



















Traditionally, the sand is deposited directly on the dry beaches (Fig. 8). Because of the technical equipment needed, this represents a relatively expensive method to balance coastal erosion. Furthermore, although the retreat of the shoreline can be halted, the evolution of the entire coastal profile may remain negative, causing coastal profile steepening. As a consequence, higher waves may approach the beach, inducing stronger coastal erosion during storm surges. Sediment budget analyses indicate that this was the case in front of Sylt. Hence, in 2006, major foreshore nourishment was conducted. About 850,000 m<sup>3</sup> of sand were dumped directly on the outer reef. In this way, about 150,000 m<sup>3</sup> of sand more could be deposited without extra costs. A monitoring program is under way to evaluate the effect of this technique that is already routinely being applied in Denmark and the Netherlands.

### 3. Outlook

About 47 km of the State dikes along the North Sea coast of Schleswig-Holstein still need to be strengthened in order to meet the safety standards as described in the master plan coastal defence. In 2007, the 'International Panel on Climatic Change – IPCC' published its fourth report on future climate change (IPCC, 2007). Although within the range of sea level rise scenarios the expected increase was slightly diminished (18 to 59 cm until 2100), significant uncertainties remained, concerning e.g. an accelerated melting of the Greenland ice cap. However, even if the Greenland ice cap melted faster than expected, the safety margin of 50 cm adopted in the master plan would be valued as being high enough. It is concluded that the situation is (still) serious, but no adaptations to the present strategy are necessary. With respect to climatic change and increasing utilization of the coastal zones, the master plan states that coastal flood defence will never end!

### 4. References

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