

# LESOTHO HIGHLANDS WATER PROJECT

## LOCATION

Phase I of the Lesotho Highlands Water Project (LHWP) constructed a scheme from the Kingdom of Lesotho to the Vaal River in South Africa by a treaty between the two countries.

## DESCRIPTION

The original project envisaged five phases, as shown below (currently, as at 2013, Phase II is about to commence):

### Phase Ia

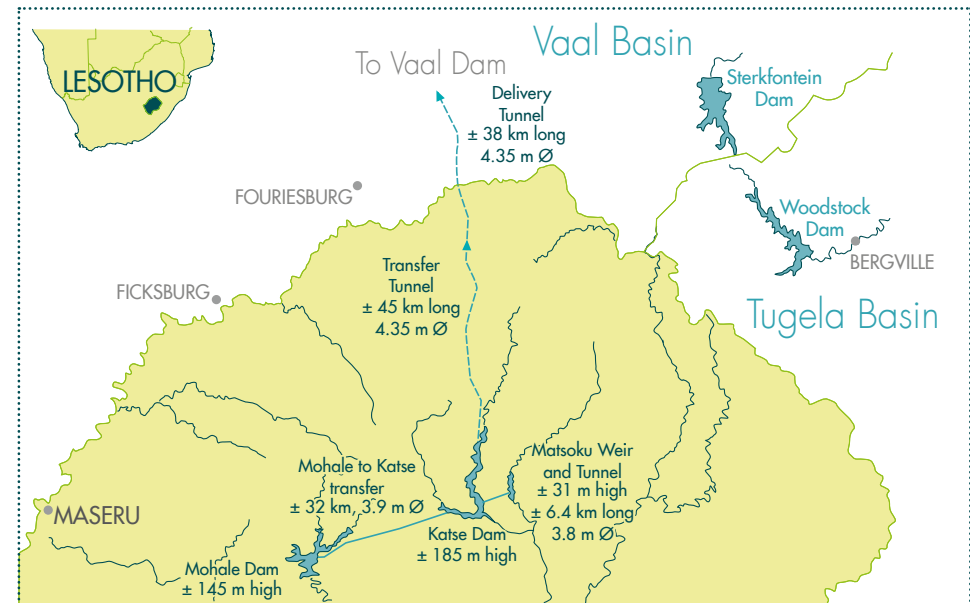
- ▣ the 185-m-high Katse Dam
- ▣ the intake structure capable of handling 70 m<sup>3</sup>/s
- ▣ the 45-km-long transfer tunnel from Katse Dam to the Muela Dam
- ▣ the Muela Dam and hydropower station
- ▣ the 37-km-long delivery tunnel from the Muela Dam to the Vaal River basin.

### Phase Ib

- ▣ the 145-m-high Mohale Dam
- ▣ the 32-km-long transfer tunnel from the Mohale Dam to upstream of Katse Dam
- ▣ the 15-m-high Matsoku Diversion Weir
- ▣ the 5.7-km-long transfer tunnel from the Matsoku Weir to Katse Dam.

### Phase II

- ▣ the 163.5-m-high Polihali Dam
- ▣ the 38-km Katse–Polihali Tunnel



Phase I of the Lesotho Highlands Water Project (from locality map produced by the SA Dept of Water Affairs)



Mohale Dam, part of the Lesotho Highlands Water Project  
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- ▣ Kobong Pumped Storage Scheme
- ▣ the existing tunnels would be used as conveyance from Katse Dam.

### PURPOSE

The purpose of the LHWP is to augment South Africa's water supply via a transfer to the Vaal River catchment (and it is therefore classified as part of the Vaal River System), in addition to generating electricity for Lesotho. The hydroelectric station is situated near Muela in Lesotho, approximately 45 km from Katse Dam. However, demands within Lesotho are growing, and it is envisaged that current resources, including surface water runoff, groundwater and well points, will not be sufficient. Part of the recently completed Lesotho Lowlands Study assessed options for possible storage dams for this reason.

During periods of water shortages, water is discharged from the Muela Dam into the Mohokare (Caledon) River to provide water to the capital of Lesotho, Maseru, and other towns. Releases are also made for the downstream ecological reserve. Once the whole scheme has been implemented, it will transfer the maximum flow to South Africa (long-term maximum of 877 million m<sup>3</sup>/a).

### PHYSICAL INFORMATION LHWP DAMS

Name	FSC (million m <sup>3</sup> )	Wall height (m)
Katse	1,950	185
Mohale	947	145

### PHYSICAL INFORMATION LHWP TUNNELS

Description	Length (km)
Katse Dam to Muela Dam	45
Muela Dam to the Vaal River basin	37
Mohale Dam to Katse Dam	32

Lesotho constitutes only 5% of the Orange River catchment, but provides approximately 50% of the total catchment runoff. The water quality is characterised as good, with low sediment content.

