

EXECUTIVE SUMMARY

This Feasibility Report deals with Damanganga –Pinjal Link Project, which is part of Peninsular Rivers Component envisaging Interlinking of West Flowing Rivers North of Mumbai and South of Tapi.

According to the National Water Policy, 2002, first priority has been given to drinking water. As such provision for drinking water should be primary consideration for any water resources project. The water balance studies carried out by National Water Development Agency (NWDA) indicate that Damanganga basin is surplus in availability of water after taking into consideration all the in-basin water needs to be met through existing, ongoing and proposed projects in foreseeable future i.e. upto the year 2050. The trend of development in the metropolitan city of Greater Mumbai is so fast that it is anticipated that there would be acute shortage of drinking and industrial water supply by the year 2025.

As per the Municipal Corporation of Greater Mumbai (MCGM) the projected water demand for Greater Mumbai by 2021 AD is 1789 Million Cubic Metre (Mm^3) equivalent to 4900 Million Litres per day (MLD) whereas the present water supply from different sources viz. Vaitarna, Tansa, Bhatsa, Vehar and Tulsan rivers are $1075 Mm^3$ (2945 MLD) only. As such, there will be a shortage of $714 Mm^3$ (1955 MLD) by 2021 AD.

In order to cope up with above requirement, it is proposed to divert surplus available water from Damanganga basin to Greater Mumbai through Pinjal reservoir.

This report contains results of feasibility studies of the proposed Damanganga-Pinjal Link project envisaging construction of a dam across Damanganga river at Bhugad bordering Valsad district of Gujarat and Nasik district of Maharashtra and another dam across Vagh river at Khargihill in Thane district of Maharashtra and two pressure tunnels connecting Bhugad, Khargihill and Pinjal reservoirs. The gross storage capacities of these two proposed reservoirs are $426.39 Mm^3$ and $460.79 Mm^3$ respectively and their live storage capacities are $400.00 Mm^3$ and $420.50 Mm^3$ respectively. The Full Reservoir Levels (F.R.L.) of these two reservoirs are 163.87 m and 154.52 m respectively. The F.R.L., gross storage capacities and live storage capacities of Pinjal reservoir as proposed by Maharashtra State Government are 141.00 m, $413.57 Mm^3$ and $401.55 Mm^3$ respectively. Water planning of Damanganga-Pinjal Link project has been carried out on the basis of simulation studies using monthly inflows, monthly demands and reservoir capacity curves.

It is revealed from these studies that there is possibility to divert $287 Mm^3$ water from Bhugad reservoir, $290 Mm^3$ water from Khargihill reservoir at 100% dependability. After accounting $332 Mm^3$ water from Pinjal reservoir (as per studies done by Government of Maharashtra) a total quantity of 43.84 cumecs water equivalent to 3741 MLD can be diverted during non-monsoon period through Damanganga-Pinjal link. Water from Pinjal reservoir will be further carried to Greater Mumbai for meeting its municipal and industrial water requirement as per the plan of Municipal Corporation of Greater Mumbai (MCGM) & Mumbai Metropolitan Region Development Authority (MMRDA).

The Bhugad and Khargihill reservoirs are proposed to be connected by 16.85 km long tunnel of 5.00 m diameter below their minimum draw down levels and the reservoirs at Khargihill and Pinjal are proposed to be connected by 25.70 km long tunnel of 5.25 m diameter below their minimum draw down levels.

Feasibility Report of this project has been prepared after conducting field surveys and investigations on topography, geological, geotechnical, socio-economic, ecological and environmental aspects and designing various hydraulic structures involved in the project.

The total submergence area of Bhugad and Khargihill reservoirs is 3461 ha. A total of 24 villages either fully or partly will get affected. Out of these, the habitation and land will be affected in 11 villages and only land will be affected in the remaining 13 villages. The total number of houses to be affected as a result of submergence in these reservoirs will be 723. A human population of 4530 and live stock of 3449 would also be affected. Adequate provision has been made for the resettlement and rehabilitation of displaced population in the report.

The cost of this link project at 2002-2003 price level is estimated to be Rupees 1278 crores which includes cost of the two dams at Bhugad and Khargihill and the two tunnels connecting Bhugad , Khargihill and Pinjal reservoirs. The cost of dropping the Damanganga waters from Bhugad and Khargihill reservoirs into Pinjal reservoir works out to be Rs. 2.21 crores per Mm^3 or Rs. 22.15 per cubic metre of water. The B.C. ratio is worked out as 1.38. The time schedule for the construction of this link project is proposed to spread over a period of 9 years.