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## Climate change – Bangladesh

### Adapting infrastructure to climate risks

Bangladesh has the highest population density in the world and is considered one of the most vulnerable countries in terms of climate change. Since the 1960s, the government of Bangladesh has invested more than USD 10 billion to protect human life by building public infrastructure like cyclone shelters, floodwater catchment areas or early warning systems. But many regions, including several particularly vulnerable coastal regions, still lack climate-resilient roads, bridges and safe buildings. KfW Development Bank is therefore pursuing the systematic integration of climate change risks into public infrastructure planning, implementation and maintenance.

### Context

To protect human life and economic goods, the government of Bangladesh has invested more than USD 10 billion in expanding cyclone shelters, flood water catchment areas and early warning systems since the 1960s. But several particularly vulnerable coastal regions still lack climate-resilient public infrastructure. In the districts of Bhola, Barguna and Satkhira, for example, residents are still at the mercy of extreme weather events. Around 160 shelters for more than 220,000 people are lacking.

The infrastructure today is already heavily exposed to the impact of climate change: the drainage systems cannot handle extreme rainstorms, ever stronger tidal surges sweep away the foundations of roads and bridges and much higher wind speeds during storms adversely affect the stability of simply constructed buildings. The reason: climate change was not factored into the planning of many of the roads, bridges and build-

ings. Even when infrastructure is rehabilitated or planned, the national authorities do not follow a systematic approach to take into account protection against higher temperatures, more frequent extreme weather events, higher flood surges and stronger cyclones and adapt the structures accordingly. Effective protection against extreme weather events is thus not guaranteed everywhere.

### Project approach

With the project Climate Resilient Infrastructure Mainstreaming in Bangladesh, KfW Development Bank is working on behalf of the Green Climate Fund (GCF) and the Federal Ministry of Economic Cooperation and

<b>Project name</b>	Climate resilient infrastructure mainstreaming in Bangladesh
<b>Commissioned by</b>	German Ministry for Economic Cooperation and Development (BMZ) and Green Climate Fund (GCF)
<b>Country/Region</b>	Bangladesh
<b>Project partner</b>	Local Government Engineering Department (LGED)





The path leading from the house can hardly be used after the flood. In the event of bigger floods, the house is no longer inhabitable and the family depends on protection facilities. Source: KfW Group, photographer: Jashim Salam

Development (BMZ) to systematically incorporate climate change and its risks into planning, construction and maintenance of public infrastructure. The project partner is the national Local Government Engineering Department (LGED). Providing around USD 1 billion per year, it is responsible for more than 15% of all public investment in the entire country, mainly in roads, public buildings and drainage systems. To build the institutional capacity of the authority, a Centre of Excellence will be set up: an internal think-tank that embeds climate resilience as an interdisciplinary issue in all activities of the department and triggers an institutional learning process.

Within the project several pilot projects to construct rural and urban infrastructure in three of the poorest and most vulnerable coastal regions will be financed. In the districts of Bhola, Barguna and Satkhira, 45 new buildings will be constructed to protect against cyclones, 20 shelters will be rehabilitated as well as 80 km of new safer roads made from concrete – providing life-saving access to the shelters in emergencies. The shelters are designed to comply with the latest standards and are multi-functional: they are used as primary schools during the year.

The project has a total volume of USD 80 million. Financing comes from the Green Climate Fund (USD 40 million), from the German Federal Government (USD 15 million) as well as from the government of Bangladesh (USD 25 million).

## Impact

With the new infrastructure measures in the three districts, the project improves the opportunities of more than 134,000 people to adapt to the consequences and risks of climate change. In the long term, an estimated more than ten million people, nearly 7% of the total population, will indirectly benefit from the new climate centre. The project has important direct co-benefits, such as the creation of more than 1,700 full-time jobs and support for the education of more than 18,000 children. The roads, which can be used all year around, increase safety in emergencies and make travel on foot or by bike faster – a fact that also encourages school attendance.

The closely linked components of the project – institutional capacity building and pilot construction projects – ensure that the issue of climate resilience is realistically and practically addressed and can give rise to a long-term impact. As a result of the institutional reform within the ministry, a paradigm shift is initiated: from "business as usual" to a climate-resilient and sustainable local infrastructure in all of Bangladesh.



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