Namibia

# HARDAP DAM

COORDINATES (degrees, minutes, seconds)

| LATITUDE | LONGITUDE |
|---|---|
| 24°29'58.26" S | 17°51'31.02" E |


## LOCATION

Hardap Dam is situated on the Fish River in quaternary catchment D46B in Namibia.

## DESCRIPTION

Hardap Dam consists of a rockfill embankment with an upstream bituminous concrete blanket. It has a full supply level of 1 135.0 m, and the bottom of reservoir is at 1 109.9 m.

## PURPOSE

Water is supplied to Mariental via a purification plant downstream of the dam and then gravity fed 20 km to a reservoir at Mariental. The dam also provides for a 2 000 ha irrigation scheme by means of 16 km of concrete-lined canals and pipelines. Hardap Dam is also used for flood absorption to protect the town of Mariental.

Hardap Dam (source: www.namwater.com)

## PHYSICAL INFORMATION

| Dam name | River | Quaternary catchment | FSC* (million m³) | SA (km²) | Owner | Wall height (m) | Wall length (m) |
|---|---|---|---|---|---|---|---|
| Hardap Dam | Fish | D46B | 294.6 | 28.7 | NamWater | 30 | 865 |

* Details from NamWater and ORASECOM 001/2007

| Year of completion | Demands/abstractions (million m³/a) | | | 1:50 yield (million m³/a) | Maximum spillway capacity (m³/s) |
|---|---|---|---|---|---|
| | Domestic | Irrigation | Other | | |
| 1962 | 4 | 50 | Unknown | 58 | 10 000 |

## AREA–CAPACITY RELATIONSHIP

| Elevation (m) | Storage (million m³) | Surface area (km²) |
|---|---|---|
| 1 138 | 387.36 | 33.15* |
| 1 135 | 294.59 | 28.71 |
| 1 134 | 266.65 | 27.18 |
| 1 131 | 191.78 | 22.54 |
| 1 127 | 112.75 | 17.03 |
| 1 123 | 56.66 | 11.08 |
| 1 119 | 22.19 | 6.30 |
| 1 117 | 11.67 | 4.28 |
| 1 115 | 4.38 | 2.49 |
| 1 114 | 4.29 | 1.99* |

* Estimated

## OPERATING RULE

Hardap and Naute Dams are part of the Namibia Fish River sub-system. On 1 May every year, the curtailment curve (based on short-term stochastics yield analyses) is used to determine whether there is a deficit or surplus in the system. If a deficit exists, curtailment is applied according to the following table.

| User Category | Low assurance (1 in 5 years) | Low assurance (1 in 10 years) | Low assurance (1 in 20 years) |
|---|---|---|---|
| Urban/industrial | 0 | 0 | 100 |
| Irrigation | 83 | 17 | 0 |
| Canal losses | 50 | 50 | 0 |

If the water level rises to a level of 1 131.62, water is released.

A storage projection plot is updated at the start of every month and additional actions may be required to protect the resource.