

BLOEMHOF DAM

COORDINATES (degrees, minutes, seconds)

LATITUDE	LONGITUDE
27°40'09" S	25°37'05" E

LOCATION

Bloemhof Dam is located on the Vaal River, South Africa, in quaternary catchment C43D in the Middle Vaal Water Management Area.

DESCRIPTION

Bloemhof Dam is a mass gravity concrete overspill section supported by earth flanks. It has 20 radial crest gates for flood control. The full supply level is 1 228.5 m, the dead storage level is 1 213.6 m, and the bottom of reservoir is at 1 210.8 m. The dam is listed as one of the top ten impoundments in South Africa in need of nutrient management, due to the high level of nutrient enrichment.

PURPOSE

Bloemhof Dam is used primarily to supply the Vaalharts Irrigation Scheme (which generates considerable return flows). It also supplies the Klip Dam–Barkly Irrigation Scheme, the Vaal Gamagara Government Water Scheme, the Douglas Irrigation Board and private irrigators between Bloemhof and the Vaal–Orange confluence, as well as domestic supply to Kimberley. It is also used for flood control.

PHYSICAL INFORMATION

Dam name	River	Quaternary catchment	FSC* (million m ³)	SA (km ²)	Owner	DWA code	Wall height (m)	Wall length (m)
Bloemhof	Vaal	C43D	1 218	234.27	DWA	C9R002	33	4 270

* Live full supply capacity (SANCOLD)



Bloemhof Dam (source: www.wikipedia.org)



BLOEMHOF DAM

Year of completion	Demands/abstractions (million m ³ /a)			1:50 yield (million m ³ /a)	Maximum spillway capacity (m ³ /s)
	Domestic	Irrigation	Other		
1970	Unknown	Unknown	Unknown	2 707 †	14 300

† Including Lesotho transfer (ORASECOM, 2011)

The historic firm yield of 2 707 million m³/a is the yield representing the Bloemhof total yield, excluding contributions from the Vaal system, but including the transfer from Lesotho (as operated in practice). The yield, excluding the transfer from Lesotho, is 1 927 million m³/a, and the yield after supplying the Lower Vaal demands is 1 413 million m³/a.

AREA-CAPACITY RELATIONSHIP

Elevation (m)	Storage (million m ³)	Surface area (km ²)
1 229.5	1 511.733	261.63
1 228.5	1 264.42	233.543
1 226.5	848.833	183.085
1 223.5	405.679	112.707
1 221.5	217.131	77.478
1 219.5	97.144	43.755
1 217.5	41.249	16.165
1 215.5	17.028	8.701
1 213.5	5.702	3.718
1 210.82	0.214	0.663

OPERATING RULE

Bloemhof Dam, along with Vaal Dam, the Vaal Barrage and Grootdraai Dam (all on the Vaal River) and Sterkfontein Dam (on the Wilge River, a tributary of the Vaal River) form part of the Bloemhof sub-system, which is part of the greater Integrated Vaal River System. Woodstock Dam and the Driel Barrage (situated in the Thukela River catchment), form the Thukela Transfer Scheme into the Vaal catchment.

The large scheme is operated as follows: The Thukela system supports Sterkfontein Dam until Sterkfontein Dam is full. Grootdraai Dam does not support Vaal Dam, but when the Vaal Dam is at 15% storage or less, Sterkfontein Dam will begin to support it. Abstractions at Sedibeng and Midvaal make use of local runoff and spills from upstream dams. When this is not adequate, the Vaal Dam supports the abstractions. The Vaal Dam will only begin to support Bloemhof Dam when Bloemhof Dam reaches its minimum operating level (1 213.6 m). The Vaal River System (including Bloemhof Dam) does not support any of the Orange River demands.



Dam network

