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SEA for a water plan in The Netherlands

Strategic water management plan: the Delta Programme

Type of impact assessment	Strategic Environmental Assessment (SEA)
Type of project/plan	Strategic Water management Plan
Climate change related issues	Sea level rise, more severe rainfall, temperature increase, high-impact floods
Influence of the SEA	New risk-based approach: more efficient protection at a lower cost and with opportunities for other services

The government of The Netherlands developed a Delta Programme to protect the country against high water. An SEA compared the 'business as usual' scenario to new strategies. A new protection standard was designed, based on not only the probability of flooding, but also the consequences of floods.

Climate change in The Netherlands

After the disastrous flood of 1953, the Dutch government took measures to better protect the country against flooding. Agreements were made regarding the height of dykes and coastal management.

But sixty years later, circumstances have changed:

- The sea level is rising while the land is subsiding;
- The number of rainy spells is increasing and rainfall is becoming more severe;
- The temperature is rising.

Furthermore, a flood would have a greater impact today than it would have had 60 years ago. The population of The Netherlands has increased, which means that in the event of a flood, there would be more casualties than in the past. Nearly 60% of the Netherlands is at risk of becoming inundated by flood waters. This area includes the largest cities as well as the economic centre of the Netherlands. For these reasons, adequate protection from flooding – from the sea and rivers alike – is of vital importance.

This is why the Netherlands needs to look far ahead and draw up sound plans for the future. The aim of the 'Delta Programme', in which various authorities and other organizations collaborate, is to ensure that flood risk management and freshwater supply are sustainable and robust by 2050. Thereby the country will be better equipped to withstand weather extremes.

Climate smart alternatives in the SEA

Since 2010, the Delta Programme has been developing frameworks for a new approach, in collaboration with authorities, civil society organizations and the business community. All available and new knowledge has been used. In 2014, these efforts led to proposals for five 'Delta Decisions', on (i) flood risk management, (ii) fresh water supply, (iii) spatial adaptation, (iv) the Rhine-Meuse Delta and (v) the IJsselmeer Region. An SEA approach was used to ensure that these decisions would be environmentally sound.

In the SEA, the 'Business as usual scenario' (National Water plan 2009-2015) was compared to new strategies. For flood risk management, the protection standard used to be based on the probability of flooding only. The Delta Programme proposed a risk based approach that takes into account both the risk of flooding and possible ensuing consequences. The scale and scope of the consequences determine the level of the standard. During the

process more drastic strategies were also considered, such as a much higher general protection level.

The SEA showed that the new risk-based approach combines more efficient protection with lower costs and better local opportunities for other services, like nature conservation, landscape and cultural heritage. More drastic strategies were dis-

Scheduled dyke improvements 2016-2021

carded for the next decades (until 2050), because of high costs and high impacts and appreciating the uncertainties regarding climate change and economic and spatial developments in the future.

Conclusion: Climate smart design of the Programme

The Delta Decisions ensure that the Netherlands is prepared for various future scenarios. The government has chosen strategies and measures that enable a flexible response to new situations on the ground and to new climate insights. The Delta Decisions make sure that the required measures will be taken. Supplementary measures are ready to be implemented, should these be needed in the future. This approach is called 'adaptive delta management'. All stakeholders view this approach as a pragmatic solution for dealing with uncertain developments.

References

Delta Programme 2015, Working on the Delta, Ministry of Infrastructure and the environment and Ministry of Economic Affairs, September 2014

Characteristics of climate smart(er) plan:

- Three-step approach applied ✓
- Climate smart(er) plan design ✓
- SEA increased commitment for plan ✓

Climate smart(er) because:

- Attention was paid not only to the probability of flooding, but also to consequences of floods.
- The flexible 'adaptive delta management' approach allows for appropriate measures to various climate change scenarios.

This case is part of the publication 'Environmental Assessment for Climate Smart Decision Making: Good practice cases', published by the NCEA in 2017. See www.eia.nl for the other cases.