

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 the 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 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.

PHYSICAL INFORMATION

Dam name	River	Quaternary catchment	Operational percentage‡	FSC* (million m³)	FSA (km²)	Owner	Wall height (m)	Wall length (m)
Hardap Dam	Fish	D46B †	100	294.60	28.70	NamWater	35.50	865
			70	206.10	23.00			

† ORASECOM, 2011

‡ Following the 2006 flood event, the Namibia cabinet has approved the Hardap Dam to be operated at 70%

* Personal communication with Hanjörg Drews, NamWater; ORASECOM, 2007



Hardap Dam (©UNOPS/Leonie Marinovich)



HARDAP DAM

Year of completion	Demands/abstractions (million m ³ /a)			Operational percentage	95% assured yield (million m ³ /a)	Maximum spillway capacity (m ³ /s)
	Domestic	Irrigation	Other			
1962	1	40	None	100	54.26	3,512
				70	43.60	1,892

AREA-CAPACITY RELATIONSHIP

Elevation (m)	Storage (million m ³)	Surface area (km ²)
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	56.67	11.08
1,119	22.19	6.30
1,117	11.68	4.28
1,115	4.82	2.68
1,114	2.63	1.71

* 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 stochastic 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 m (70%), 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.

