



Improving Rural Access through Pedestrian Trail Bridges

Rural access has proved to be the backbone of economic development for millions of rural people. The Rural Access Index (RAI) measures the proportion of the rural population who live within 2 km of an all-season road. It is included in the Sustainable Development Goals as indicator 9.1.1, providing a way of measuring progress towards Goal 9 and Target 9.1. Although improving RAI is generally associated with an improved road network, equally important, especially in difficult terrain, is the improvement of footpaths and trail bridges. These serve to connect rural settlements to roads and provide safe access to services and economic opportunities throughout the year, even when rivers are in full flood.

Motorized bridges are expensive and are therefore not always a feasible solution. Engineered, sturdy pedestrian bridges are often a better option in rural areas, where traffic is primarily limited to people, pack animals, motorbikes and bicycles. A trail bridge is a structure built in hilly or mountainous areas, or across rivers and streams in the plains. These bridges facilitate safe crossing for pedestrians, animals, and motorbikes, with or without loads. They are constructed from galvanized steel cables and/or structural steel, thereby making them both durable and environmentally-friendly.

This briefing note provides evidence on the impact of trail bridges in terms of access to basic services and markets based on data from three countries: Nepal, Laos and Burundi.

Trail bridges are of three types. The choice of a specific type depends upon the span of the bridge and the riverbanks' topography.



Suspended bridges are constructed with steel cables suspended across the river and anchored either side on masonry blocks. They have a walkway that sags in the middle. Such bridges are built in hilly terrain, usually spanning deep valleys, where there is adequate height above the river. A span of this type may go up to 500m.



Suspension bridges are steel cable structures hung on steel towers either side of the river. They have an upward cambered walkway. This type of bridge is usually built on flat terrain where maintaining enough height above the river would be difficult using a suspended construction. A single span of this type may go up to 350m.



Pedestrian Steel truss bridges comprise a rigid superstructure of inter-connected steel elements usually forming triangular units. This type of bridge is only suitable for short crossings and is generally limited to a span of 32 meters.

Trail bridges offer a number of advantages to rural people, especially in parts of the world where heavy rain or snowfall at certain times of the year render river crossings dangerous. Round the year safe river crossing allows people to access basic services such as registration (of births, deaths, marriages, etc.), education and health as well as economic opportunities such as markets, credit facilities and employment. In Nepal, regularly collected statistics on trail bridge use show that children's school attendance and health center consultation increase following trail bridge construction. Notably, trail bridges contributed to reducing maternal mortality by increasing women's use of health services during pregnancy and at delivery. They also facilitated government immunization and health campaigns.

Nepal

The systematic construction of trail bridges began in Nepal in 1964, following a centuries-old tradition. About 8,500 trail bridges have been built throughout the country's dense river network, thanks to continuous support of the Swiss Agency for Development and Cooperation (SDC) and Helvetas' technical assistance. Almost half of the country's population – about 14 million people – have benefitted from this improved access, with about 1.4 million people crossing a trail bridge each day.

Currently, an average of 500 new trail bridges are built in Nepal each year. The bridges promote safety and save time (on average, a new bridge shortens a roundtrip commute by 2.5 hours). The construction of a new trail bridge also increases school attendance by 18%, while leading to a 26% increase in health center consultations. Bridges often become an economic hub as well. In 26% of cases, new businesses open up near a bridge. The construction of one bridge also injects life into the local economy, providing an estimated 2,600 person-days of paid labor for a community¹.

Laos

Approximately 65% of the population in Laos is rural, with subsistence agriculture remaining the source of livelihood for about three quarters of the population. A lack of safe river crossing facilities hinders rural

people from accessing farmland, markets, and other service centers. Thus, a pilot trail bridge project of the Government of Laos – two “tractable” and one pedestrian bridge – was completed in 2018 with funding from the World Bank and SDC.

Some 12,000 people have benefitted from these three bridges; as in Nepal, they have allowed safer and quicker river crossings for school children and people visiting markets or health centers. What is particularly appreciated in Laos is the innovation of a slightly increased bridge width (1.2m) which allows crossing by four-wheeler tractors (power tillers) as well as motorbikes. As a result, farmers can bring significant quantities of produce to markets; likewise, traders can visit villages with products. Surveys show that each day, approximately 1,300 people, 20 four-wheeler tractors and 500 motorbikes utilize the three bridges.

Burundi

Seven pilot trail bridges were constructed in Burundi in 2014. According to a beneficiary assessment of the socio-economic impact of the pilot bridges² (AfDB, 2018), those respond to a real need for mobility, safety and poverty reduction. Given the acceptance by the population and the government's demand, additional bridges are being constructed in other parts of the country with technical assistance from Helvetas trail bridge South-South Cooperation Unit, SSCU.

¹ Source: Annual Reports of the Nepal Government's Trail Bridge Subsector Program over the period 2014/2015 to 2018/2019.

² Source : Burundi Trail bridges. Ex-post socio-economic impact beneficiary assessment. AfDB, 2018.

The survey found that school attendance had increased by 34%. On average 4,920 people use the trail bridges daily. Interestingly, the percentage of people transporting their products to be sold in other locations has been reduced by almost 50%; instead, traders are now visiting the villages to collect products, thus saving the farmers long and

time-consuming journeys. For those wishing rapid access beyond the villages, taxi bicycle and taxi motorbike services are now available. Time saving, increased access to health facilities, and strengthened family /social networks and social cohesion are other reported benefits provided by the bridges.

Helvetas trail bridge South-South Cooperation Unit (SSCU) promotes cooperation between countries of the South by sharing knowledge and building local capacity in the trail bridge sector. SSCU's value proposition is 'improved and safe access to basic services and economic opportunities for rural people around the world' through trail bridges, as a way to contribute to poverty reduction. To date, SSCU has provided services to local actors in Indonesia, Burundi, Ethiopia, Laos, Honduras, Guatemala, Rwanda, Vietnam, Tanzania, Bhutan, Cameroon and India. The range of services provided includes feasibility studies, establishing a trail bridge project, survey and design of trail bridges, on-site construction of trail bridges, quality monitoring of civil works and steel parts, and capacity building of local stakeholders. Those include relevant government officials of the host country, donors, implementing agencies, private sector actors, non-government organizations and, most importantly, the local people using the bridges. SSCU provides customized services based on the needs of the host countries/clients.

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