water affairs
Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE MZIMVUBU WATER PROJECT

DEA REF. No 14/12/16/3/3/2/677 (Dam Construction)
14/12/16/3/3/2/678 (Electricity Generation)
14/12/16/3/3/2/1169 (Roads)

SUMMARY OF DRAFT SCOPING REPORT

Olu xwebhu luyafumaneka nangesiXhosa

May 2014

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE MZIMVUBU WATER PROJECT

REFERENCE

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DWA Report No: P WMA

Prepared for: Directorate – Options Analysis

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ENVIRONMENTAL IMPACT ASSESSMENT FOR THE MZIMVUBU WATER PROJECT

SUMMARY OF SCOPING REPORT

1. Introduction

The Mzimvubu Water Project is an integrated multi-purpose (domestic water supply, agriculture, power generation, transport, tourism, conservation and industry) project and provides a socio-economic development opportunity for the region. The purpose of this Environmental Impact Assessment (EIA) is to assess the components of the project that are listed activities by the National Environmental Management Act (NEMA) for which the Department of Water Affairs (DWA) has the mandate and intention to implement. The EIA process will provide the information that the environmental authorities require to decide whether the project should be implemented or not, and if so then under what conditions.

This Scoping report describes the proposed project, the receiving environment, and identifies key issues and alternatives to be investigated in the impact assessment phase. It also describes the way forward in the Plan of Study for the EIA phase.

2. Additional authorisations required

This EIA includes the assessments required to apply for the following authorisations that the project requires:

- Water Use Licence

The construction of the dams and associated infrastructure involves a number of water uses listed in terms of section 21 of the National Water Act, No. 36 of 1998 (NWA).

- Borrow areas and quarries

Construction materials such as sand, gravel and rock material will be required for the construction of the dams and roads. Existing licensed quarries and borrow pits in the area may not be adequate or suitable to provide all the required construction materials and it is estimated two new rock quarries and eight sand borrow pits will be necessary for Ntabelanga and Laleni dam sites.

In terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA), as amended, and the Mineral and Petroleum Resources Development Regulations in GNR 527 of 23 April 2004, the DWA has been exempted by virtue of GNR 762 of 25 June 2004 from the application procedures and the approval of rights and permits in terms of sections 16, 20, 22, and 27 of the MPRDA. However, in accordance with section 106(2) of the MPRDA, the DWA is required to compile an Environmental Management Programme (EMP) for approval in terms of the provisions of section 39 (4) of the Act.

The impact of the new borrow areas and quarries will be investigated in the EIA, and EMPs will be compiled for approval by the DMR as required.

- Heritage permits

The proposed project involves a number of activities listed in terms of section 38 of the National Heritage Resources Act No. 25 of 1999 (NHRA), which require authorisation from the relevant heritage authorities. A Heritage Impact Assessment (HIA) will be conducted as part of the EIA process. The HIA will be submitted to the Eastern Cape Provincial Heritage Resources Authority and the South African Heritage Resources Agency (SAHRA) for decision-making regarding heritage resources.

- Waste Management Licence

The Management of Waste is regulated by the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEMWA) and associated Regulations.

A Waste Management Licence may be required for the settling ponds that will be used to capture runoff from the batching and crusher plants (Activity (1) of Category A: Storage of general waste in lagoons).

The construction of the tunnel at the Laleni Dam for the generation of hydro power will result in spoil (inert general waste) that needs to be disposed of and may require a Waste Management Licence.

- Licences for the removal of protected trees

Trees may have to be disturbed, damaged or destroyed/removed to make way for the new infrastructure. If those trees are protected in terms of the National Forests Act, 1998, a licence must be obtained from the Department of Agriculture, Forestry and Fisheries (DAFF).

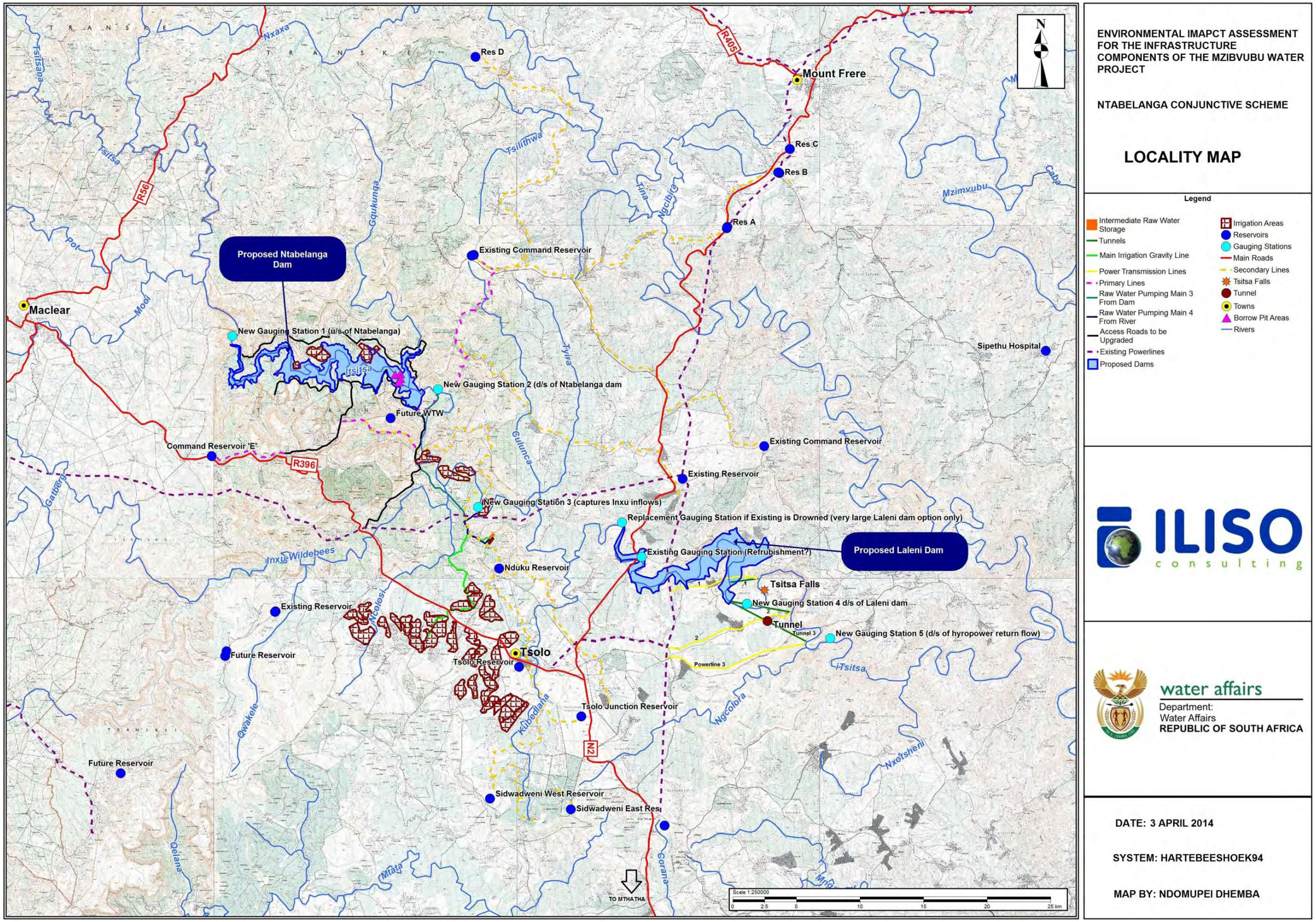
3. Project description

The project footprint spreads over three District Municipalities (DMs) namely the Joe Gqabi DM in the north west, the OR Tambo DM in the south west and the Alfred Nzo DM in the east and north east.

The proposed Ntabelanga Dam site is located approximately 25 km east of the town of Maclear and north of the R396 Road. The proposed Laleni Dam site is situated approximately 17 km north east of the small town Tsolo. Both are situated on the Tsitsa River

Water Resource Infrastructure includes:

- A dam at the Ntabelanga site with a storage capacity of 490 million m^3;
- A dam at the Laleni site with a storage capacity of approximately 150 million m^3;
- A tunnel and power house at Laleni dam site for generating hydropower;
- Five flow gauging stations;



ENVIRONMENTAL IMAPCT ASSESSMENT FOR THE INFRASTRUCTURE COMPONENTS OF THE MZIBVUBU WATER PROJECT

NTABELANGA CONJUNCTIVE SCHEME

LOCALITY MAP

Legend

- Intermediate Raw Water Storage
- Tunnels
- Main Irrigation Gravity Line
- Power Transmission Lines
- Primary Lines
- Raw Water Pumping Main 3 From Dam
- Raw Water Pumping Main 4 From River
- Access Roads to be Upgraded
- Existing Powerlines
- Proposed Dams
- Irrigation Areas
- Reservoirs
- Gauging Stations
- Main Roads
- Secondary Lines
- Tsitsa Falls
- Tunnel
- Towns
- Borrow Pit Areas
- Rivers

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DATE: 3 APRIL 2014

SYSTEM: HARTEBEESHOEK94

MAP BY: NDOMUPEI DHEMBA

Figure 1: Locality Map

- Wastewater treatment works at the dam sites;
- Accommodation for operations staff at the dam sites; and
- Two information centres at the dam sites.
- Five new flow measuring weirs will be required in order to measure the flow that is entering and released from the dams. These flow gauging points will be important for monitoring the implementation of the Reserve and for operation of the dams.

The Ntabelanga Dam will supply potable water to 539 000 people, rising to 730 000 people by year 2050. The domestic water supply infrastructure will include:

- A river intake structure and associated works;
- Water treatment works;
- Potable bulk water distribution infrastructure for domestic and industrial water requirements (primary and secondary distribution lines);
- Bulk treated water storage reservoirs strategically located; and
- Pumping stations.

The Ntabelanga Dam will also provide water to irrigate approximately 2 900 ha. This project includes bulk water conveyance infrastructure for raw water supply to edge of field.

About 2 450 ha of the high potential land suitable for irrigated agriculture are in the Tsolo area and the rest near the proposed Ntabelanga Dam and along the river, close to the villages of Machibini, Nxotwe, Culunca, Ntshongweni, Caba, Kwatsha and Luxeni.

There will be a small hydropower plant at Ntabelanga Dam to generate between 0.75 MW and 5 MW (average 2.1 MW). This will comprise a raw water pipeline from the dam to a building containing the hydropower turbines and associated equipment, and a discharge pipeline back to the river just below the dam wall. The impact is expected to be similar to that of a pumping station.

The hydropower plant at the proposed Laleni Dam and tunnel (used conjunctively with the Ntabelanga Dam) will generate an average output of 35 MW when operated as a base load power station and up to 180 MW when operated as a peaking power station. The power plant will require a tunnel of approximately 7 km linking the dam to the power plant downstream of the dam and below the gorge.

The high voltage power line to link the Laleni power station to the existing Eskom grid will be approximately 18.5 km and the power line linking Ntabelanga dam to the Eskom grid will be approximately 13 km. Power lines will be constructed to supply power for construction at the two dam sites and for operating five pumping and booster stations along the bulk distribution infrastructure.

The area to be inundated by the dams will submerge some roads. Approximately 80 km of local roads will therefore be re-aligned. Additional local roads will also be upgraded to

support social and economic development in the area. The road design will be very similar to the existing roads as well as be constructed using similar materials.

The project is expected to cost R 12.45 billion and an annual income of R 5.9 billion is expected to be generated by or as a result of the project during construction and R 1.6 billion per annum during operation. It will create 3 880 new skilled employment opportunities and 2 930 un-skilled employment opportunities during construction.

4. Alternatives

This project involves spending money on the development of water related infrastructure in order to stimulate social and economic development in the study area by providing water for domestic, industrial and agricultural use as well as by creating jobs directly associated with the construction and operation of the project. Additional knock on and downstream activities also generate jobs and income to the area. An activity alternative would be to consider different uses for the same financial investment that could improve the quality of life and generate an equivalent number of jobs and income to the area. As the applicant for this project is the Department of Water Affairs who has a mandate to develop water resources infrastructure and not to implement development projects of a different nature, it is not feasible to investigate such alternatives.

Previous investigations done in the feasibility phase of the project assessed alternative dam sites for the project. These assessments have been reviewed and are considered adequate for the EIA requirements. Further studies on alternative dam sites will therefore not be undertaken in the impact assessment phase of this study. The following project level alternatives will be assessed:

The alternatives that will be considered in the EIA are:

- Three hydro power tunnel positions and associated power lines;
- Peak versus Base load power generation;
- Three different dam sizes for the Laleni Dam; and
- The no project option.

For the pipeline routes and new roads the specialists will identify any sensitive areas and deviations to avoid these will be proposed in consultation with the technical team.

5. Public Participation in the Scoping Phase

A pre-application meeting was held at the Department of Environmental Affairs (DEA) offices in Pretoria on 25 March 2014. The purpose of the meeting was to introduce the project to DEA, and agree on the proposed process and programme to be followed as well as associated roles and responsibilities.

As the project is a Strategic Integrated Project (SIP3) and a priority for the Department of Water Affairs, delays in the EIA process should be avoided as far as possible. The

programme for the EIA study was presented at the meeting and it was resolved that an Authorities Forum be established for the project, in order to obtain inputs and comments on the draft reports from the various organs of State involved in a timeous manner.

A letter notifying Interested and Affected Parties (I&APs) of this application for environmental authorisation, as well as the applications for the Water Use Licence, heritage permits, and borrow areas approval was sent to all registered stakeholders together with a Background Information Document (BID) (Appendix B). Both the English and isiXhosa versions were distributed by the local facilitators as well as placed on the DWA website. The BID covers all the applications that form part of the project. A newspaper advertisement was published in both a local and national newspaper announcing the EIA process for this project and providing contact details for I&APs to register as a stakeholder. An on-site notice was also posted providing a brief background on the project and contact details in order for I&APs to request further information and/or to register as a stakeholder.

Notice of the applications will be advertised in the EP Herald on 29 April 2014 the Mthatha Fever on 30 April 2014. The draft scoping report is available to I&APs for comment from the DWA website (http://www.dwaf.gov.za/projects.aspx) and hard copies are also available for perusal. I&APs have thirty (30) days to comment on the draft scoping report.

Copies of the draft Scoping Report are available at the following venues:

Location	Venue
East London	East Landon Central Library, Reference Library First Floor Gladstone Street East London 5200
Mthatha	Walter Sisulu University Nelson Mandela Drive Unitra, Umtatha 5117
Tsolo	Mhlontlo Local Municipality 128 Mthuthuzeli Mpehle Avenue Tsolo 5170
Ntabelanga	Siqhungqwini Junior Secondary School Siqhungqwini A copy will also be left with Chief Mabantla.
Laleni	Mhlontlo Local Municipality Technical department Office 26 96 Church Street

	Qumbu 5180

In addition to the public comment period, three public meetings will be held during the week of the 12th May 2014 near the proposed Ntabelanga dam site, in Tsolo and in Laleni. These meetings will be used to engage with the public, provide information and allow stakeholders to raise any comments or objections, which will be recorded in the Issues and Responses Report (IRR).

6. Description of the affected environment

The study area falls within the South Eastern Uplands Aquatic Ecoregion and the Mzimvubu to Kieskamma Water Management Area (WMA). The Mzimvubu River is one of South Africa's largest rivers (accounting for 5.5% of total river flow in the country). It has four major tributaries, namely the Mzintlava, Kinira, Tina and Tsitsa Rivers. Rivers in this catchment possess water surpluses.

Figure 2: Proposed Ntabelanga Dam upstream basin

The proposed Ntabelanga and Laleni Dams are both situated on the Tsitsa River, a perennial river classified as a Category C (moderately modified).

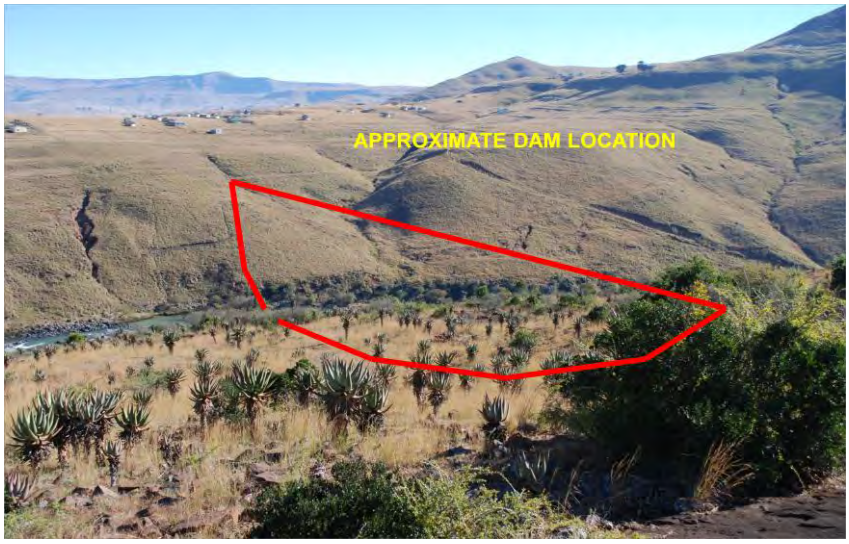

Figure 3: Approximate location of the proposed Ntabelanga Dam

The pipelines in the northern part of the project area cross the Tina River which is also classified as being in Category C condition (moderately modified). The Tina River is regarded as an important fish sanctuary, translocation and relocation zone and is classified as being a fish support area according to the National Freshwater Ecosystem Priority Areas Database (2011).

The mountain/highland grasslands in the area maintain high water quality and yield, which is critical for the neighbouring rural communities and also for downstream consumption.

According to the National List of Threatened Terrestrial Ecosystems (2011), sections of the proposed infrastructure fall into a vulnerable ecosystem. Vulnerable ecosystems, have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention. Large areas within the project area have been identified as Critical Biodiversity. These areas are of conservation importance due to the presence of Red Data species, endemic species and potential habitat for these species to occur.

Heritage literature and database reviews indicate that the following heritage resource types are likely to be present in the study area:

- Places associated with oral traditions or living heritage
- Landscapes and natural features
- Traditional burial places, and
- Archaeological sites.

The project impacts the three district municipalities of Joe Gqabi, O. R. Tambo and Alfred Nzo. Of these districts Joe Gqabi covers the greatest land area and has the lowest population density across the region at 14 people/km^2 while O. R. Tambo has the largest population and the highest population density at 110 people/km^2. With regard to population

group black African people are the dominant group across all districts at over 90%. Xhosa is the dominant language spoken in the area ranging between 70.5% and 94.2%.

Joe Gqabi had the highest HIV prevalence rate amongst antenatal women in 2011 with a rate of 29.3%. This is followed by the Alfred Nzo District Municipality at 28.9% and O. R. Tambo at 28.4%.

The project impacts the following 4 local municipalities: Elundini, Mhlontlo, Umzimzubu and Ntabankulu. Elundini covers the greatest geographical area at 5,065 km^2 and Ntabankulu the smallest area at 1,385 km^2. With a population of 123 976 people Ntabankulu has the highest population density at 90 people/km^2. Umzimvubu has the highest population with 191 620 people living within the municipal area. At over 98 % Black African people are the biggest population group across all municipalities and Xhosa is the dominant language spoken.

The sex ratios across all areas indicates a higher number of females compared to males with Ntabankulu having the highest proportion of females to males and Elundini the lowest. Apart from the Joe Gqabi district, where 49.3% of the households are female headed, all other areas have a higher percentage of female than male headed households with the greatest percentage of female headed households at 60.4% being found in Ntabankulu. Most formal dwellings are found in the Joe Gqabi district with the lowest percentage of formal dwellings at 24.3% being found in Ntabankulu. At 64.4% the local municipality of Ntabankulu has the highest percentage of housing being owned or being paid off with the lowest percentage, 53.9%, being found in Mhlontlo.

The study area is characterised by a high dependency ratio which indicates the burden of supporting children under 15 years and people over 65 years placed on the working population aged 15–64 years. Although there has been some improvement across all areas between 2001 and 2011 the burden still remains heavy with it being greatest in Ntabankulu.

Between 2001 and 2011 Mhlontlo, Umzimzubu and Ntabankulu all showed a negative population growth with the O. R. Tambo district having the highest population growth at 0.52%.

In respect of the labour market, at 50.6% the highest level of official unemployment is found in Ntabankulu with the lowest level being found in in the Joe Gqabi district at 35.4%. Amongst the youth between 15 and 34 years of age Ntabankulu also has the highest rate of unemployment at 60.7% with Joe Gqabi again having the lowest at 43.3%

The situation regarding schooling in the area improved somewhat between 2001 and 2011. Notwithstanding this, however, there is still a need to improve the situation further with areas such as Ntabankulu and the O. R. Tambo district still having over 17% of the population over 20 years of age having no schooling. At a provincial level 10.5% of the population aged over

20 years have no schooling, 19.8% have a matric and 8.7% have a higher education. This places all the district and local municipalities below the provincial level of education with only Umzimvubu, at 8%, having a lower percentage of the population with no education.

The average size of households in the area range between 3.6 in Elundini and 5.1 in Ntabankulu.

In respect of household services, apart from electricity as a source of lighting, were it is surpassed by both the Mhlontlo local and O. R. Tambo district municipalities, on a general basis the Joe Gqabi District Municipality has the highest level of service delivery. Ntabankulu has the lowest level of service delivery across all indicators.

The proportion of households owning household goods across the area is lower than that of the province. On a general basis, households in the Joe Gqabi municipality own a greater proportion of household goods than those across the other municipalities with households in Ntabankulu owning the lowest proportion of household goods.

Although there have been some improvements across the region the area remains one of the poorest parts of the country, characterised by high poverty and out-migration resulting in sex ratio imbalances, a high proportion of female headed households and a low population growth rate. At large the population lacks basic amenities and relies heavily on subsistence farming which is not highly successful.

The study area is rural, characterised by low densities and generally low levels of economic activity. The main land uses are pastoral stock and subsistence crop farming

The proposed project is located on state-owned land which is administered by traditional authorities. The land is therefore currently subject to communal land tenure arrangements. Under this system the State owns the land, but it is managed and allocated to community members by the Traditional Leaders.

About 37.7% of households in the Eastern Cape engaged in agricultural activities over the period June 2011- June 2012. Of these households 24.8% were involved with poultry production, 20.5% with livestock production, 19% with grains and food crops, 19.9% with fruit and vegetables and only 0.2% with industrial crops (Statistics South Africa, 2012, pp. 2-3). Of the households in the province involved with different crop planting activities, 23.8% were in backyard gardens, 0.2% in communal gardens and 0.1% in school gardens. The percentage of households classified as food access adequate was 72% while 19.4% were food access inadequate and 8.8% food access severely inadequate. Although in this respect there are no statistics specific to the study area, it is unlikely that the situation in the study area will be significantly different.

An aerial inspection of the immediate area shows that much less crop production is currently practised than in the past, it is estimated that about 20% of the previously contoured lands are currently still cultivated. Before 1994, communal farmer support structures were very active in the region and most of the families produced enough maize (a staple diet food) for their own consumption. This is not happening currently and the area is a maize import area.

Commercial irrigation farming is not the traditional farming method in the area and extensive public consultation will be required to obtain buy in from traditional leaders and communities and facilitate the transformation of this sector.

7. Key issues

The main objective of this EIA is to provide the competent authority with the information that they require to make a decision on whether this project should go ahead or not, and if so then on what conditions. Some of the impacts during the construction and operation of the project will require environmental management measures and monitoring, but will not be determining factors on whether the project is authorised or not. These impacts are addressed in the Environmental Management Programme, but do not require specialist studies to inform the recommendations of the Environmental Impact Report. The purpose of identifying key issues is to focus the specialist studies and impact assessment on the issues and impacts that are critical to the authorisation decision and conditions.

7.1 Key issues to be addressed in the EIA

The following key issues will be addressed in the EIA:

- The impacts on terrestrial ecology will be assessed in the Impact Assessment Phase by undertaking a survey of the existing plants and animals and assessing how the proposed project is likely to impact on them.
- The impacts on rivers and wetlands will be assessed in the Impact Assessment Phase by undertaking a wetland delineation and survey of the existing aquatic ecology and assessing how the proposed project is likely to impact on them. The potential impact on water quality will also be assessed.
- *A Reserve determination downstream of the Laleni site will be undertaken for assessment and management purposes. The purpose of the Reserve determination is to ensure that the proposed infrastructure development does not impact on the system's ability to provide the ecological and basic human rights water requirements.*
- The social specialist study will predict the positive and negative social impacts on the communities in the study area. This will include the potential impact of HIV/Aids. The loss of structures and livelihood supporting resources will be quantified in the Relocation Action Plan register.
- The economic specialist study will determine whether the project will enhance net societal welfare. At a broad level, investigating impacts on overall welfare requires considering the efficiency, equity and sustainability of the project.
- The most significant heritage resources potentially affected by the proposed project are likely to be places associated with oral traditions and living heritage, landscapes and

natural features and archaeological sites. A palaeontological study will be necessary for this project as the South African Heritage Resources Inventory System (SAHRIS): National Fossil Sensitivity Map indicates a very high estimated palaeontological sensitivity.

- The proposed project will change the landscape and affect the sense of place. These will be addressed in the visual impact assessment.

7.2 Issues that will not be addressed in the EIA

- The impact of climate change on the area, and therefore the project, is a process that is taking place at a scale that is much longer in terms of time and larger in terms of geographic extent than this project. Cognisance is taken of the increased likelihood and frequency of impacts as described above. This will be addressed in the relevant specialist studies by applying the precautionary principle. The contribution of this project to climate change in the region will be addressed in the EMP. No climate change specialist study will therefore be undertaken.
- Currently the land in the study area is for the most part under communal tenure and used for cultivation (locally) and livestock grazing (widespread) on State owned land. Under this system the State owns the land, but it is managed and allocated to community members by the Traditional Leaders. Although the system, without title to the land, is currently relatively stable this practice needs to be reconsidered under intensive farming conditions where the incentive for the farmer becomes more important.
- The infrastructure components of the project that are the subject of the authorisation that this EIA supports extend to the supply of water to the field edge. The land tenure arrangements and new commercial farmer establishment and support are therefore not included in the scope of this EIA.
- There may be some scope for the expansion of commercial forestry in the sub-catchment above the dam site. However, this will reduce the amount of water available and could impact on the viability of the hydroelectricity component. Any forestry expansion will thus have to be planned from a water use as well as a land use perspective. This is the subject of a separate planning process and not included in the EIA.
- Possible recreational and estate opportunities associated with the proposed dams have not been identified.
- Tertiary distribution lines (i.e. smaller pipelines supplying settlements along the secondary lines and from District Reservoirs), and
- Activities undertaken as part of DEA's Catchment Rehabilitation and Management Programme.

Figure4: Donga in the Ntabelanga Dam area

8. Plan of study for environmental impact assessment

The EIA will build on the Scoping report and will focus on assessing the key impacts, determining their significance, and recommending appropriate measures to mitigate negative impacts and enhance benefits (Where required, this will involve specialist input. The contents of the EIR will be as prescribed in the EIA Regulations, 2010 (Regulation 31(2)).

Some of the key issues identified during the Scoping Phase will require further investigation by appropriately qualified and experienced specialists. The specialist studies to be undertaken during the EIA phase are listed below. These studies will be synthesised and integrated into the overall impact assessment (full reports will be included as appendices to the EIR), and recommendations for mitigation will be included in the EMP. The contents of all specialist reports will include information as prescribed in Regulation 32(3) of the EIA Regulations, 2010.

8.1 Social Impact Assessment

The objective of the Social Impact Assessment is to identify the social baseline conditions in which the proposed project will take place. Against this background, and based on the project description, the purpose is also to identify, assess and mitigate the likely social impacts that may occur as a result of the proposed project. Both a quantitative and qualitative methodological approach will be applied throughout the study, in a research technique referred to as triangulation.

Figure5: Households within the project area

8.2 Terrestrial Ecological Assessment

The assessment will include desktop studies and site specific field work. Input on faunal and floral components for the scoping report, which is to include the findings of the data from the desktop study as well as the initial site visit, including comments with respect to spatial integrity and importance, species richness, biodiversity value of the areas and proposed management actions with respect to sensitive areas and/or species. The field assessment will be initiated by first identifying terrain units and ecological units to identify areas of varying structure and degree of disturbance. On-site assessments of each terrain unit will take place to determine the Present Ecological State; Species lists of identified species within the study area will be compiled; A site sensitivity plan will be developed; and The presence of medicinal and Red Data List (RDL) species will be assessed.

8.3 Aquatic ecology and wetland assessment

The wetland delineation will be initiated as a desktop study, where all the relevant information from research sources, as well as existing documentation will be reviewed in order to develop preliminary wetland delineations. Allowance has also been made for detailed wetland delineations of specific areas of concern or interest, including consideration of areas potentially affected by flooding and areas where rehabilitation will take place.

8.4 Visual impact assessment

This specialist study will cover a description of the visual landscape of the area with specific focus on topographical features that offer impact mitigation opportunities and constraints; Description of key areas from which the proposed project will be seen (the viewshed) as well as the viewing distance; An assessment of the visual absorption capacity of the landscape (i.e. the capacity of the landscape to visually absorb structures and forms placed upon it). Particular attention must be paid to conservation, tourism, eco-tourism and associated activities, and potential impacts on sense of place; The identification of potential impacts

(positive and negative, including cumulative impacts if relevant) of the proposal on the visual landscape during construction and operation; Recommendations on alternatives identified, to avoid negative impacts; The identification of mitigation measures for enhancing benefits and avoiding, reducing or mitigating negative impacts and risks (to be implemented during design, construction and operation of the proposed project); and The formulation of a clear and simple system to monitor impacts, and their management, based on key indicators.

8.5 Heritage Impact Assessment

The HIA will be undertaken in compliance with Section 38 of the National Heritage Resources Act No. 25 of 1999 and include all heritage resources, including palaeontological sites, and recommendations for their management.

8.6 Economic Impact Assessment

A Macro-economic Impact Analysis (MEIA) as well as an Economic Cost-Benefit Analysis will be performed. The focus of the economic impact analysis is macro-economic, stressing linkages between the project and the remainder of the relevant economy. Environmental externalities may affect other economic sectors and are included in the tools of the macro-economic impact assessment. The local, regional and national socio-economic impact will also be assessed. The basic function of the economic specialist input to the EIA process is to assist in determining whether the project will enhance net societal welfare. This necessitates the analysis of impacts on different sectors or groups that make up society. At a broad level, investigating impacts on overall welfare requires considering the efficiency, equity and sustainability of the project. It is important that all three of these aspects are considered in order to provide adequate information to the client:

8.7 Water quality

A water quality analysis will be undertaken and will inform both the EIA and WULA. The analysis will focus on fitness for use. The water quality study will address, among other things, the potential negative impact of discharge from the WWTWs. Hydrological aspects have already been covered in previous studies and relevant information on the hydrology will be extracted as required.

8.8 Impact assessment methodology

The key issues identified during the Scoping Phase inform the terms of reference of the specialist studies, as summarised above. Each issue consists of components that on their own or in combination with each other give rise to potential impacts, either positive or negative, from the project onto the environment or from the environment onto the project. In the EIA the significance of the potential impacts will be considered before and after identified mitigation is implemented, for direct, indirect, and cumulative impacts, in the short and long term.

A description of the nature of the impact, any specific legal requirements and the stage (construction/decommissioning or operation) will be given. Impacts are considered to be the same during construction and decommissioning.

The following criteria will be used to evaluate significance:

- Nature: This is an appraisal of the type of effect the activity is likely to have on the affected environment. The description includes what is being affected and how. The nature of the impact will be classified as positive or negative, and direct or indirect.
- Extent and location: This indicates the spatial area that may be affected.
- Duration: This measures the lifetime of the impact.
- Intensity/severity: This is the degree to which the project affects or changes the environment, it includes a measure of the reversibility of impacts.
- Potential for irreplaceable loss of resources: This is the degree to which the project will cause loss of resources that are irreplaceable.
- Probability: This is the likelihood or the chances that the impact will occur.
- Confidence: This is the level knowledge or information available, the environmental impact practitioner or a specialist had in his/her judgement.
- Consequence: this is calculated as extent + duration + intensity + potential impact on irreplaceable resources.
- Significance: The significance will be rated by combining the consequence of the impact and the probability of occurrence (i.e. consequence x probability = significance).
- Cumulative Impacts: This refers to the combined, incremental effects of the impact. The possible cumulative impacts will also be considered.
- Mitigation: Mitigation for significant issues will be incorporated into the EMP.

8.9 Environmental Management Programme

Based on the findings of the EIR, a practical and feasible EMP will be compiled. The EMP will outline how negative environmental impacts will be managed and minimized, and how positive impacts will be maximised, during and after construction. The EMP will fulfil the GN 543 requirements and will include mitigation measures required during the planning, construction and operational phases of the project as well as a framework for social and environmental monitoring. Recommendations will be given with regard to the responsible parties for the implementation of the EMP.

8.10 Relocation Action Plan

The Relocation Action Plan (RAP) will be presented as a Chapter in the EMP. The focus of the RAP will be to:

- Confirm that there are no relocation, compensation or livelihood fatal flaws that could impact on the decision on whether the project should go ahead or not;
- Identify any relocation, compensation or livelihood related conditions that should be stipulated in the Environmental Authorisation;
- Estimate the magnitude of the task of implementation of the RAP;
- Agree on the structure of the final RAP (i.e. what will be included); and

- Unblock potential bottle-necks that could delay implementation.

9. Public participation in the EIA phase

The requirements of the NEMA EIA Regulations (2010) for the Public Participation Process (PPP) will be adhered to. The International Association of Public Participation (IAP2) best practice principles will also be applied, including special measures such as additional focus group meetings, the use of local facilitators at meetings, and the translation of documents, advertisements and notification letters from English into isiXhosa.

ILISO will provide feedback to stakeholders throughout the process. I&APs and the public will be informed of the availability of the draft EIA report (through written notification to registered stakeholders), as well as of the authorities' decision and the appeal process in respect of the various applications (through newspaper advertisement and written notification to all registered stakeholders).

The draft reports will be distributed to public places and made available for a 30 calendar day public comment period. The draft reports will also be presented at stakeholder meetings, where I&APs will be able to confirm that their issues have been captured correctly, properly understood by the environmental team, and included in the specialist studies and impact assessment. The final documents will be made available for public comment for a 21 calendar day public comment period and be submitted to the authorities. Draft and final reports will be made available for download on the DWA website.

All issues and comments received from the stakeholder consultation process will be captured in an Issues and Responses Report that will form an Appendix to the EIA Report.

The relevant authorities will be kept up to date with progress on the EIA through the Authorities Forum.

10. Programme

Due to the high priority nature of this project, a fast-tracked process is being implemented. Although the fast-tracked programme will not compromise the legislated EIA process if the deadlines are achieved, it involves some quality risks if not all role players cooperate fully. In particular, specialists will have to commence with their studies prior to acceptance of the Plan of Study for EIA by DEA.

In addition, the fast-tracked programme will require optimal coordination between all the commenting authorities and shortened review periods and decision-making processes for DEA.

The key milestones in the EIA process are summarised below:

- Public comment period for final Scoping report and submission of final Scoping report to DEA: June 2014

- EIA phase (including specialist studies): July – September 2014
- Public comment period for draft EIR and EMP: September 2014
- Submission of final EIR: November 2014.

11. Conclusion and recommendations

The main aim of the Mzimvubu Water Project is the socio-economic upliftment of the largely undeveloped and impoverished communities within the area. This is to be achieved through:

- Supply schemes for domestic and industrial water requirements;
- Supply schemes for irrigated agriculture;
- Hydropower generation; and
- The creation of temporary and permanent jobs.

The project involves some positive and negative impacts. Potentially significant environmental impacts of the project have been identified and will be further investigated and assessed in the EIA phase.

The project team has the necessary experience and skills to carry out the EIA process (including specialist studies) required and it is recommended that the EIA process proceeds based on the proposed Plan of Study for EIA.