



CONNECTING THE DOTS

BRIDGES FOR SOCIAL AND ECONOMIC TRANSFORMATION OF NEPAL

What is the impact of enhanced connectivity through bridges maintenance and construction on local economic development?

Intervention: Bridges Maintenance and New Construction

ONGOING CONSTRUCTION:

- 15,710 meters of new Strategic Road Network (SRN) bridges
- 75% of all SRN bridges are less than 40 meters
- 90% of bridges are less than 100 meters long

MAINTENANCE:

- 78,169 meters of SRN existing bridges will receive road safety upgrades
- New construction (2 and 4 lane): 18,861 meters of new SRN bridges
- Backlog bridges (completion of bridge already under construction)

TIMELINE:

January 2020–May 2023

IMPLEMENTING AGENCIES

- Ministry of Physical Infrastructure
- Department of Roads
- Bridge Branch

BENEFICIARIES FROM REDUCED

TRANSPORTATION COSTS:

- Agricultural producers
- Motorized road users
- Pedestrians
- Cyclists
- Local communities

Context

Nepal's geography presents several challenges in improving the transport connectivity as the Himalayan range lies in the north of the country, including eight of the world's ten highest mountains. Nepal's physical and economic integration as a country depends on the bridges along the Strategic Roads Network (SRN) that enable year-round connectivity between the federal provinces. The SRN is the backbone of Nepal's surface transportation network and consists of more than 12,000 km of roads and around 2,000 bridges. The SRN carries most passengers and goods transport throughout Nepal. Further, it provides connections to India which is Nepal's largest trading partner and primary conduit for the country's trade.

Despite these SRN roads, Nepal's transport infrastructure (including bridges) is crumbling. World Economic Forum's Global Competitiveness Report 2019 ranked Nepal's road infrastructure quality 120 amongst 141 economies. Nepal scored 2.9, the global average being 4.07, based on respondents rating the roads in their country on a scale from 1 (underdeveloped) to 7 (extensive and efficient by international standards). This points to SRN remaining incomplete and inadequate with respect to the transportation services that Nepal requires for reducing poverty and increasing shared prosperity. There are approximately 18,861 meters on SRN roads that require new bridge construction for improved all-weather connectivity.

The geographical configuration of the SRN is significant to Nepal's transport connectivity challenges and national integration under the new federal structure. Nepal's busiest highway, known as the East-West Highway traverses "Terai" districts and provides a transportation link that runs in parallel to Nepal's southern border with India. This road crosses numerous large year-round and seasonal rivers that drain hill and mountain catchments. As a result, approximately 40% of Nepal's existing bridge stock is found on the East-West Highway. North-south feeder roads branch off the East-West Highway and provide access to the difficult topography of Nepal's hill and mountain districts.



Impact Evaluation

The Second Bridge and Maintenance Project (BIMP-II) aims at supporting the efforts of the Government of Nepal in providing safe, reliable and cost-effective bridges on Nepal’s Strategic Roads Network. BIMP-II will support the maintenance of existing bridges and the construction of new bridges. This impact evaluation (IE) targets new construction of approximately 226 bridges. These bridges are constructed based on a scoring system developed and centralized in the bridge management system. This scoring system allows the Department of Roads (DOR) to rank bridges by perceived need. For the impact evaluation, a pure randomized roll-out of bridge construction was deemed infeasible, and inconsistent with DOR goals. Instead, our goal is to utilize the preponderance of ties within the BMS scoring system, thus providing a role for randomization. Specifically, we will randomize the timing of new bridge construction within each score, thus remaining consistent with DOR priorities while still providing an opportunity to identify the impact of bridge construction.

This evaluation will allow us to find the answers to some imperative questions. First, we will measure whether enhanced connectivity through new bridge constructions leads to local economic development. We expect individuals to benefit directly from increased connection to their local market. In fact, isolation constraints multiple decisions made by households, by limiting access to markets to sell goods, labor markets, and health and education facilities. Decreasing isolation with new transport

infrastructure thus has the potential to generate changes in household welfare through a variety of interconnected channels. Second, we also expect individuals to potentially benefit from equilibrium effects as the project not only connects households to their local market, but also to the entire Nepali Strategic Road Network (SRN). Thus, this connection may have additional benefits (and potentially costs) not captured in the connection to their local market.

Policy Influence

Carrying out an impact evaluation in parallel of implementing BIMP-II is particularly timely and strategically relevant to help the Government of Nepal build evidence through appropriate databases on mobility patterns, trade patterns, and communities’ activities. Bridge rehabilitation is an ongoing process and the Nepalese government is and will continue to rehabilitate old and build new bridges. The evidence from the BIMP-II IE will equip decision-makers with better and experimentally-backed information when it comes to the prioritization of investments in maintaining and constructing new bridges to address connectivity issues. The data collected through this IE will be used to improve the government’s bridge management system along with the selection criteria for bridge construction and rehabilitation, as well as pave the way to inform future investments.

For more information email dimettransport@worldbank.org or visit www.worldbank.org/en/research/dime/brief/transport



The ieConnect for Impact program links project teams with researchers to develop rigorous and innovative impact evaluations that both substantially improve the evidence-base for policy making and induce global shifts in transport policy. The ieConnect program is a collaboration between the World Bank’s Development Impact Evaluation (DIME) group and the Transport Global Practice. This program is part of the Impact Evaluation to Development Impact (i2i) multi-donor trust fund and is funded with UK aid from the UK government and by the European Union.