



Need for national governance to handle the effects of sea level rise

Executive summary

Rising sea levels will affect the Scanian coast severely due to lack of land rising, high proportion of sandy coast and concentration of settlements along the coast.

A main problem in the coastal area is that there are no existing laws or administrative system which can manage the consequences of sea level rise. Due to this there is a need to develop a fair funding model. The Swedish administrative system is not prepared for the fact that some existing buildings and infrastructure have to move in a long-term perspective. For implementing planned retreat there must be a fair funding model to allocate costs between individuals, municipalities and the Swedish state.

Another problem is that new settlements are

added in inappropriate areas despite strong regulations in the plan and building act. This problem is a consequence of strong municipal self-government. One proposal to avoid more settlements in inappropriate areas can be state-designated areas where new settlements should be avoided.

Nature-based solutions which also promotes multifunctional use and ecosystem services, such as biological diversity, recreation interest and improvement of water quality needs to be an important part of the Swedish policy for diminishing the effects of rising sea level. For solving the problems above there is a need for a new administrative system which can manage the effects of sea level rise. The administrative

Building with Nature project

- Partners from the Netherlands, Belgium, Germany, Denmark, Sweden, Scotland and Norway work together.
- The project demonstrates BwN solutions at 7 coastal sites and at 6 catchment scale sites.
- The project is part of the Interreg VB North Sea Region program.
- Project period: 2015 – 2020.



system needs to focus on planned retreat and nature-based measures.

Introduction & context

The Scanian coast is distinguished from the rest of Sweden in several ways, for example by the fact that land uplift has largely ceased, a large proportion of the beaches are sandy, the county of Skåne has the highest proportion (45%) of exploited land within 300 m from the shoreline. Coastal erosion of the Scanian coast constitutes about 60% of the beach erosion in Sweden. According to the Swedish Geological Survey about 23% of the coast in Scania will have an increased erosion due to sea level rise.

By the fact that Skåne differs in nature and culture geographically from the rest of Sweden with regard to these properties means that it can be difficult in national political level to get understanding for the needs.

Scope of problems

The existing administrative system means that individuals are responsible for existing buildings. When problems caused by sea level rise accelerate, this will give rise to different problems,

for example:

- Some buildings will be protected, and some buildings will be left and will finally fall into the sea;
- A big variation of coastal defends will be implemented. Most of the coastal defends will affect nature and surrounding properties negative;
- Without a strategy the result will be scattered coastal communities. It will be difficult and expensive for the municipalities and the state to support social services such as roads, water supply, sewage and schools.

More new settlements in inappropriate areas affected by sea level rise will result in:

- A greater loss of important social values;
- Higher costs for protecting and moving buildings and infrastructure;
- Lost areas for natural processes to act which means loss of biological and

geological values;

- Lost areas for establishment of resilient nature-based measures to protect buildings and infrastructure.

Policy alternatives

The existing plan and building act have strong regulations which hinder a lot of settlements in inappropriate areas. In some case the municipalities can't accept the strong regulations which leads to new risk objects over time. According to Swedish law the property owners are responsible for defending their homes from erosion and flooding ten years after a detailed development plan is decided. It is difficult for the property owner to defend themselves due to different laws and lack of resources. A consequence of the existing administrative system is that property owners must move in the end. Until then property owners will be forced to build cheap, short-term solutions which don't work in the long term, to protect their property. It is not perceived as fair that individual property owners must pay for all the costs. In many cases the best solution is planned retreat or other nature-based measures which demand joint actions. A fair funding model to allocate costs between individuals, municipalities and the Swedish state is missing today.



Lessons learned

A study of the Scanian coast was conducted to identify areas of potential retreat of the coastline. Parts of the sandy coast where buildings and infrastructure were lacking at least 300 m inland from the coastline, were identified as potential areas where the coastline could be left to fluctuate naturally and serve as retreat areas.

Out of the almost 200 km long sandy coastline of Scania, 35 % lacked infrastructure within 300 m from the coast, and further 15 % of the coast partly lacked infrastructure. These areas are potentially important areas for retreat.

It is of great importance to keep the coastal areas without infrastructure close to the coastline free of infrastructure, so that the coastline can be left to fluctuate naturally.

In order to be able to implement and receive acceptance for planned retreat in the future, there is a great need to create a system for financing individuals who need to be compensated.

The investigations along the Scanian coast about how eelgrass meadows can counteract and diminish the effects of coastal erosion will contribute to better knowledge about nature-based solutions in marine environments. Together with surveys of Building with Nature solutions from the other countries, this will give us a more complete picture of possible nature-based measures.

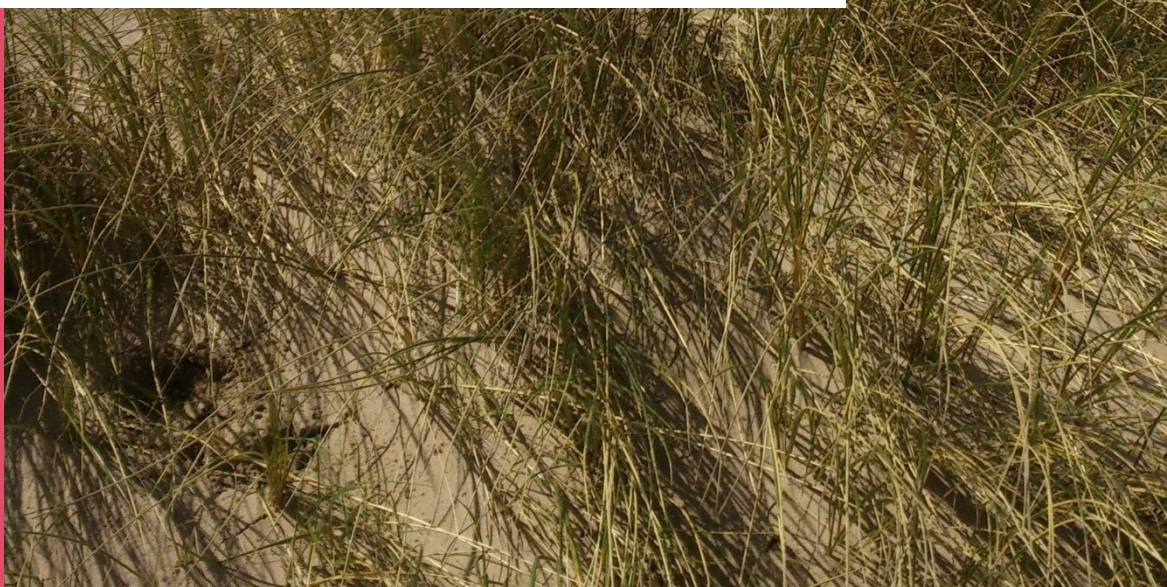




Photo: Jonas Gustafsson

Policy recommendations

For promoting nature-based solutions for coastal protection there is a need for clearer governance in investment programs and national policies. There is also a need for new or revised legislations.

For solving the problem of settlements where they are not appropriate and the problem with the division of costs, two policy recommendations have been defined:

- State-designated areas where new settlements should be avoided

It is desirable if the Swedish state assign to Authorities to map designated areas where new settlements should be avoided in inappropriate areas and introduce regulations which stops new buildings.

- A fair funding model for measures which benefits public interests

It is desirable if the Swedish state investigates and make decision of a fair funding model to allocate costs between individuals, municipalities and the Swedish state for areas where planned retreat or nature-based measures are needed.