EACH OPTION AND RECORD RESPONSE]**

		Shortage of medicine	Shortage of staff	Staff attitude	Clinic closes too early
Health Clinic	Yes	-1	-1	-1	-1
	No	-2	-2	-2	-2
	Do not know	-3	-3	-3	-3
Mobile Clinic	Yes	-1	-1	-1	-1
	No	-2	-2	-2	-2
	Do not know	-3	-3	-3	-3

47. Overall, how would you describe the quality of the health care that you get from this facility?  
**[READ OUT – SINGLE MENTION]**

	Health Clinic	Mobile Clinic
Very good	-1	-1
Fairly good	-2	-2
Just as good as poor	-3	-3
Fairly poor	-4	-4
Very poor	-5	-5

48. **[ASK ALL]**  
How far away is your nearest social welfare service point (in other words, where people get their grants, pension)?

Less than 1km	-1
1km – less than 5km	-2
More than 5km	-3
Don't know	-4

49. Overall, how would you describe the quality of the services you receive from the social welfare point?  
**[READ OUT – SINGLE MENTION]**

Very good	-1
Fairly good	-2
Just as good as poor	-3
Fairly poor	-4

Very poor	-5
Not applicable	-0

50. Let us think about issues of safety and security where you live. How safe do you and the other members of your household feel living in this area? **[READ OUT – SINGLE MENTION]**

Very safe	-1
Fairly safe	-2
Just as safe as unsafe	-3
Fairly unsafe	-4
Very unsafe	-5

51. In the past year, has any person in this household been a victim of crime?

Yes	-1
No	-2
Don't know	-3

52. How much confidence do you have in your local police?

Great deal	-1
Quite a lot	-2
Some	-3
Not much	-4
None at all	-5

53. Overall, how would you describe the quality of the roads within your village and those leading to your village? **[READ OUT – SINGLE MENTION]**

Very good	-1
Fairly good	-2
Just as good as poor	-3
Fairly poor	-4
Very poor	-5

54. Do you think your current household's standard of living is better, about the same, or worse ....?

	Than 5 years ago	In 5 years in future ( <i>Compared to now</i> )
Better	-1	-1
Same	-2	-2
Worse	-3	-3

55. Do think that ...?

Statement	A person like yourself deserves to live in better conditions than those around you in this area	Your standard of living and the area you live in are not as good as you feel that you deserve
Strongly Agree	-1	-1
Agree	-2	-2
Agree just as much as disagree	-3	-3
Disagree	-4	-4
Strongly Disagree	-5	-5

## SECTION E: DEVELOPMENT INITIATIVES

56. Let us now talk about development in your village. What is the most pressing problem facing your community in terms of its development needs?

..... ( )

57. I am now going to ask you about development initiatives/projects in your area. By development initiatives, I mean the building of schools, creches, community halls, water, sanitation projects, housing, etc. Are you aware of any development initiatives that are taking place in your area or have recently (past 5 years) taken place?

Yes	-1	<b>GO TO Q58</b>
-----	----	------------------

No	-2	<b>GO TO Q59</b>
Don't know	-3	<b>GO TO Q59</b>

58. Please give a list of these development initiatives/projects that were initiated in your village over the past 2-5 years?

1)	( )
2)	( )
3)	( )

59. Are you aware of any development projects/initiatives that took place/are taking place in your area that have been initiated by **government** (National, Provincial, Local) in your area?

Yes	-1	<b>GO TO Q60</b>
No	-2	<b>GO TO Q61</b>
Don't know	-3	<b>GO TO Q61</b>

60. Please give a list of these **Government** development projects/initiatives that were initiated in your village over the past 2-5 years?

1)	( )
2)	( )
3)	( )

**FIELDWORKER: INFORM THE RESPONDENTS ON THE DWAF/OLIVER TAMBO MUNICIPALITY WATER INFRASTRUCTURE PROJECT**

61. Are you aware of this Water Infrastructure project that the Government has initiated during the past couple of years?

Yes	-1	<b>GO TO Q62</b>
No	-2	<b>GO TO Q80</b>

62. Were the community's "needs" established before this Water Infrastructure project started?

Yes	-1
No	-2
Don't know	-3

63. Who decided on the type of the Water Infrastructure project?  
**[DO NOT READ OUT - SINGLE MENTION]**

Our Community	-1
Village Water and Sanitation Committee	-2
District Municipality	-3
Local Municipality	-4
Government	-5
Contractor	-6
Other (Specify): .....	-7

64. Are you satisfied with the way the community was consulted with and before the Water Infrastructure project was initiated?

Very satisfied	-1
Fairly satisfied	-2
Just as satisfied as dissatisfied	-3
Fairly dissatisfied	-4
Very dissatisfied	-5

65. Before and during the Water Infrastructure project, were you and your household given any of the following information? **[READ OUT EACH OPTION AND RECORD RESPONSE]**

	<b>Yes</b>	<b>No</b>	<b>Do not know</b>
How to look after the water pipes and taps	-1	-2	-3
Who is responsible for looking after the pipes and taps	-1	-2	-3
How to raise money to maintain the pipes and taps	-1	-2	-3
How to budget	-1	-2	-3
How to make sure the community understands accountability	-1	-2	-3
Who the community can turn to for help	-1	-2	-3

How to make full use of the water supply facility	-1	-2	-3
---	----	----	----

66. If something (such as a pipe or tap) had to break, what would you usually do first?

**[DO NOT READ OUT - SINGLE MENTION]**

Nothing	-1	Report to the Local Municipality to assist	-5
Wait for the maintenance supervisor to sort it out	-2	Try and fix it myself	-6
Report to the maintenance supervisor to assist	-3	Try and fix the problem with the assistance of the other people	-7
Report to the District Municipality to assist	-4	Other	-8

67. Do you know of any Health and Hygiene training/workshops that have been provided in your Village over the past couple of years as part of the Water Infrastructure project? **[READ OUT – SINGLE MENTION]**

Yes	-1	Go to Q68
No	-2	Go to Q69

68. How would you rate the Health and Hygiene training/workshops that have been provided in your Village over the past 2 –5 years? **[READ OUT – SINGLE MENTION]**

Very good	-1
Fairly good	-2
Just as good as poor	-3
Fairly poor	-4
Very poor	-5
Cannot remember	-6
Do not know	-0

69. Do you think that the Health and Hygiene training/workshops addressed the following aspects sufficiently or not?

	Promote Safe water chain	Transmission routes of water-borne diseases	Safe storage of water	Management of waste disposal
Sufficiently	-1	-1	-1	-1
Just as sufficiently as insufficient	-2	-2	-2	-2
Insufficiently	-3	-3	-3	-3
Do not know	-4	-4	-4	-4

70. Do you feel it is ..... to expect your community to look after the Water Infrastructure asset?

**[READ OUT - SINGLE MENTION]**

Fair	-1
Not fair	-2
Don't know	-3

71. What is the main problem, if any, facing the continuous working of Water Infrastructure project?

..... ( )

72. How satisfied or dissatisfied are you with each of the following aspects of the Water Infrastructure Project?

	Accessibility of standpipes	Maintenance of standpipes	Water pressure	Water Quality (Clarity, smell and taste)	Water interruptions	Leaking/broken water pipes	Village Water & Sanitation Committee's effectiveness
Very satisfied	-1	-1	-1	-1	-1	-1	-1
Fairly satisfied	-2	-2	-2	-2	-2	-2	-2
Just as satisfied as dissatisfied	-3	-3	-3	-3	-3	-3	-3
Fairly dissatisfied	-4	-4	-4	-4	-4	-4	-4
Very dissatisfied	-5	-5	-5	-5	-5	-5	-5

73. Do you think that the Water Infrastructure project has made your life any ....

**[READ OUT - SINGLE MENTION]**

Easier	-1
No change	-2

More difficult	-3
----------------	----

74. Explain why this is so. **[RECORD ONLY ONE RESPONSE]**  
 ..... ( )

75. How would you describe the overall impact that the Water Infrastructure project has had on your **community**?  
**[READ OUT – SINGLE MENTION]**

Very positive	-1
Fairly positive	-2
Just as positive as negative	-3
Fairly negative	-4
Very negative	-5

76. Why do you say so? **[RECORD ONLY ONE RESPONSE]**  
 ..... ( )

77. Did the Water Infrastructure project in your village lead to...?

	Reduction in water borne diseases	Increased knowledge on health and sanitation aspects	Improved hygiene behaviour	New Business developments	Job creation /LED	Improvement in your household's lifestyle	Increase in Illegal water connections	Community Capacity-building
Yes	-1	-1	-1	-1	-1	-1	-1	-1
No	-2	-2	-2	-2	-2	-2	-2	-2
Do not know	-3	-3	-3	-3	-3	-3	-3	-3

78. Do you think the communal tapstands will still be in a working condition in the short, medium and long-term future?

	Short term (Next 1-2 years)	Medium term (Next 1-5 years)	Long term (Next 1-10 years)
Yes	-1	-1	-1
No	-2	-2	-2
Do not know	-3	-3	-3

79. Are you committed to keep the infrastructure (communal tapstands, pumps and reservoirs) in a working condition?

Yes	-1
No	-2
Do not know	-3

## SECTION F: LIFE STYLE AND COMMUNITY ISSUES

80. Let us talk about your health first. Would you say that on the whole, your physical health, compared to other people of your age, is: **[READ OUT - SINGLE MENTION]**

Much better	-1
Slightly better	-2
The same	-3
Slightly worse	-4
Much worse	-5

81. Do you think that having constant clean water assists sick people in your village?

Yes	-1
No	-2
Don't know	-3

82. Do you usually ...? **[READ OUT – SINGLE MENTION]**

	Boil water for drinking purposes	Wash your hands before eating	Wash your hands before food preparation	Wash your hands after using the toilet
Yes	-1	-1	-1	-1
No	-2	-2	-2	-2
Do not know	-3	-3	-3	-3

83. Do you think it is necessary or unnecessary to ...? **[READ OUT – SINGLE MENTION]**

	Boil water for drinking purposes	Wash your hands before eating	Wash your hands before food preparation	Wash your hands after using the toilet
Unnecessary	-1	-1	-1	-1
Necessary	-2	-2	-2	-2
Do not know	-3	-3	-3	-3

84. In your opinion, what aspect/s contributes mainly to a better Quality of life?

85. I would now like to ask you a couple of questions about your life in general. Please listen to the following statements and tell me whether you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree with each statement. **[READ OUT EACH OPTION AND RECORD RESPONSE]**

Statement	In general, I am satisfied with the quality of my life	In general, I am happy with the way my life is at the moment	People like me cannot influence developments in my community	I would rather live somewhere else than here	Life for me is better today than it was 5 years ago
Strongly Agree	-1	-1	-1	-1	-1
Agree	-2	-2	-2	-2	-2
Agree just as much as disagree	-3	-3	-3	-3	-3
Disagree	-4	-4	-4	-4	-4
Strongly Disagree	-5	-5	-5	-5	-5

86. I am now going to read out a few statements that people like you have made about their own lives. Please listen to the following statements and tell me whether you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree with each statement.

**[READ OUT EACH OPTION AND RECORD RESPONSE]**

Statement	My family provides me with a lot of support	As a family we have a lot of fun together	The members of my family are not as close as I would want	I am satisfied with the support I get from my family
Strongly Agree	-1	-1	-1	-1
Agree	-2	-2	-2	-2
Agree just as much as disagree	-3	-3	-3	-3
Disagree	-4	-4	-4	-4
Strongly Disagree	-5	-5	-5	-5

87. In the last year, have there been times when your community have been strongly divided over any particular issue?

Yes	-1	<b>GO TO Q88</b>
No	-2	<b>GO TO Q90</b>
Don't know	-3	<b>GO TO Q90</b>

88. What was the main issue that your community has been divided over? **[RECORD ONLY ONE RESPONSE]**

89. How satisfied were you with the way these issues were dealt with in the community?

**[READ OUT – SINGLE MENTION]**

Satisfied, as issue was resolved	-1
Satisfied, but issue was not resolved	-2
Dissatisfied, although issue was resolved	-3
Dissatisfied, as issue was not resolved	-4
Don't know	-5

- 
90. Generally speaking, do you think that most people in your community can be trusted or that you need to be very careful when dealing with people?

Most people can be trusted	-1
You need to be very careful	-2
Don't know	-3

- 
91. On average, do you think that most people in your community care only for themselves or that they also care for their neighbours?

Care only for themselves	-1
Care also for neighbours	-2
Don't know	-3

92. Some people say it is important to care for other people, while others say no. Do you think that ...?

Statement	People should be willing to help other people who are less fortunate	Personally assisting people in trouble, is very important to me	These days people need to look after themselves, instead of worrying too much about other people
Strongly Agree	-1	-1	-1
Agree	-2	-2	-2
Agree just as much as disagree	-3	-3	-3
Disagree	-4	-4	-4
Strongly Disagree	-5	-5	-5

93. I am now going to read out a number of health-related aspects of people's lives. I would like you to tell me how satisfied or dissatisfied you are with....?

	Your physical health in general	Your energy levels	Your ability to sleep without difficulties	Yourself	Your personal beliefs giving meaning to your life	Your life being meaningful
Very satisfied	-1	-1	-1	-1	-1	-1
Fairly satisfied	-2	-2	-2	-2	-2	-2
Just as satisfied as dissatisfied	-3	-3	-3	-3	-3	-3
Fairly dissatisfied	-4	-4	-4	-4	-4	-4
Very dissatisfied	-5	-5	-5	-5	-5	-5

94. I am now going to read out a number of personal aspects of people's lives. I would like you to tell me how satisfied or dissatisfied you are with....?

	Your education	Your household's income	Your household's income if you became ill or died	Your security against crime	Your right to vote	Respect you get from the community
Very satisfied	-1	-1	-1	-1	-1	-1
Fairly satisfied	-2	-2	-2	-2	-2	-2
Just as satisfied as dissatisfied	-3	-3	-3	-3	-3	-3
Fairly dissatisfied	-4	-4	-4	-4	-4	-4
Very dissatisfied	-5	-5	-5	-5	-5	-5

95. I am now going to read out a number of external aspects of people's lives. I would like you to tell me how satisfied or dissatisfied you are with....?

	Your dwelling	The size of your dwelling	The housing availability	Job opportunities	Business opportunities	Local economic development	Local transport services
Very satisfied	-1	-1	-1	-1	-1	-1	-1
Fairly satisfied	-2	-2	-2	-2	-2	-2	-2
Just as satisfied as dissatisfied	-3	-3	-3	-3	-3	-3	-3
Fairly dissatisfied	-4	-4	-4	-4	-4	-4	-4
Very dissatisfied	-5	-5	-5	-5	-5	-5	-5

96. Lastly, I am now going to read out a number of environmental aspects impacting of people's lives. I would like you to tell me how satisfied or dissatisfied you are with the following in your village....?

	The way the natural environment is managed	The level of air pollution	The level of water pollution
Very satisfied	-1	-1	-1
Fairly satisfied	-2	-2	-2
Just as satisfied as dissatisfied	-3	-3	-3
Fairly dissatisfied	-4	-4	-4
Very dissatisfied	-5	-5	-5

THANK YOU VERY MUCH



# **EASTERN CAPE RURAL WATER SUPPLY PROJECT**

# **COMMUNAL TAPSTAND EVALUATION CHECKLIST**

**OCTOBER 2006**

# COMMUNAL TAPSTAND: CHECKLIST



1. **WATER SCHEME/VILLAGE:**

Kumaxhaka	-1	Tafeni	-11
Qanqu	-2	Cezu	-12
Didi	-3	Mavundleni	-13
Ezinkozweni	-4	Lower Roza	-14
Sikobeni	-5	Ncalukeni	-15
Centuli	-6	Ndasane	-16
Dlova	-7	Ndwane	-17
Upper Xongora	-8	Mvumelwano	-18
Gubevu	-9	Dambeni	-19
Luxolweni	-10	Bhakuba	-20
		Kwazulu	-21

2. **COMMUNAL TAPSTAND NUMBER: (as per map)**

## EVALUATION CHECKLIST

		YES	NO
1.	<b>Communal tapstand was built/exists</b>	1	2 <i>(If no, exit checklist)</i>
2.	<b>Communal tapstand generally in working condition</b>	1	2
3.	<b>Communal tapstand is leaking water (free flow of water)</b>	1	2
4.	<b>Water flows when tap is opened</b>	1	2
5.	<b>Broken communal tapstand mechanism</b>	1	2
6.	<b>Communal tapstand vandalised: Indicate the extent: .....</b>	1	2
7.	<b>Communal tapstand drainage pipe blocked (standing water)</b>	1	2
8.	<b>Communal tapstand's drain cover removed</b>	1	2
9.	<b>Water pressure adequate</b>	1	2
10.	<b>Easy access to communal tapstand</b>	1	2
11.	<b>Water Quality: Clear Colour (not muddy)</b>	1	2
12.	<b>Water Quality: Odour/smell is acceptable</b>	1	2
13.	<b>Water Quality: Taste is acceptable</b>	1	2

Checked by: .....

Date: .....

Signature:.....

Back-Checked by: .....

Date: .....

Signature:.....

**APPENDIX C:  
CHECKLIST WATER  
RESERVOIR**



# **EASTERN CAPE RURAL WATER SUPPLY PROJECT**

# **WATER RESERVOIR EVALUATION CHECKLIST**

**OCTOBER 2006**



# WATER RESERVOIR CHECKLIST

## 1. WATER SCHEME/VILLAGE:

Kumaxhaka	-1
Qangu	-2
Didi	-3
Ezinkozweni	-4
Sikobeni	-5
Centuli	-6
Dlova	-7
Upper Xongora	-8
Gubevu	-9
Luxolweni	-10

Tafeni	-11
Cezu	-12
Mavundleni	-13
Lower Roza	-14
Ncalukeni	-15
Ndasane	-16
Ndwane	-17
Mvumelwano	-18
Dambeni	-19
Bhakuba	-20
Kwazulu	-21

## 2. WATER RESERVOIR NUMBER: (as per map)

## EVALUATION CHECKLIST

		YES	NO
1.	<b>Water reservoir was built/exists</b>	1	2 <i>(If no, exit checklist)</i>
2.	<b>Reservoir is adequately fenced-off</b>	1	2
3.	<b>Reservoir padlock in place</b>	1	2
4.	<b>Gate in working order at Reservoir</b>	1	2
5.	<b>Grass has been cut around the reservoir</b>	1	2
6.	<b>Illegal connections (pipes) by community</b>	1	2
7.	<b>Reservoir has been vandalised: (Indicate the extent):</b> ..... .....	1	2

8.		Red	Orange	Green
	<b>Water level Indicator</b>	1	2	3

9.	<b>Time of day evaluated:</b>	<input style="width: 100%; height: 20px;" type="text"/>
----	-------------------------------	---

Checked by: .....  Date: .....  Signature:.....
Back-Checked by: .....  Date: .....  Signature:.....

**APPENDIX D:  
CHECKLIST PUMP  
HOUSE**



# **EASTERN CAPE RURAL WATER SUPPLY PROJECT**

# **PUMP HOUSE EVALUATION CHECKLIST**

**OCTOBER 2006**



# PUMP HOUSE CHECKLIST

## 3. WATER SCHEME/VILLAGE:

Kumaxhaka	-1
Qanqu	-2
Didi	-3
Ezinkozweni	-4
Sikobeni	-5
Centuli	-6
Dlova	-7
Upper Xongora	-8
Gubevu	-9
Luxolweni	-10

Tafeni	-11
Cezu	-12
Mavundleni	-13
Lower Roza	-14
Ncalukeni	-15
Ndasane	-16
Ndwane	-17
Mvumelwano	-18
Dambeni	-19
Bhakuba	-20
Kwazulu	-21

## 4. Pump House NUMBER: (as per map)

## EVALUATION CHECKLIST

		YES	NO
1.	<b>Pump house was built/exists</b>	1	2 <i>(If no, exit checklist)</i>
2.	<b>Pump house is adequately fenced-off</b>	1	2
3.	<b>Gate in working order at Pump house</b>	1	2
4.	<b>Grass has been cut inside the Pump house</b>	1	2
5.	<b>Pump lid in place</b>	1	2
6.	<b>Pump padlock in place</b>	1	2
7.	<b>Illegal connections (pipes) by community</b>	1	2
8.	<b>Pump house has been vandalised:</b> <b>(Indicate the extent):</b> ..... .....	1	2

Checked by: .....

Date: .....

Signature:.....

Back-Checked by: .....

Date: .....

Signature:.....



# **QUALITY OF LIFE SURVEY EASTERN CAPE**

**11 October 2006**

## **TO WHOM IT MAY CONCERN**

The Department of Water Affairs and Forestry is in a process of evaluating the impact and effectiveness of its recently implemented Water Services Infrastructure Project in the Eastern Cape.

Your village falls within this evaluation process. Your household was selected, to take part in this very important evaluation process.

Could you please assist us by answering the questionnaire that will be administered by a fieldworker?

Thank you very much for your co-operation. We do appreciate your willingness to participate in this very important survey.

**For Director General  
Department of Water Affairs and Forestry  
Date: 11/10/06**

**APPENDIX F: WEIGHTED AND  
NON-WEIGHTED QoL DATA**

	<b>Non-weighted</b>	<b>Weighted</b>
Overall Quality of Life	68.12	67.98
QoL: Altruism	89.42	89.33
QoL: Spiritual	77.66	77.59
QoL: Health	64.13	64.06
QoL Domain: Personal functioning	77.07	76.99
QoL: Family relations	80.37	80.22
QoL: Community relations	74.10	74.12
QoL Domain: Relationships	77.24	77.17
QoL: Work and Productivity	28.34	28.36
QoL: Education and Skills training	21.19	21.15
QoL: Income and Social Security	48.53	48.52
QoL Domain: Material Well-being	32.74	32.73
QoL: Housing	47.00	47.02
QoL: Safety	44.09	44.09
QoL: Environment	84.62	84.56
QoL: Basic Services	57.93	57.85
QoL Domain: Satisfaction with Services	58.34	58.31
Impact of JWIP	95.92	95.85
Relative Deprivation	66.63	66.53