ESKOM HOLDINGS LIMITED

AGENDA

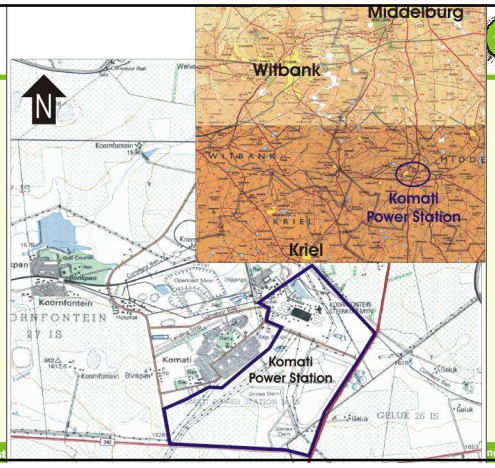
1. Welcome and Introduction
2. Purpose of the Meeting
3. Background
4. Project Overview - Eskom
5. Enviro-Legal Requirements
6. Environmental Impact Studies
7. The Way Forward
8. Questions and Discussion

PURPOSE OF THE MEETING

- Explain the scope of the proposed Ash Dam Extension Project at Komati Power Station
- Provide information to enable people to participate meaningfully in the scoping process
- Provide an opportunity to comment on, and raise questions about the project
- Document all comments and questions
- Discuss how these comments and questions will be considered
- Inform people about further opportunities to participate in the planning process

BACKGROUND

- Eskom Holdings Limited is currently re-commissioning the Komati Power Station.
- Re-commissioning of Komati Power Station is motivated by South Africa's demand for additional base-load electricity generation capacity.
- The decision was informed through planning carried out by the Department of Minerals and Energy, The National Energy Regulator of South Africa and Eskom.



BACKGROUND

- Existing ash dam facilities at Komati only have capacity for 18 months of ash deposition and thus a new facility is required.
- The development of an ash dam facility requires environmental authorisation from the Department of Environmental Affairs and Tourism.
- Synergistics Environmental Services (Pty) Ltd has been appointed as independent environmental consultants responsible for the environmental impact assessment.

PROJECT OVERVIEW

SCOPE OF THE PROJECT

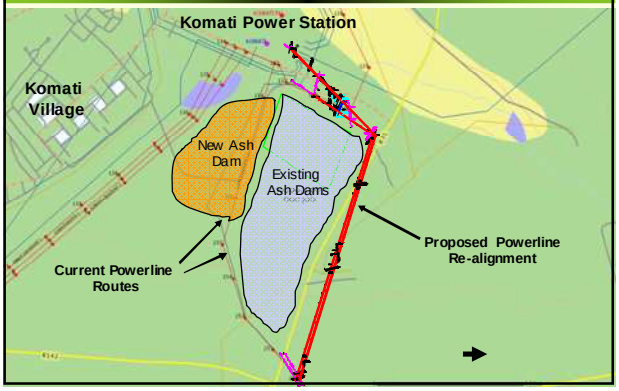
New Ash Dam Facility

- New ash dam to replace existing dams
- Operate in the same manner as existing dams
- Capacity for 13.5 million m^3 of ash.
- Cover an area of 42 ha and rise to a height of 47 m.
- Two powerlines, a 275 kv and a 88kv, must be realigned to accommodate the ash dam

The scope of this environmental assessment is to investigate the direct and cumulative impacts of the ash dam project.

Existing impacts/concerns will be documented and the effects of the project on these investigated.

POWERLINE RE-ALIGNMENT



ENVIRO-LEGAL REQUIREMENTS

- **National Environmental Management Act (No. 107 of 1998)**

Department of Environmental Affairs and Tourism (DEAT)

The deposition of ash is a listed activity in terms of the EIA regulations (GN R 385 & 387, 2006).

Require: Scoping and Environmental Impact Assessment

ENVIRO-LEGAL REQUIREMENTS

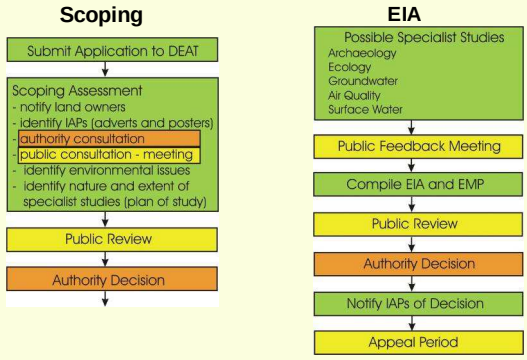
- **National Water Act (No. 36 of 1998)**

Department of Water Affairs and Forestry (DWAF)

Water uses defined in Section 21 require a licence.

Require: Water Use Licence

EIA PROCESS



ENVIRONMENTAL STUDIES

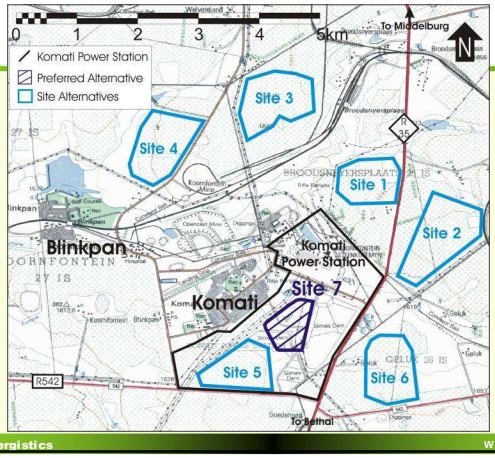
- **SCOPING**
  - Project planning / Site selection ➔
  - Public participation
  - Identification of all environmental issues and impacts
  - Plan of study for EIA
- **ENVIRONMENTAL IMPACT ASSESSMENT**
  - Carry out specialist studies
  - Assess the significance of impacts
- **ENVIRONMENTAL MANAGEMENT PLAN**
  - Determine management and mitigation measures to be implemented

SITE SELECTION

- **7 alternative sites were considered.**
- **Site screening workshop was held**
- **Objective, independent assessment of each site**
- **Input from:**
  - engineers,
  - environmental consultants,
  - air quality and groundwater specialist,
  - Eskom
- **Preferred site will be subjected to detailed impact investigations during EIA**

SITE SELECTION

- **Each site was assessed in terms of these criteria:**
  - Biophysical – biodiversity, ground, surface water, heritage, river crossing, land use and capability.
  - Technical – Mineral resource, undermining, geology, topography, size, distance and infrastructure
  - Social – Proximity and number of receptors, health risks, ownership, neighbouring activities, noise and visibility.
- **Sites were scored and ranked**
- **As a result of the site screening an application for exemption from the assessment of alternatives has been submitted to DEAT**



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PUBLIC PARTICIPATION PROCESS

- Identify Interested or Affected Parties
  - Existing Komati Power Station database
  - Relevant Authorities
  - Advertisements
  - Posters
- Distribute Background Information Document
- Public Information Meeting
- Collate your issues and concerns
- Public review of Scoping Report

Interested and Affected parties are requested to provide their feedback in writing and within the given time periods.

ENVIRONMENTAL STUDIES

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Potential Impacts and Studies

Impact of Ash Dam	Planned Assessment
Reduced Air Quality	Air Quality Study *Airshed Planning Professionals*
Reduced Groundwater Quality	Groundwater Assessment *Rison Consulting*
Loss of Heritage Resources	Heritage Assessment *Dr van Schalkwyk*
Reduced Runoff in Catchment	Surface Water Assessment *Jones & Wagener*
Loss of biodiversity/ habitat of conservation importance	Ecological Assessment *Synergistics Environmental Services*

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WAY FORWARD

Gather issues and concerns	Current
Scoping Report	Sept 2007
Public Review of Scoping	Oct 2007
Submission of Scoping Report	November 2007
Specialist Studies	Sept - Dec 2007
Public Feedback Meeting	January 2008
EIA / EMP Report	January 2008
Public Review of EIA / EMP	Feb 2008
Submission of EIA/EMP	March 2008

PUBLIC LIAISON CONTACT

- **Synergistics will be responsible for:**
  - Collating all questions, issues and concerns.
  - Responding to all questions.
  - Documenting all communications.
  - Writing Scoping and EIA reports

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Komati Ash Dam Project

What is an ash dam?

- An ash dam is basically a barrier constructed to contain the ash slurry. An ash dam is a place to safely store ash which as a by-product produced during the coal combustion process.

Ash dam showing ash mixed with water being pumped into the pond on top of the dam. The ash originates from the coal-burning power station nearby. The ash settles out and the water is recycled.

Hendrina Power Station

What is ash and how is it produced?

- Ash is an inherent constituent of coal, when the coal is burnt the residue that remains behind is called **ash**.
- Coal fed to the boilers is first pulverised into a fine dust, mixed with air and blown into the furnace where it ignites and burns, this ash needs to be removed to maintain the efficiency of the combustion process.
- There are 2 types of ash formed:
  - ❖ Coarse ash
  - ❖ Fly ash dust
- There are two ash collection points:
  1. Course ash falls out of the draught to the bottom of the combustion chamber and into the ash hoppers.
  2. The lighter fly ash is extracted from the boiler from the top and then fall into the precipitator ash hoppers.

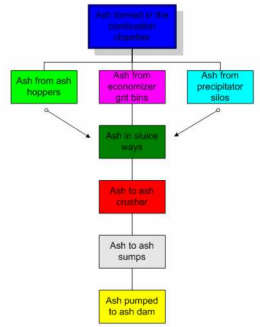
- The ash handling plant removes all these ash collections and it is then transported to the ash sumps using water where it is crushed before it is pumped to the ash dams in the form of a slurry (Water to ash mixture improves the flow properties of the ash.)

Coal combustion

Ash

Water

Ash Dam



Why does a power station need an ash dam?

- A power station needs an ash dam for the storage of ash produced after the coal combustion process.
- An ash removal plant is installed to extract ash from the boilers. It is important to remove this ash as it would collect in the furnace chamber and affect the process efficiency and foul the equipment.
- Accumulation of ash in the boiler can negatively impact on boiler operation or even shut down of the unit. Therefore a reliable system which can handle large quantities of ash removal and storage needs to be installed.
- Hence a designated storage area is required; historically at Komati this would be a wet ash dam.

Ash slurry being pumped to the ash dam

Why a dam and not a dump?

- Komati makes use of the wet ashing system as opposed to the dry ashing process as per original design.
- Wet ashing produces less dust and uses more water, but this water is recovered and recycled on the plant making wet ashing the preferred choice for Komati. It is economical for Komati to continue with a wet ashing system.
- The costs to retrofit a dry ashing plant will be three times that of the wet ashing process.

What is causing Komati to build another ash dam?

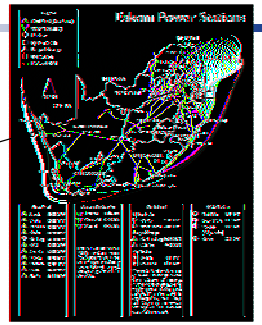
- Eskom is currently re-commissioning Komati Power Station. The existing ash facilities do not have sufficient deposition capacity for ash disposal over the planned life of the station and a new facility is therefore required.
- The current ash dam has a storage capacity able to support the station for the next 18 months only, hence a new facility is required for the full station lifespan.
- After disposing of the ash for a specific period at one location, it gets filled up and then the disposal point has to be shifted to a new location. The old site is then rehabilitated by covering with a layer of earth and vegetation would be planted as part of the rehabilitation process.
- Rehabilitation of the ash dams at power stations is done on an ongoing basis on sections that will no longer be used for ashing.

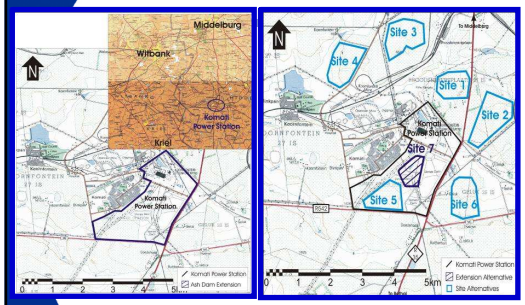
The current ash dam area

A rehabilitated ash dam. Once the ash dam reaches a certain height level in height, then rehabilitation will be carried out by putting on a layer of top soil and sowing various grasses. In the foreground is the grassy plateau of a vegetated ash dam. In the background is the Hendrina Power Station.

Where would this ash dam be on the station property?

- The site is situated south of the power station and west of the existing ash dams. The property is owned by Eskom. The capacity of the site was not reported on, other than it is less than 13.5 Mm^3. The ash dam is close to the power station ie within 3 km of the premises.





What are the technical specifications of the dam?

- It is important to identify an adequate area near the plant where the ash dam may be built. The total area requirements depends on the plant life taking into account the ash content in the coal being used and the plant utilization factor.
- At Komati there exists a wet ashing system, in this disposal method a bund must be constructed around the ash disposal area to contain the slurry within. The ash slurry is disposed of in the pond where ash settles down and water is allowed to flow out of the pond so that it can be recovered.
- The maximum height of the ash dams would be 47m and it would cover an area of approximately 410 663 m2 / 41 ha with a Capacity of: 13 497 548 m3
- Natural topographical low: 1612.65 masl
- Ash dam topographical high: 1660.05 masl

What control systems does it have?

- The ash dam facility is equipped with penstocks and sub-surface drainage to enable drainage and recovery of the effluent water to an ash water return dam normally situated below the ash dam.
- A solution trench will be provided along the toe of the dam to collect run-off water from the dam surface and slopes to transport water around the sides of the dam to the ash water return dams.
- A pumping system at the ash water return dams is then utilized to pump effluent water back to the power station for ashing purposes.

Thank you

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Komati Power Station

Acknowlegement
- Seshni Pillay (Research & presentation)
  Komati, Engineer in Training -Common Plant
- Andre Kreuiter (Technical information)
  CED- Ash dam Specialist

MEETING: Komati Ash Dam Extension - Public Meeting

DATE: 13 September 2007 **VENUE: Igwababa Hall**

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