Sardar Sarovar Canal Cross section

The Narmada main canal, is one of the largest lined irrigation canals in the world, takes off from pond no.4 below the canal head power house on the right bank of River Narmada.

World's largest canal system is in Sadder Samovar project.

The conveyance system consists of main canal, branch canals and distributaries. The canal system involves 2746 km of long branches and sub branches 72326 km of long distributaries and about 93500 km of long minors and sub minors. There are 35 branch canals off taking from the main canal. Some of the branch canals such as Miyagam, Vadodara, Saurashtra and Kachchh are quite large having discharge capacity exceeding 70 m^3/s.

Full supply level at head regulator	91.44 m
Length of main canal upto Rajasthan border	460.00 km
Length in Rajasthan State	74.00 km
Total	534.00 km

Bed width at head reach 73.1 m

Full supply depth at head reach 7.60 m

Design discharge at head reach 1133 m^3s^{-1}

Gujarat - Rajasthan border 71 m^3s^{-1}

Number of branches 42

Length of distribution network 66,000 km

Concrete lining 100 mm to 125 mm thick

The area of concrete lining

Phase 1: 150.58 + 93.93 + 39.26 = 283.77

Phase 2: 126.14 + 1.08 + 22.60 = 149.82

Total: Phase 1 + Phase 2 = 435.59 * 10^5 m^2

The main canal, branch canals and the distributaries will be lined with unreinforced concrete on sides and in the bed. In the main canal 12.5 cm thick unreinforced concrete lining will be provided on slopes and 10 cm thick on the bed. The branch canals will be

lined with 10 cm thick concrete in bed and slopes up to 50 cumecs discharge (or up to 2.5 m depth of water) and for lower discharges, thickness of lining is reduced to 7.5 cm.

Free board as mentioned below is provided on main and branch canals

	Lined	Unlined	Total
Main canal	1.25 m	0.25 m	1.50 m
Branch canals 14.2 cumecs and above	0.60 m	0.30 m	0.90 m
Branch canals 3 cumecs to 14.2 cumecs	0.45 m	0.15 m	0.60 m
Distributaries 1.5 cumecs to 3.0 cumecs	0.45 m	0.15 m	0.60 m
Below 1.5 cumecs	0.30 m	0.15 m	0.45 m

The main canal carries very large discharge and its FSD exceeds 7.5 m. Inside and Outside slopes are kept 2:1.The main canal carries very large discharge and its FSD exceeds 7.5 m. Inside and Outside slopes are kept 2:1.Bed slope of 1 in 12000 upto offtake of Saurashtra branch at 288 km and 1 in 10000 thereafter up to the Gujarat - Rajasthan border.

Sardar Sarovar project spillway

Design discharge 86937.2 m^3s^{-1} will be the third largest in the world

(Gazenba, China 1.13 * 105 m^3s^{-1}) and Tucurri, Brazil 1.0 * 10^5 m^3s^{-1}

Radial gates of chute spillway: 7 numbers, 18.3 m * 18.3 m

For service spillway 23 radial gates of 18.3 m * 16.75 m

Dam is 1210 m long

Concrete gravity type dam

Height of dam from foundation 163.00 m. From the river bed 128 m.

Gross storage 9497.07 M m^3

The reservoir length 214 km with an average width of 1.75 km.

Permissible velocity in the canal: n = 0.018, v = 1.689 m/s. During the initial period of operation n = 0.016, Velocity 'v' may exceed 2 m/s.

Speed of construction

Narmada Sager canal lining 400 sq.m of lining per hour. 40 m^3 of concrete in 1 hour of 10 cm thick lining. Paver finisher has a speed of 10 to 12 m / hour to 20 to 22 m / hour.