

Uma Oya multipurpose development project is one of the most important development projects of Sri Lanka during recent years and was started in 2008. The project was proposed to transfer the water from Uma Oya to Kirindi Oya in order to develop hydropower and to irrigate the dry and less developed south-eastern region of the central highlands. Capacity of the electrical power generation is 120 MW and irrigation of approx. 25,000 acres of paddy lands.



Early assessments of the project date back to 1989, when the first studies were conducted by the Central Engineering Consultancy Bureau. This project consists of two reservoirs at Puhulpola and Dyraaba, a conveyance tunnel linking the two reservoirs of 3.98 km. length, a 15.2 km long Headrace tunnel, a powerhouse and a Tailrace tunnel. The Puhulpola reservoir is on the Dalgolla Oya and the Dyraaba reservoir is on the Mahatotilla Oya. Both rivers discharge into the Uma Oya. Essentially, both reservoirs are in the Uma Oya sub-basin in the Mahaweli basin. Both reservoirs were constructed using Roller Compacted Concrete (RCC) and are connected by a link tunnel. The Head Race Tunnel (HRT), with an intake in the Dyraaba reservoir conveys an annual water conveyance of 145 MCM, and leads to the Power House at Karandagolla with an installed capacity of 120 MW. The tailrace tunnel from the Power House is directed to the Kirindi Oya. The Headrace tunnel excavation was performed by two numbers of Tunnel Boring Machines (TBMs) which was a distinct part of this project.

The geological base of the project area is metamorphous rock (mostly gneiss) and is lightly folded. The ground-water table is close to the ground surface, and this led to high levels of water ingress during tunneling. Special high pressure injections were used to minimise water ingress. Preliminary explorations with TSP (Tunnel Seismic Prediction) were also carried out in order to locate the water-bearing zones before the TBM began work. To prevent water inflow, the rock around the tunnel was injected with cement and sealed. These measures also allowed the ground-water table to recover.

The two Pelton turbine generators of 60 MW are fed via a 600 m vertical pressure shaft, after passing through the long tailrace tunnel. 68,000 m³ of earth was cleared to create the underground Uma Oya Power Station cavern. The 120 MW Power Station will generate up to 231 GWh per year. The 5,000 m² switchyard premises was built at 504 m above MSL. Power from the switchyard is delivered over 21.5 km of double-circuit 132 KV transmission line, consisting of more than 70 transmission towers, to the Badulla Substation. Uma Oya project was opened on the 24th April 2024 and it symbolizes the long standing friendship between the Islamic Republic of Iran and the Government of Sri Lanka.

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