Bridges – A catalyst as well as a driver for sustainable development

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Abstract

Bridge construction is one of the major elements in construction industry and it is very important to achieve sustainability in planning and execution of Bridge projects. Jacobs strategic framework for sustainability revolves around three core pillars - People, Places and Partnerships. In running our own operations and in delivering client's projects we strive to deliver economic, social, and environmental values. In this paper, we will demonstrate how the attributes of sustainability are implemented in some of our live projects

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1   Introduction

The 2022 Buildings-GSR finds that the buildings and construction sector accounted for around 37% of energy- and process-related CO_2 emissions and over 34% of energy demand globally [1]. Hence, the construction industry has got significant responsibility in making the earth a better place to live and towards achieving the United Nation's Sustainable Development Goals by 2030.

To achieve these objectives, many strategic trends have emerged that will shape the future of Civil Engineering Sector and can be summarized as below:

A) Climate Crisis:
    The net zero and sustainability benefits will become central to project outcomes and that can be achieved through the following actions:

- Advanced building materials
- Optimized design & materials
- Planning considering sustainability & climate change
- Reduced construction time
- Refurbishment and Maintenance

B) Accelerating digital transformation:
    Digital transformation will create a demand for people with the adaptability needed to understand and work with a wider and rapidly changing set of digital technologies. Some of the examples can be summarized as below:

- Building Information Modelling (BIM): Revit, InfraWorks, Inventor, Dynamo, 3D Cad RC, etc.
- Digital Twins

C) Productivity: