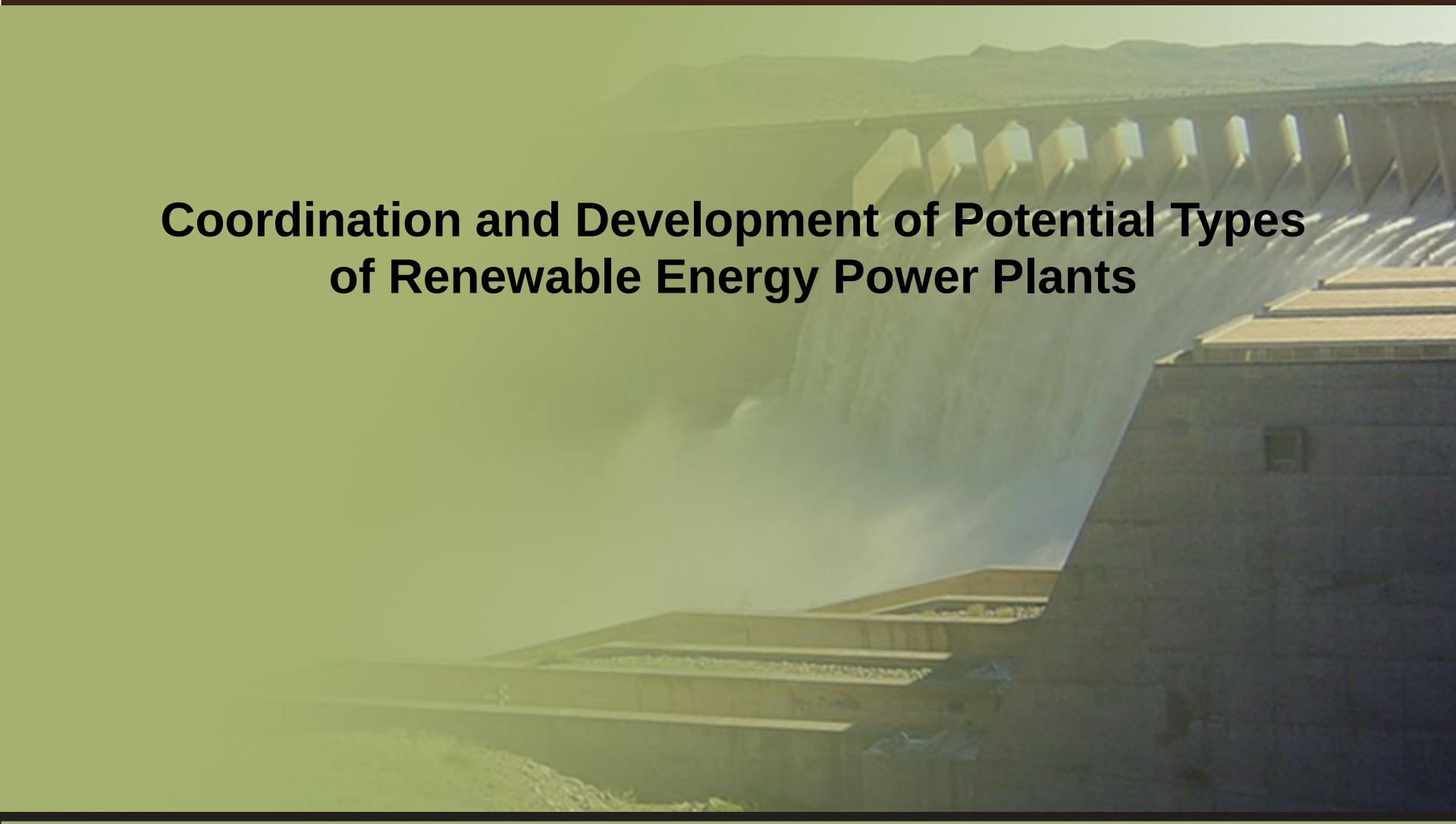
water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

Coordination and Development of Potential Types of Renewable Energy Power Plants



WATER IS LIFE, SANITATION IS DIGNITY

SITES

- Mokolo dam & pump station - Northern Ops (L)
- Tswasa pump station - Northern Ops (NW)
- Grootfontein pump station - Northern Ops (NW)
- Nandoni pump station Northern Ops (L)
- Steelpoort pump station Northern Ops (L)

MOKOLO DAM & PUMP STATION

- Location – Limpopo province
- Mokolo dam is rock fill with clay core. Intake tower on left bank with 2 vertical stacks. Height of dam above foundation is 57m.Water surface at FSL is 829Ha.Storage capacity at FSL is 146 million m^3.
- 7 x DN1200 inlets on 2 vertical DN1200 vertical stacks in the inlet tower feed 2 x DN1200 dam outlet pipelines
- Rivers releases via 2 X ND900 sleeve valves ($8m^3/s$) and jet flow gate at ($34m^3/s$)
- Mokolo pump station suction pipe from dam to pump station is DN1000 and 481m long.

MOKOLO DAM & PUMP STATION

- 3 X 500KW low lift pumps and 3 x 2MW high lift pumps
- Mokolo pump station design flows are
- Single pump: $Q \geq 0.629\ m^3/s$; and
- Two pumps: $Q \geq 1.258\ m^3/s$.
- Mokolo pump station outlet pipe DN900.
- Installed capacity 8MW and NMD 4,7.

Mokolo pump station

Mokolo pump station

TSWASA PUMP STATION

- Location : Madikwe game reserve Northwest near Botswana boarder.

- Low lift and high lift pump station abstracting water from weir to balancing dam and pumping via rising main to reservoir.

- 2 X 55 KW low lift pumps and 5 x 275KW high lift pumps.

- Installed electricity capacity 1,5 MW and NMD 1.

TSWASA PUMP STATION

TSWASA PUMP STATION

Grootfontein pump station

- Location : Mahikeng Northwest Province
- Borehole pump station (13 boreholes)
- Installed capacity aprox 200KW and 350 NMD
- Gravitational outlet pipes 250ND,300 ND & 500 ND

Grootfontein pump station

Grootfontein pump station

Nandoni pump station

Location: Thohoyandou, Limpopo Province

- Nandoni dam wall has a central ogee spillway and the wall has a height of 47 m with a length of 2,215m and has outlet works.
- The dam supplies raw water to the Water Treatment Works (WTW) using a gravity pipeline with an option using raw water pumps when dam levels are low.
- Raw water is transferred for a distance of about 800m. The capacity of the WTW is 60 ML/day and the Clear Water Pump Station is used to transfer treated water to Thohoyandou town, Mukomaasinandu village and Mavambe village

Nandoni pump station

- Nandoni dam releases water to the river via sleeve valves (2x DN 1000 and 2x DN 600) with average release of 10 m^3/s.
- The reservoir has a volume of 164 Million m^3 and a surface area of 1570 hectares (15.7 km2).
- The average volume of water pumped by the clear water pump station is 0.63 m^3/s.
- The clear water pump Station is constituted of the following;
- Two (2) pumps, one duty, one standby with a capacity of 625 l/s at a head of 92m, driven by 800 kW motor.
- Three (3) pumps, two duty, one standby with a capacity of 345 l/s (for 2 pumps in parallel) at a head of 216m, each driven by 560 kW motor.
- Two (2) pumps one duty, one standby with a capacity of 20.8 l/s at a head of 184m driven by 75 kW motor.
- Electricity demand : 4 MVA

Steelpoort pump station

Location: Steelpoort, Limpopo Province

- The pump station is in a mothballing state and is constituted of Lebalelo pumps and Steelpoort pumps.
- Raw water arrives on the pump station from the outlet works of the De Hoop Dam with a bulk gravity suction main pipeline of 40 kilometres, laid parallel to the Steelpoort river, to the Steelpoort pump station.
- The Steelpoort pumps sets have two pumps in series (on 3 pipelines), the booster pump is a single stage horizontal split casing centrifugal pump driven by a 750 KW 6600V motor.
- The high lift pump is single stage horizontal split casing centrifugal pump driven by a 2800 kW 4P 6600V motor. These pump sets can deliver 867 l/s (3121 m^3/h) at a total head of 326 m.
- The Lebalelo pumps are multi stage centrifugal pumps driven by 136 KW 4P 6600V electrical motors (on 2 pipelines). These pumps can deliver 289 l/s (1040 m^3/h) at a total head of 365 m.

- Electricity demand : 16 MVA

THANK YOU