REHABILITATION OF THE ADOMI BRIDGE
GHANA
The Adomi Bridge in the West African Ghana is the longest bridge in the country with a free span of 245 m and a total length of approximately 336 m. It crosses the Volta River about 10 km south of the Akosombo Dam and forms one of the most important traffic routes between the capital Accra and the eastern part of the country.

The bridge was built as "Volta Bridge" before the independence of Ghana in 1956 from British colonial rule. The architecture of the existing structure was modeled on that of the Sidney Harbor Bridge, in which the engineer had already gained experience in regard to economy and feasibility of wide-span arch bridges. The structure of the main opening was designed as a composite structure, while the approach spans on both sides were constructed of reinforced concrete. In the course of the approximately 60-year period of use of the object, several damages to the structure have arisen which made an extensive rehabilitation of the bridge unavoidable.

MCE GmbH has been awarded by the Ghana Highway Authority to analyze the actual condition and damages, to develop the rehabilitation measures and to carry out the construction works within a Design & Build contract.

The main works and services of the rehabilitation measures focused on a complete replacement of the bridge deck and re-development as an orthotropic deck for the reduction of the dead load, the exchange of the suspension cables as well as the replacement of the corrosion protection on the arch.

The deck replacement has been designed in 22 single sections with a length of 11 m each. The steel structure has been manufactured in MCE's own production plants in element sizes suitable for sea transport. After delivery on site, they were pre-assembled to individual sections and transported to its final position by longitudinal launching. The lifting operation has been carried out by means of a lifting structure, specially designed for the project. The cables have been exchanged after the complete deck has been reconstructed.

The existing anti-corrosion protection of the arch has been sand blasted and re-applied according to the current state of the art by means of a moveable suspension platform. The bridge was completed by applying waterproofing, asphalt works, the installation of new handrails and the installation of road and object lighting.

In the course of a ceremonial opening, the bridge was opened to traffic by the President of Ghana (John Dramani Mahama) and under the numerous participation of politics, economy and the population.

**Facts & Figures:**

<table>
<thead>
<tr>
<th>Steel weight:</th>
<th>800 t</th>
<th>Construction:</th>
<th>Arch bridge with orthotropic deck</th>
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<tbody>
<tr>
<td>Length:</td>
<td>245 m</td>
<td>Customer:</td>
<td>Ghana Highway Authority</td>
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<tr>
<td>Width:</td>
<td>11,6 m</td>
<td>Construction period:</td>
<td>2013 - 2015</td>
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