

## Information Sheet 13

### Koshi barrage and embankment

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#### Introduction

The Koshi Barrage was built between 1959 and 1962 after an agreement was made between the Governments of India and Nepal on 25 April 1954. The treaty, which was revised in 1966, entrusts India with the responsibility for the maintenance and operation of the Koshi Barrage (Dixit 2009). The barrage is located at Bhim Nagar, Nepal close to the India-Nepal border. The barrage was constructed for flood control and to provide water for irrigation. It also serves as a river gradient control measure through which sediments are deposited in the upstream reaches. The 1,149 m-long barrage also features 56 gates that control river flow to downstream areas. The barrage is designed to discharge water at a rate of 950,000 cusec.

The barrage provides major irrigation benefits to both India and Nepal. As a part of the extended treaty, the Sunsari Morang Irrigation Project (SMIP) – one of the largest irrigation projects of Nepal – was built to provide irrigation facilities for about 68,000 ha of land in Sunsari and Morang districts in Nepal (Dhungel, 2009). The original project was constructed by the Government of India, and later handed over to the Government of Nepal in 1975. The system diverts water from the left bank of the Koshi River at Chatara, about 40 km upstream of the barrage. The intake and main canal were designed with a discharge capacity of 45 m<sup>3</sup>/sec (PREA, 2012). Similarly, two irrigation canals have been extended from the eastern and western side of the Koshi Barrage. The eastern canal irrigates about 612,500 ha of land in the districts of Purnia and Saharsa of Bihar, India. The western canal passes through 35 km in Saptari District, Nepal serving 24,480 ha of land before crossing the Indian border. The western canal irrigates 356,600 ha of land in Bihar, making the total area in Bihar irrigated by the Koshi Barrage 969,100 ha. In addition to the immediate benefits of irrigation, the barrage also holds water during the rainy season and makes this water available for irrigation during the dry season.

The Chatara Hydropower Centre was conceptualized to provide power for dredgers to remove silt from the irrigation canal. Later, the Nepal Electricity Authority wanted to expand the purpose of the project to generate power for supply to the grid. However, it was later realized that the availability of water is subject to the operation of the irrigation canal.

The river is subject to frequent flood events and dynamic shifts in the river channels of the plains. Because of this, embankments were built on both sides of the river to help control flood water and protect nearby settlements. The eastern embankment is about 157 km long (32 km in Nepal and 125 km in India) and the western about 129 km long (28 km in Nepal and 101 km in India). During its construction, a rehabilitation

programme was carried out in Nepal and India to resettle families and communities to safer areas outside of the embankment. The Koshi River has a history of breaches, the most recent one occurring upstream of the barrage in 2008 (see Information Sheet 3 for more details). The other seven breaches took place downstream of the barrage in 1963, 1968, 1971, 1980, 1984, 1987, and 1991 (Mishra, 2008).



**Figure 1:** Koshi Barrage



**Figure 2:** Koshi River passing through the Koshi Barrage (indicated by red square)

## References

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