IC Awards 2015
Nomination FormFID

Please enter all information requested below for each entry (signatures by the submitting firm(s) and the client(s)/owner(s) are required). The FIDIC Jury will discard nomination forms missing any required authorisation/signature. Names and information should be typed or printed. Applications should be accompanied by up to **5 photographs** (JPG format in high resolution) of the project being nominated. Pictures should not be tables or graphics describing the project. Please return this form by email as a PDF to the FIDIC Secretariat at fidic@fidic.org or by Fax at +41 22 799 4900 **before 19 June 2015.**

THE PROJECT

Project Name: Wuhan Erqi Yangtze River Bridge

Project Location:

(as it is to appear in the award)

Country: China

City: Wuhan

Purpose: The Yangtze is one of golden waterway in china of which Wuhan segment is especially busy, the Wuhan Erqi Yangtze River Bridge located at very complex river site. In order to meet long-term development needs of the river, the main bridge was designed as the double main span cable-stayed bridge with three towers. The 616m long mid span ranking the bridge as the world's largest cable-stayed span with three towers, but also the longest span cable-stayed bridge with composite girder.

Year of completion: December 2011

The firm submitting the nomination is a member of

China National Association of Engineering Consultants (CNAEC)

(Please indicate name of FIDIC MA/Associate or Affiliate and country)

Please attach a letter from the FIDIC MA/Associate or Affiliate in your country validating your submission.

Why do you think this project should receive an award? How does it demonstrates:

- innovation, quality, and professional excellence
- the principles of transparency and integrity
- sustainability and respect for the environment

The Yangtze is one of golden waterway in china of which Wuhan segment is especially busy, the Wuhan Erqi Yangtze River Bridge located at very complex river site. In order to meet long-term development needs of the river, the main bridge was designed as the double main span cable-stayed bridge with three towers. The 616m long mid span ranking the bridge as the world's largest cable-stayed span with three towers, but also the longest span cable-stayed bridge with composite girder.

The Bridge span arrangement is (90 + 160 + 616 + 616 + 160 + 90) m, total length 1732m. The main span employed steel – concrete composite girder; the side span was designed as reinforcement concrete girder. The bridge was design as per urban expressway; design speed is 80km/h, dual-eight lane, total road deck with is 29.5m.

The bridge construction commenced at August 2008, opened to traffic in December 2011. Completion of the bridge indicted that the bridge construction level of china reach leading position of the world.

In addition, the Erqi Yangtze River Bridge has won the first prize of China Highway Institute of Science and Technology, Hubei Province outstanding design award, China Railway Engineering Corporation of science and technology award, China Railway Engineering Corporation and a number of outstanding design award reward.

Related technology has been successfully applied in the design and construction of the following major projects Hainan Yangpu Bridge, Yichang Xiangxi Bridge, Nanxi Yibin Yangtze River Bridge, and the Parrot Island Yangtze River Bridge.

It was the first time using the composite girder and π-shaped PC girder to form mixing structure, which solved the inadequate vertical stiffness of multi-span cable-stayed bridge, thus to achieve the span world record of multi-span cable stayed from 400m to 600m.

During the design and construction process, a lot of technological innovations have been made, five members of that have got state Intellectual property Office patent certificate.

The method of determining single strand cable-stayed initial tension force"(Patent No: ZL2008 10046940.9)," A new Cable-stayed bridge type that with steel cable-stayed main girder anchor plate

pull anchor structure "(patent number: ZL2007 20088447.4),"One kind of removable type cattle legs shape structure and installation methods "(Patent No.: ZL201010583754.6)," Survey and control method when the tower and girder of cable-stayed bridge construction simultaneously and measurement "(patent number: ZL2010 10131457.8)" Huge steel box positioning method "(patent number: ZL200910063430.7)" The upper listed five technology achievement provided a reference and guidance for the future cable-stayed bridge design and construction.

Compared to the steel box girder scheme, the Erqi Yangtze River Bridge employed steel-concrete composite girder which could reduce investment 66M RMB.

At each stage of bidding, design, construction, supervision, and project management, the Erqi Yangtze River Bridge were strictly in accordance with FIDIC conditions of contract. The project requirements and functions were assessed through rigorous scientific assessment and rational organization. The project quality, schedule, budget control, risk management, and environmental and occupational health indicators all reached the intended target. “Three Zero” target were achieved throughout the construction process: zero accidents, zero quality defect, zero environment pollution, and zero violation of principles of transparency and integrity.

A team of high-quality, compound, and pioneering engineering consultants with domestic and international competitive capability were trained in this project, promoting the sustainable development of engineering consultancy in China.

The design of Zhengzhou Rail-cum-Road Yellow River Bridge fully embodies the concept of sustainable development and respect for the environment. In the main navigable waterway employed a double main span 616m three-tower cable-stayed bridge, which could accommodated the long-term development, and reach the harmony of geographical features of Wuhan combination of three districts characteristics.

The using of steel-concrete composite structure, and precast deck in the main bridge, fully embodies the “factory prefabricated” advanced design concepts to ensure quality, while also significantly shorten the construction period.

The using of parallel strand, enable to achieve the method of strand replacement without interrupting traffic.

During the design phase pay more attention to environmental protection. At the crossing river segment, there are two sets of drainage systems to prevent hazardous liquid leakage caused by water pollution; night landscape lighting designed to use energy-efficient LED lights; a lift and inspect vehicles to facilitate post bridge maintenance that reflect the people-oriented design concept. The using of floating energy dissipation collision avoidance system that reflecting ship- protection design philosophy.

In the whole process of the Erqi Yangtze River Bridge, the FIDIC project management systems were strictly followed in respect of quality management system, principle of transparency and

integrity, and sustainable management system. The designer developed stringent measures in the management system and operation mechanism, including perfecting competitive markets, increasing transparency in contract execution; establishing and maintaining confidentiality in reporting system, etc., to ensure that each stage of the design reaches the required depth of the design and the design review and comments from higher approval of the competent authorities are implemented. The design of the bridge introduced a third-party consulting model. Commissioned by the Owner of the project, the shanghai municipal engineering design institute co., LTD. undertook independent design review for this project. Internal control and third-party consulting ensured transparency and integrity of engineering consultant.

Please use additional pages if needed