Mahatma Gandhi Setu, Location, Length, Connectivity, Significance

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Mahatma Gandhi Setu is one of India's most important river bridges. It is built across the Ganga River in Bihar. The bridge connects Patna in South Bihar with Hajipur in North Bihar and plays a vital role in transport, trade and regional connectivity. The bridge transformed movement between both regions after its opening in 1982. Its rehabilitation with modern steel truss technology has further strengthened its strategic importance for road transport and economic development in eastern India.

Mahatma Gandhi Setu

Mahatma Gandhi Setu is a landmark engineering project that has remained a crucial transport link for Bihar for more than four decades. Its construction, rehabilitation, engineering design and economic importance make it one of the country's most significant river bridges.

- **Location:** Mahatma Gandhi Setu is situated over the **Ganga River** in Bihar. It connects Patna on the southern bank with Hajipur on the northern bank. It forms part of National Highway 19.

- **Length:** The bridge measures 5,750 metres or about 5.75 kilometres. It remained the **longest bridge in India** from 1982 until 2017. Today, it is the fourth longest river bridge in the country.
- **Connectivity:** The bridge serves as the primary road link between North and South Bihar. It has significantly reduced travel time and supports movement towards Nepal and Bhutan through Bihar's road network.
- **History and Origin:** The Central Government approved the project in 1969. Construction began in 1972 under Gammon India Limited. The bridge was inaugurated by **Prime Minister Indira Gandhi** in May 1982 after nearly ten years of construction.
- **Construction Cost and Delays:** The project was initially awarded at ₹23.50 crore. Due to **storms**, shortage of cement, labour strikes and contractual disputes, the final construction cost increased to about ₹87.22 crore.
- **Engineering and Structure:** The bridge consists of 45 intermediate spans of 121.065 metres each with end spans of 65.53 metres. It was built using cantilever segmental construction with precast concrete segments and separate upstream and downstream carriageways.
- **Road Design:** The bridge was designed as a four lane structure with two independent carriageways. It provides a 7.5 metre wide roadway along with footpaths on both sides for pedestrian movement.
- **Structural Problems:** Continuous overloading and inadequate maintenance caused cracks, damaged expansion joints, water leakage and deterioration of the concrete superstructure. The bridge required major repairs within five years of its completion.

Mahatma Gandhi Setu Rehabilitation

The major details related to the redevelopment and rehabilitation of the Mahatma Gandhi Setu has been listed below:

- **Rehabilitation Project:** The Union Government approved rehabilitation of the 5.575 km bridge at an estimated cost of ₹1,742.01 crore under the Engineering, Procurement and Construction mode. The damaged concrete superstructure was completely replaced with modern steel truss girders.
- **Largest Steel Bridge:** The redeveloped bridge became India's largest steel bridge. Around 67,000 tonnes of steel were used. It was the country's first project where an existing concrete bridge superstructure was fully replaced with a steel truss system.
- **Completion and Inauguration:** The renovated western carriageway opened on 31 July 2020. On 7 June 2022, Union Minister Nitin Gadkari and Bihar Chief Minister Nitish Kumar inaugurated the completed eastern carriageway at Patna.

Mahatma Gandhi Setu Significance

The Mahatma Gandhi Setu is significant and important in the following manner:

- **Traffic Importance:** More than 85,000 vehicles and around 12,000 pedestrians use the bridge every day. Heavy traffic beyond its design capacity caused structural stress and frequent congestion over the years.
- **Economic Significance:** The bridge is a lifeline for Bihar's economy. It supports trade, agriculture, industries and passenger transport while improving access between Patna, Vaishali and the districts of North Bihar.

- **Travel Benefits:** After redevelopment, travel became smoother and faster. The journey between Patna and Vaishali can now be completed in nearly 15 minutes, reducing travel time and transportation costs.
- **National Importance:** Mahatma Gandhi Setu remains one of India’s most significant bridge engineering projects. The rehabilitation has improved safety, increased carrying capacity and strengthened a strategic transport corridor connecting major economic regions of Bihar.
