

FROM THE EDITOR...

The first hydropower scheme of the world was developed in 1878 at Craggside in Northumberland, England by an English engineer and industrialist William Armstrong and this event marked the beginning of a new era of power and energy. By 2015, hydropower generated 16.6% of the world's total electricity and 70% of all renewable electricity, and is expected to increase by about 3.1% each year for the next 25 years.



In Sri Lanka, Eng. D. J. Wimalasurendra initiated the first mini hydropower plant in 1912 at Black Pool, utilizing the excess water from the Gregory Lake, Nuwara Eliya. In 1918, Eng. Wimalasurendra delivered his famous keynote address to the Engineering Association of Ceylon, entitled "On the Economics of Power Utilization in Ceylon". In this keynote address, he highlighted that the harnessing of the Mahaweli river, Kehelgamu Oya and Maskeliya Oya (two main tributaries of Kelani river) for hydropower development would inaugurate an industrial era for the country. His aspiration culminated with the inauguration of 50 MW Laxapana hydropower scheme in 1950 after a few decades of his dedicated enduring works. Based on Eng. Wimalasurendra ideas, successive Sri Lankan Governments constructed large scale hydropower plants to benefit the country. The country, which has now reached almost 100% of its electrification level, generates a significant percentage of its electricity demand, from clean resources compared to the rest of the world.

The hydropower projects of 35 MW Broadlands (2020), 122 MW Uma Oya (2021) and 31 MW Moragolla (2023) are considered as committed power projects under long term generation plan of Ceylon Electricity Board (CEB). The Broadlands hydropower project is a run-of-the-river hydroelectric complex currently under construction in Kitulgala, Sri Lanka and it is the last major hydropower generation in Laxapana Complex. Approximately 85% of the US\$82 million project funding was met through credit arrangements made with the Chinese Government, with the rest borne by the Government of Sri Lanka through a loan from a local bank. The construction contract was granted to the China National Electric Equipment Corporation (CNEEC) and was started in 2013 and expected to finish in 2020.

The project will consist of two dams and a power station further downstream of the Kelani river. The dam sites are located in Polpitiya, in Nuwara Eliya district, lying near the confluence of the Maskeliya Oya and the Kehelgamu Oya. The main dam built on the Maskeliya Oya directly uses the water released from the existing Polpitiya power plant. A weir built on Kehelgamu Oya will divert the inflow of the Kehelgamu Oya catchment through a tunnel connecting the main pond. The water diverted at the head works is conveyed through a headrace tunnel system to the power station which consists of two 3-phase synchronous turbines, each of 17.5 MW and a rated discharge of 32 m³ per second. From there, after power generation, the water is released back to the Kelani river through a tailrace canal. With the clear vision of CEB, Sri Lanka is adequately able to pursue country's development goals while assuring harmonious coexistence between the nature and the built environment.

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