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## **Global Storm Surges. International Comparison of North Sea Coast Protection Strategies Against Storm Surges and Sea Level Rise**

G. Gönnert, J.-M. Müller, and Th. Buß

Free and Hanseatic City of Hamburg, Agency of Roads, Bridges and Waters, Hamburg, Germany  
(Gabriele.Gönnert@LSBG.hamburg.de, fax +49 40 4279 645)

Along the world's coastlines global climate change causes rising sea levels and increasing flooding due to storm surges. About 80% of all metropolitan cities are located along coasts or at deltas and estuaries. Around the world, a variety of strategies against coastal floods have been developed, in order to protect inhabitants and goods against the water. Not only on a global scale, but also in the countries around the North Sea, where in general coast protection systems provide a high safety standard, different strategies are applied dependent on the regulations of national and regional authorities.

The Free and Hanseatic City of Hamburg Agency of Roads, Bridges and Waters (LSBG), is responsible for the public coastal protection facilities in the Hamburg region. A study at the LSBG compares the different flood protection strategies of Belgium, the Netherlands, United Kingdom and Denmark. It was aimed to investigate how coast protection is organized with respect to the responsibility of governments, safety levels and design methodologies nowadays and in future.

The study shows that countries along the North Sea Coast apply a variety of coast protection strategies. Some of them are based on statistical analysis; others follow the deterministic approach or a combination of statistical and deterministic methods. Not only the design methodologies, but also the intended safety levels differ between the countries. In some countries, the degree of safety against flooding in coastal regions is determined by law. In most of the investigated regions, local authorities plan to increase their level of flood protection due to climate change and expected sea level rise.

The presentation will give an overview of the present coast protection strategies applied by cities along the North Sea coast and how the different countries aim to adapt to increased challenges due to sea level rise in future. It will be shown how flood protection agencies of the city of Hamburg are going to react to the challenges caused by climate change.