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Implemented by:



Climate change – Bangladesh

Climate change adapted urban development

Bangladesh, a poor and low-lying country, will experience some of the harshest effects of climate change to come. Two developments further increase its vulnerability: According to forecasts, rising sea levels will consistently flood about one fifth of the country's total area. Population growth remains high; the country is already one of the world's most dense.

In Khulna, Bangladesh's third biggest city, KfW Development Bank is financing projects in order to counteract the country's high vulnerability to the consequences of climate change. A particular focus lies on improving and integrating the road infrastructure into the flood protection system. As a result, the population is able to live under much better conditions.

lation lives in slums, which are particularly exposed to the consequences of climate change. A large number of residential areas are flooded during many weeks of every year. Forecasts expect rainfall rates to further increase. Water drains off slower than before, one reason being that informal settlements do not have proper drainage systems.

The lack of road drainage systems is a major problem. Rainwater runs off from sealed road surfaces into neighboring residential areas. Flooding severely restrains the living conditions of the residents in the affected areas, resulting in unacceptable sanitary conditions and limiting local economic productivity. Unsafe

Project name	Climate change adapted urban development in Khulna.
Commissioned by	Federal Ministry for Economic Development (BMZ)
Country/Region	Bangladesh.
Lead executing agency	Local Government Engineering Department (LGED) Asian Development Bank (ADB) Khulna City Corporation (KCC).

Context

According to forecasts, the consequences of climate change will further increase and cause more storms, stronger rainfalls, and more frequent flooding. At present, many people from coastal areas have relocated to urban centres due to these extreme conditions. For this reason, the urban poor population in Bangladesh is continuously increasing. The city of Khulna is no exception.

Khulna, the country's third-largest city with about 1.5 million inhabitants, is located in the southwest of Bangladesh between the rivers Bhairab and Rupsha, just north of the mangrove forests of Sundarbans. The city lies at only two to four meters above sea level. Because of its exposed location, there are frequent and strong floods during the monsoon. About one fifth of the popu-



road conditions and poor and insufficient transport infrastructure reduce access to jobs and primary health care, also in dry periods. This continues to further reinforce urban poverty.

Project approach

This financial cooperation project is co-financed by KfW and the Asian Development Bank ("ADB") under the heading "City Region Development Project" ("CRDP"). The German financial contribution (EUR 10.5 million) is used for the financing of improvements in transport-related urban infrastructure in Khulna, with a focus on poverty reduction and adaption to climate change.

Local roads in Bangladesh serve a dual function- not only to guide and direct traffic, but also as flood protection due to their running along embankments. Thus, roads play a key role in avoiding flooding. The project includes investments in road rehabilitation and drainage systems. Slums in particular benefit from these investments; they are now connected year around to the transport network with paved roads.

The expansion and rehabilitation of roads includes the construction of bridges, drainage systems, sidewalks, and streetlights while also making roads safer for pedestrians and cyclists. In future, the city center is connected to the bus system and other transport options. Residents of previously marginalized suburbs can then take a bus into the city-center.

Impact

The project contributes to Khulna's adaptation to climate change through the expansion and rehabilitation of roads, dams, and drainage systems. As a result, the population will be better protected from the flooding during monsoons. About 200,000 residents, half of whom live below the poverty line, will benefit directly from the project's interventions. In addition to improvements in infrastructure, the project also supports capacity improvement of the Khulna city administration, for example, through the hiring of additional staff for the city's urban planning units. A higher income tax is expected to bring new opportunities for the city in the future.

In addition, better roads will have a positive effect on the living conditions and on the local economy. People can continuously pursue their work and business in

areas that are protected from flooding. The project thus contributes indirectly to an increase in per capita income and to poverty reduction. An improved road network also increases access to schools and health facilities, particularly for the poor population. These improvements both address the original causes of poverty while making the population less vulnerable to the consequences of severe climate change. .



Contact

KfW Group
KfW Development Bank
Sector Policy Unit Urban Development and Natural Resources
Palmengartenstrasse 5-9
60325 Frankfurt am Main, Germany
Phone +49 69 7431 -9901
solveig.buhl@kfw.de

KfW Office Bangladesh
Gulshan 2
Road 90 House 10/C
1212 Dhaka
Bangladesh
kfw.dhaka@kfw.de