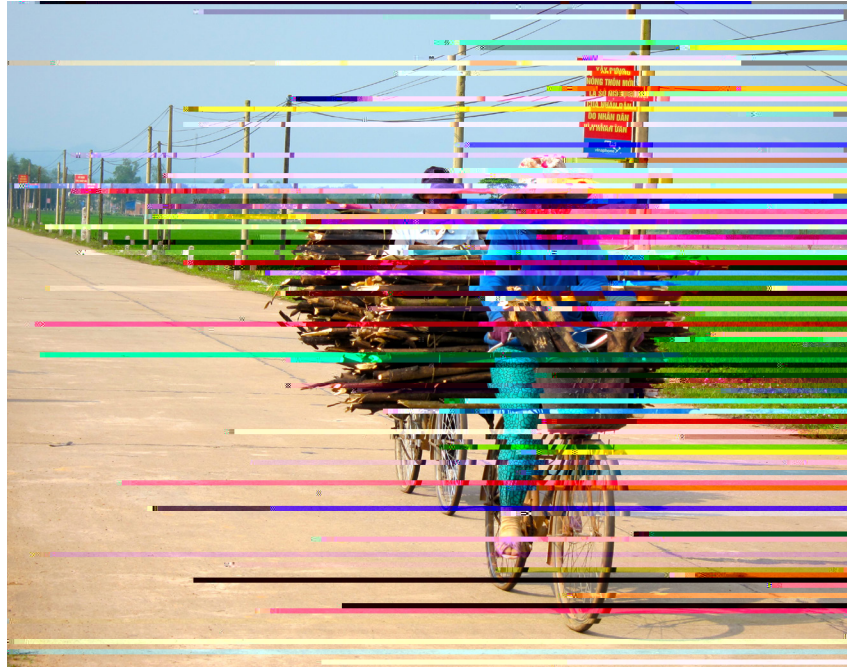


# Stories of Impact

*A series highlighting achievements in disaster risk management initiatives*

## Disaster-Proofing the Transport Sector in Vietnam



### RESULTS & ACHIEVEMENTS

- Climate resilient designs, including using flood proofing pavement materials, protective structures, and road drainage systems for low volume rural roads were developed and are being implemented in a total of 457km of new rural roads in flood prone areas.
- Climate resilient maintenance, including tree planting, was conducted for 4,667 km of existing rural roads, with involvement of more than 15,000 people from rural villages—the large majority of which are ethnic women from poor households.
- The operational manual for the design, construction, quality control and maintenance of rural roads in Vietnam has been updated to incorporate climate resilient considerations.
- The Ministry of Transport and officials in over 30 provinces received training in mainstreaming disaster and climate resilience into rural road construction.
- Disaster-proofing is now a mandatory element in the World Bank-supported Vietnam Road Asset Management Project.

**REGION: EAST ASIA AND THE PACIFIC**

**COUNTRY: VIETNAM**

**FOCUS AREA: DISASTER RISK REDUCTION**

Vietnam is one of the most hazard-prone areas in the world.

## Context

Over the past two decades, extreme weather events have caused more than 13,000 deaths and property damage in excess of \$6.4 billion in Vietnam. More than 70% of the country's population is at risk of natural hazards, flooding and isolation, particularly the rural and urban poor. Destruction of roads inhibits disaster emergency response, leaving many communities isolated with no means to evacuate. Disruption of connectivity between cities and regions disrupts trade patterns, causing economic impacts, and slows down recovery and reconstruction efforts, and creates additional costs to the national and local government.

The government, with the World Bank's and GFDRR, is working closely together to conduct research and trials on the resilience of vulnerable rural roads, flood-proofing the National Highway 1a - the country's main transport corridor, and minimizing the risk of connectivity loss in coastal communities.

## Approach

Interventions in Vietnam's transport sector focused on mainstreaming disaster and climate resilience at both policy and investment levels. GFDRR's technical assistance of \$500,000 supported the mainstreaming of disaster and climate resilience into the transport sector through World Bank-financed projects of over \$1 billion, which include over \$140 million in climate and disaster resilience investments to protect the most vulnerable areas. Key activities include:

- climate-proofing rural roads in the most vulnerable areas, through physical engineering design, construction quality control and maintenance;
- flood-proofing the National Highway 1a and developing alternative design standards to reduce flooding and minimize economic losses; and
- minimizing the risk of connectivity loss in coastal communities such as Ben Tre, Tra Vinh, Soc Trang, Bac Lieu, Ca Mau and Kien Giang provinces.

## LESSONS LEARNED

**Structural measures alone are not sufficient to tackle disaster risks.** A mix of structural and non-structural measures is needed to ensure resilience. In addition to effective drainage, design standards and material specifications, quality control, early warning, spatial planning, maintenance management, and greening of roads are also critical.

**Road materials need to meet standards and make use of local resources.** To climate-proof rural roads, authorities have been working to identify locally available materials, such as bamboo, cement, or stone bricks and to engage the local community in maintenance. Sub-standard materials will incur greater expense over the life cycle.

**An effective risk reduction strategy involves multiple sectors.** All activities carried out under this project required the coordination of national, provincial, and community stakeholders. Improving coordination amongst relevant ministries during planning and design, as well as enhancing communication during the service phase was therefore vital in order to sustainably integrate climate resilience into the country strategy.

## Next Steps

The local population, both men and women, are being trained to maintain rural roads, enabling them to earn extra income while making the roads more resilient for the rainy season. The routine maintenance of roads is being improved through training and technical assistance. The project is also supporting the development of local road maintenance committees to ensure the sustainability of the project.

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