Environmental Impact Assessment (12/12/20/978) for the Department of Water Affairs and Forestry's

Groot Letaba Water Development Project (GLeWaP) Infrastructure Components

BACKGROUND INFORMATION DOCUMENT (BID)

Invitation to register and comment, July 2007 – First document for comment

PURPOSE OF THIS DOCUMENT

The purpose of this document is to afford stakeholders the opportunity to register as interested and affected parties (I&AP) in the Environmental Impact Assessment (EIA) and to obtain their initial comments on and contributions to the proposed construction of a dam at the Nwamitwa site, downstream of the confluence of the Nwanedzi River, bulk water distribution infrastructure and the raising of the Tzaneen Dam wall as Components of the Groot Letaba Water Development Project.

The purpose of the EIA is to identify and evaluate potential impacts, to recommend measures to avoid or reduce negative impacts and to enhance positive impacts.

The EIA decision-making authority is the National Department of Environmental Affairs and Tourism (DEAT) in accordance with section 24(5) of the National Environmental Management Act (NEMA), Act No 107 of 1998. The EIA will be conducted according to the DEAT's EIA Guidelines (copies are available from the public participation office). The Limpopo Department of Economic Development, Environment and Tourism is also an important authority in this process.

Please register by 31 July 2007. You will be included on the stakeholder database and receive further documents for comment when they are available. Your comment will ensure that all relevant issues are taken up in the EIA. Either complete and submit the enclosed registration sheet, write a letter, call or e-mail the public participation office.

All EIA documents will be available on www.dwaf.gov.za/projets/GrootLetaba.

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BACKGROUND

In 1998, the Department of Water Affairs and Forestry (DWAF) completed an assessment of various options to improve the management of water available for social and economic development in the Groot Letaba catchment.

Since it was recognized that the water resources of the Groot Letaba River were already heavily committed, a wide range of strategic alternatives were considered to improve the water availability situation in the face of growing needs in the domestic water use sector, deterioration in the conservation status of the river ecology and increasing shortages in the irrigation sector. Some of the alternatives are unusual or controversial but deserved attention. Consideration was given to the following options at a feasibility level of detail and reliability:

- Replacing commercial afforestation with natural vegetation.
- Ceasing the export of water to the Sand River catchment.
- Improving the utilization efficiency of water used for irrigation.
- Decreasing the water allocated for irrigation use.
- Water loss management in the reticulation systems for domestic and industrial water users.
- Creation of additional storage in the river system to further regulate the riverflow.
- Improved water management in all user sectors.

Various alternative storage sites were examined, namely a site at Hobson's Choice in the Letsitele River, sites in the Groot Letaba River of which only that at Nwamitwa was found to be reasonable (but not good), and the raising of Tzaneen Dam.

The outcome of the earlier investigations led to the recommendations that construction of a new major dam at Nwamitwa be considered together with improved water management interventions. The raising of Tzaneen Dam, with the objective of minimizing the intensity and consequences of shortages in the irrigation sector, was found to deserve sympathetic consideration. DWAF is now reviewing and updating the needs of this area and post-feasibility bridging studies are conducted to confirm whether the recommendations made previously are still relevant and how they should be taken forward.

Options to be investigated include the construction of a large dam on the Groot Letaba River at the Nwamitwa site, downstream of the confluence of the Nwanedzi River, realignment of the roads to accommodate the dam, construction of water treatment works, bulk water pipelines and pump stations from the dam site to communities in the area and the raising of the Tzaneen Dam wall.

Environmental authorisation in terms of section 24 (5) of the National Environmental Management Act (NEMA), Act No 107 of 1998 and other legislation is required before the infrastructure components of the project can be implemented. An Environmental Impact Assessment (EIA) process commenced in June 2007 and is expected to be completed in the last quarter of 2008.

MOTIVATION FOR THE PROJECT

The Groot Letaba catchment falls within the Luvubu-Letaba Water Management Area (WMA), one of the 19 WMAs into which South Africa is divided. Human settlement, agricultural production and tourism between the Drakensberg escarpment and the Kruger National Park have placed demands on the water resources of the Groot Letaba River which can no longer be met within reasonable risks of shortages from the existing infrastructure.

Faced with water shortages of increasing severity and frequency, the main consumptive users of water have from time to time had to compete for limited supplies by taking extraordinary measures to survive. This has resulted in serious degradation of the riverine ecosystems. Historically the environment was not considered a water user and was not allocated any water from available resources. However, in the Letaba River catchment 14.8 million m³/annum was allocated, on an ad hoc basis, for release from Tzaneen Dam to the Kruger National Park but little if any of these releases reached the Park with real beneficial effect.

With the advent of the National Water Act (Act 36 of 1998 NWA), a water allocation or Reserve for basic human needs and for sustaining ecological functioning, has placed a new perspective on water resource management in the Groot Letaba River. The emphasis in the past has been on the augmentation of supplies to mitigate shortages in the Groot Letaba River. This approach must be complemented by a strategy for managing the water resources in a sustainable manner. Proposals for augmenting reliable water supplies from the Groot Letaba River include the construction of a dam on the Groot Letaba River at Nwamitwa just downstream of the Nwanedzi River as well as the possibility of the raising of Tzaneen Dam. Bulk infrastructure for the treatment, conveyance and storage of potable water for primary use forms an integral part of the development proposals. Attention is focused on water needs for the increasing human population, for downstream riverine ecosystems (including those in the Kruger National Park) as well as for stabilising commercial irrigation, including the settlement of resource poor farmers.

The catchment area of the proposed Nwamitwa Dam is 1 400 km² and the Mean Annual Runoff (MAR) is approximately 122,6 million m³ under natural undeveloped conditions. For a dam with a storage capacity of 143,8 million m³ the estimated increase in system yield is 47 million m³/a after providing for the instream flow requirements as was estimated at the time.

The agricultural sector (fruit orchards dependant on irrigation) and the associated agro-industries provide the most employment opportunities in the area. Competition for the limited jobs is fierce, unemployment in the area is high and many people rely on income from family members working in the cities. Many communities do not have reasonable access to safe reliable water supplies. Furthermore, the ecosystems which rely on flow in the river system are subject to increasing stress and degradation. Further socio-economic development, in which tourism is expected to play an important role, is hampered by the limited availability of adequate water supplies.

OVERVIEW: GROOT LETABA RIVER WATER DEVELOPMENT PROJECT

The Groot Letaba River Water Development Project (GLeWaP) is a major initiative by the DWAF in support of the Limpopo Provincial Government's development strategy. The project will have a positive impact on the regional economics and on eradicating poverty, this will mainly be achieved through:

- Increasing the safe, reliable water supplies for domestic and industrial use;
- Minimizing the frequency, intensity and duration of restriction on the use of water allocated for irrigation of high value crops;
- An increase in total household income through stabilising the job market;
- Providing leverage for the equitable distribution of resources.

The proposed infrastructure will make it possible to improve the management of water resources so as to stop degradation of the conservation status of the riverine ecosystem.

The GLeWaP includes a number of infrastructure components, as well as a range of other initiatives.

Non-infrastructure options to make more water available

The Department is pursuing the following non-infrastructure options to make more water available:

- **Water conservation and demand management, as well as water recycling and re-use**

The aim is to ensure that increased efficiency and effectiveness of water use will help address some of the short- and long-term water requirements of the area.

- **Local groundwater resources**

During the feasibility studies in the 1990s and from recent investigations, it was found that although groundwater cannot be considered as the only source of water to satisfy increasing needs, it can be used to good effect for small-scale domestic water supplies and food plot irrigation. In this area with limited water resources the conjunctive use of ground and surface water should be promoted. Groundwater resources should be developed incrementally to increase yields, but with ongoing monitoring to ensure good water quality. The Department will make recommendations to local authorities in this regard.

- **Removal of invading alien vegetation**

DWAF's Working for Water Programme is actively removing invasive alien vegetation in the Groot Letaba Valley as a means of improving the yield in the river system.

Regional economic assessment

This assessment would consider the developmental impact that construction of the project infrastructure and making additional water available will have on the economy of the region and of the national Gross Domestic Product (GDP), and to which sectors water would best be allocated. It will also evaluate potential benefits to Mozambique as a spin-off from the economic development plans for the project area.

Managing the system as a whole

The Department is reassessing how best to manage the supply of water from the Groot Letaba River system. The system includes Dap Naude Dam, Ebenhaezer Dam Tzaneen Dam and the proposed new dam at the Nwamitwa site together with other smaller dams. Practical implementation of water releases for the Reserve in the Groot Letaba River system as a whole is being investigated.

Investigations will include an assessment of the yield characteristics of all available resources in the river system serving the wide variety of user sectors and abstraction points.

Irrigation efficiencies

Irrigators in the river system, and particularly those reliant on Tzaneen Dam, are regularly subject to restrictions on the water available. Allocations are currently set at 50% of the annual quota as a result of the current drought conditions and low levels of water in storage. This has a significant impact on fruit production and on the socio-economy of the region. The irrigation sector already relies on modern technology and has invested heavily in management and sophisticated equipment to improve water use efficiency.

Reserve determination

In accordance with the National Water Act, the Reserve is that portion of water required to meet basic human needs, and the needs of the aquatic ecosystem. The DWAF undertook a preliminary Reserve determination for the Groot Letaba River in 2006, and the resulting requirements will be taken into account in both the yield analysis and technical design of the project.

Institutional arrangements

It is foreseen that the DWAF will be the owner of the water resource components of the project. This will be revisited as and when new institutions such as the proposed National Water Resource Infrastructure Agency and the Catchment Management Agency (CMA) have been established. After completion, a regional water supply entity would be considered for the management of the new bulk distribution infrastructure. Any potable water supply systems that will be served by the bulk distribution system will be the responsibility of the relevant municipalities.

A high-level Project Steering Committee has been established by the DWAF, and includes the Limpopo Provincial Government, Mopani District Municipality, local municipalities, traditional authorities, sectors such as conservation, agriculture and industry to steer the post feasibility bridging studies.

Cooperative governance

Investigating and implementing such a major infrastructure project to improve water management in the area is likely to give rise to many development opportunities, lead to change in socio-economic circumstances, cause changes in land use and have other beneficial effects.

Numerous other government authorities thus need to be consulted and participate so to accommodate these proposed developments in their planning and future activities. This includes the local authorities who will be required to include these proposals in their Integrated Development Plans (IDPs) in order to ensure access to potable water for their communities.

Together with the DWAF, they will assist in ensuring that all the projects and developments resulting from this initiative are sustainable, and that as many people as possible benefit from infrastructure development now being investigated.

Capacity for community water supply

Although this project will not be directly responsible for community water supply, it will make more water available for this purpose to local water service providers, such as municipalities. Provision will be made for off-takes from the bulk water distribution system. Alternatively water will be delivered into reservoirs at agreed locations.

International liaison

The DWAF will continue to liaise with the country's neighbours during the planning and implementation of the GLeWaP in line with international protocols and agreements. The infrastructure components that will be covered by the Environmental Impact Assessment (EIA) are summarised below, and are shown on the enclosed maps (Figures 1 and 2).

Dam at Nwamitwa site

The main component of the proposed project comprises a new major storage dam at a site in the Groot Letaba, River referred to as the Nwamitwa site, downstream of the confluence of the Nwanedzi River. The proposed dam wall

could be 36m high and comprise a concrete structure in the river section accommodating a spillway and outlet works, with earth embankments on both flanks. With a storage capacity of 144 million m³ it would increase the system yield by about 47 million m³ per year. (By comparison, the capacity of Tzaneen Dam is 157,5 million m³).

The final size of the dam will be determined in a series of technical and financial investigations, informed by the findings of the EIA. The dam will be designed to enable the requirements of the Reserve in the Groot Letaba River, particularly in the river reach downstream of the dam.

Local road alignments

The R529 and other important roads in the area will have to be re-aligned to accommodate the dam. Local alignments will be determined in consultation with landowners and the provincial road authorities and will take cognisance of the impacts investigated during the EIA.

Raising of the Tzaneen Dam wall

It was also proposed to increase the capacity of Tzaneen Dam to approximately 203 million m³ by raising the dam wall. This could increase the firm yield of the dam by about 6% from 60 million m³/a to 64 million m³/a, but more importantly, the dam could then be operated so as to minimize the frequency and intensity of restrictions on water allocations for the irrigation of permanent fruit orchards.

Other infrastructure

Bulk water supply infrastructure including pipelines, a water treatment plant, various pump stations and reservoirs will be investigated.

The various reservoirs will be located so that local authorities will be able to obtain water for reticulation to individual users.

All infrastructure will be fenced off with security fencing. Final sizing is still to be completed but pump stations and reservoirs could each occupy an area of about half a football field.

Electricity requirements for the project will be assessed separately by Eskom.

Construction

Construction activities will take approximately five years, with several construction teams working concurrently in different areas at the proposed dam site and along the pipeline routes. Residential accommodation for construction staff will be established in the vicinity of the proposed dam or in established towns. Housing, internal roads, water and electricity supply, waste water treatment, solid waste disposal, emergency facilities and recreational amenities will be provided.

Funding of the GLeWaP

The construction cost of the infrastructure components of the project is estimated to be in excess of R1 500 million. Funding sources are likely to include a private sector and a public sector component funded by the National Treasury.

Construction sites will include offices, internal roads, water and electricity supply, waste water treatment, solid waste disposal, emergency facilities, areas for the handling of hazardous substances, workshops, washbays, areas for the safe storage of explosives, and communication infrastructure.

The sites will also include facilities for the bulk storage and dispensing of fuel for construction vehicles and working areas for stockpiling construction materials and concrete batching and bitumen plants.

Borrow pits

Running concurrently with the EIA investigations is the process to obtain authorisation from the Department of Minerals and Energy (DME), in terms of the Minerals and Petroleum Resources Development Act, to use various quarry and borrow pits to provide gravel and sand for construction.

Location of the borrow pits will be determined during the study and local landowners are invited to contribute information about the occurrence of material suitable for this purpose.

Scheduling

The target is to commence with the supply of water from the new dam by 2012, with full yield by around 2013, should environmental authorisation be obtained. For this to be achieved construction of some of the infrastructure must start in late 2009. The possibility of starting to abstract water from the dam during the filling period is also being considered.

THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

What is an EIA?

An EIA is a good planning and decision-making tool. It identifies the potential negative and positive consequences of a proposed project or development at an early stage, and recommends ways to enhance positive impacts and to avoid or reduce or mitigate negative impacts.

The findings of the EIA will also inform the technical and financial investigations. For example, the dam wall, currently estimated at around 36 metres high, could be a few metres lower or higher, depending on the outcome of the social impact assessment that will be conducted during the EIA. The EIA is undertaken in terms of section 24 (5) of the National Environmental Management Act (NEMA), Act No 107 of 1998.

Public participation is the cornerstone of any EIA. Its key objective is to assist stakeholders to table issues of concern and suggestions for enhanced benefits, and to comment on the findings of the EIA. The EIA regulations require that an Environmental Management Plan (EMP) will be developed in order to explain how to operate and implement environmental protection recommendations from the EIA for construction and operational phases. The provisions of the EMP will become legally binding on the DWAF and on its contractors.

It should be noted that negotiations with landowners for servitudes and compensation do not form part of the public participation process for the EIA. The DWAF will negotiate servitudes or the acquisition of land directly with landowners. The findings of the EIA will assist landowners to determine the extent of local impacts in support of their negotiations.

The public participation process is designed to provide sufficient and accessible information to I&APs in an objective manner to assist them to:

- Raise issues of concern and make suggestions for alternatives and enhanced benefits;
- Contribute local knowledge;
- Verify that their issues have been captured and considered by the technical investigations;
- Comment on the findings of the impact assessment.

Important considerations for the EIA

Apart from the specialist studies, particular attention will be paid to the following during the EIA:

- The key principle underpinning South Africa's Water Policy and National Water Act, namely sustainability, by finding the best balance between economic, social and ecological considerations;
- The strategic priorities arising from the World Commission on Dams;
- International considerations i.e. the potential impact on Mozambique;
- Integrated planning, i.e. Integrated Development Plans, Provincial Growth and Development Strategies and the principles and practice of co-operative governance between the various government departments as well as the private sector;
- Downstream considerations, particularly as related to biodiversity, tourism and the economics of the Kruger National Park;
- South Africa's legal requirements, specifically the National Environmental Management Act, 1998, the Environment Conservation Act, 1989, the National Water Act, 1998, and the Minerals and Petroleum Resources Development Act, 2000, as well as important international treaties, accords and agreements;
- The responsibilities linked to the Revised SADC Protocol on Shared Watercourse Systems and the new SADC Water Policy that will shortly be signed and ratified by SADC countries;
- Heritage resources including archaeological sites, graves, and cultural sites.

The EIA will also take due cognisance of the findings and of the various other studies and initiatives outlined in the document. These studies are not required in terms of the Regulations of NEMA, but they inform the EIA on alternatives and help define the assessment framework. This will ensure that the EIA considers the full context of the GLeWaP.

The EIA in summary

The DWAF, the Limpopo Provincial Government, various other authorities, environmental and other technical specialists, and stakeholders will work together in the EIA process. The EIA process will include:

- Early consultation with a broad range of stakeholders, landowners and communities in the vicinity of the dam site and along the pipeline routes;
- Technical consultation with local experts and specialists based in the project area;
- Consultation with provincial and local government on integrated planning and provincial development strategies;
- Several specialist studies during the Impact Assessment Phase to assess the potential negative and positive impacts arising from a range of issues identified as being relevant;
- Authority and stakeholder comment at each milestone during the EIA process;
- Authority decision-making.

PHASES OF THE EIA

An EIA is completed in phases, as outlined below. The provisional scheduling of these phases for the GLeWaP is also indicated.

Scoping Phase of the EIA

July 2007

- Meetings with authorities to agree on process and study requirements;
- Distribution of this Background Information Document and invitation to contribute to the EIA process to more than 1 000 stakeholders in the project area and beyond;
- Advertisements in selected local and regional newspapers to announce opportunities to participate.

July/early August 2007

- Issues-based focus group meetings with relevant representatives of groups of stakeholders;
- Community meetings will be held throughout the study area, in consultation with traditional leaders, community leaders and ward councillors;
- Progress feedback letter to be issued and announcements made of the availability of Draft Scoping Report and Issues and Response Report.

September and October 2007

- Distribution of a Draft Scoping Report, including Issues and Response Report, for comment;
- Convening public meetings and open houses in Tzaneen and another venue in the project area to obtain comment on the Draft Scoping Report.

November 2007

- Submission of a Final Scoping Report, capturing all issues raised for the impact assessment, to the DEAT;
- Distribution of the Final Scoping Report for information;
- Progress feedback letter to stakeholders.

Impact Assessment Phase of the EIA

January 2008

- Further issues-based focus group meetings and community meetings where necessary whilst specialist studies are being done;
- Further meetings with the authorities;
- Specialist studies focussed on outcomes of the scoping phase and issues raised by stakeholders;
- Progress feedback to stakeholders.

March 2008

- Compilation of a Draft Environmental Impact Report indicating the potential positive and negative impacts and measures to enhance positive impacts, and to reduce or avoid negative impacts;
- Advertise the availability of the Draft Environmental Impact Report in selected local and regional newspapers;
- Distribution of the Draft Environmental Impact Report, including Issues and Response Report, for comment.

April and May 2008

- Public meetings and open houses in Tzaneen and another venue in the project area to present the findings of the EIA for stakeholder comment.

Decision-Making Phase

July and August 2009

- Finalise the Environmental Impact Report based on comment received, for submission to the DEAT.

October 2008

- After obtaining environmental authorization for the project in the form of a record of decision (ROD), advise stakeholders of the decision as well as of ways to appeal the decision.

Permission to enter properties

Members of Department of Water Affairs and Forestry's (DWAF's) investigation teams will be visiting the project area over the coming months. Private and communal landowners are requested to kindly grant permission to enter their land. Team members will carry certificates of appointment by the Department of Water Affairs and Forestry as a means of identification.