



Nature based solutions demand better coordination in catchments

Climate change will result in a higher frequency of extreme weather conditions. Nature based solutions is an important part of climate adaption but demands better coordination.

Climate change will result in a higher frequency of extreme weather conditions. Nature based solutions from a river catchment perspective must be an important part of climate adaption in the future.

The implementation must be anchored and implemented by a wide range of decision and policy makers at several institutional levels to secure a sustainable management of water resources. Important steps:

- *Include flood management through nature-based solutions in the spatial planning.*
- *Revise the system of old permits for drainage companies so that water is*

retained in appropriate places within the catchments areas.

- *Revise the common agricultural policy to achieve sound land use and flood management.*

Introduction & context

Climate change will lead to extreme weather conditions. Specifically, the incidence of severe draughts during the summer time and floodings year-round are believed to increase in Scandinavia. Exceptional long summer draughts have already affected the agriculture sector and the drinking water supply

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 programme.
- Project period: 2015 – 2020.



But there have also been extreme rainfalls, as the one causing severe flooding in the city of Malmö in September 2014.

Thus, the water resources in Scandinavia are already under severe pressure. Nature based solution should therefore be a natural part of land management and climate adaption in the future.

The implementation must be anchored and implemented by a wide range of decision and policy makers at several institutional levels (i.e. locally, nationally and internationally) to secure a sustainable management of water resources.

Experience so far from nature-based solutions in catchments is that there is a need for clearer governance in investment programs and national policies. There is also a need for new or revised legislations.

Scope of problems

- Coordination and implementation of water management and strategies for climate

adaption on a catchment level is lacking. Currently, there is no part responsible for such work.

- Most existing waterways and storm water systems are designed only to convey water as fast as possible to the recipient, not to retain water. Thousands of drainage companies in Skåne county alone have old water permits, stating that watercourses should maintain channelized, without consideration to the environment and climate change.
- Generally, there is insufficient governing of the agriculture and forestry sectors from a catchment management and climate adaptation perspective. Full direct payment from the common agricultural policy (CAP) by EU is paid for unsuitable land use which is quite counterproductive as the potential for using floodplains and peaty land to reduce climate impact (i.e. flooding and draughts) is not utilized.

Support from farmers crucial in Råån area

In Sweden, promotion of nature-based solutions has, along with promotion of activities to support improvements under the Water Framework Directive, seen a remarkable focus on a bottom-up approach. Originating as small-scale projects where landowners and municipalities worked together, implementing measures. In the catchment of Råån, the support from the farmers were crucial.

Without gaining any economical compensation, they opened their territories which made it possible to make the measures come into life. Instead parts of their land were transformed into a landscape with richer biodiversity. This way we enhanced the natural process, work efficiently with nature and at a very low cost. It is now supported by the Swedish Government and is being rolled out at a regional scale as well.



Implementation of nature based solutions in the river valley of Råån demands coordination between landowners, authorities and the general public.



Policy alternatives

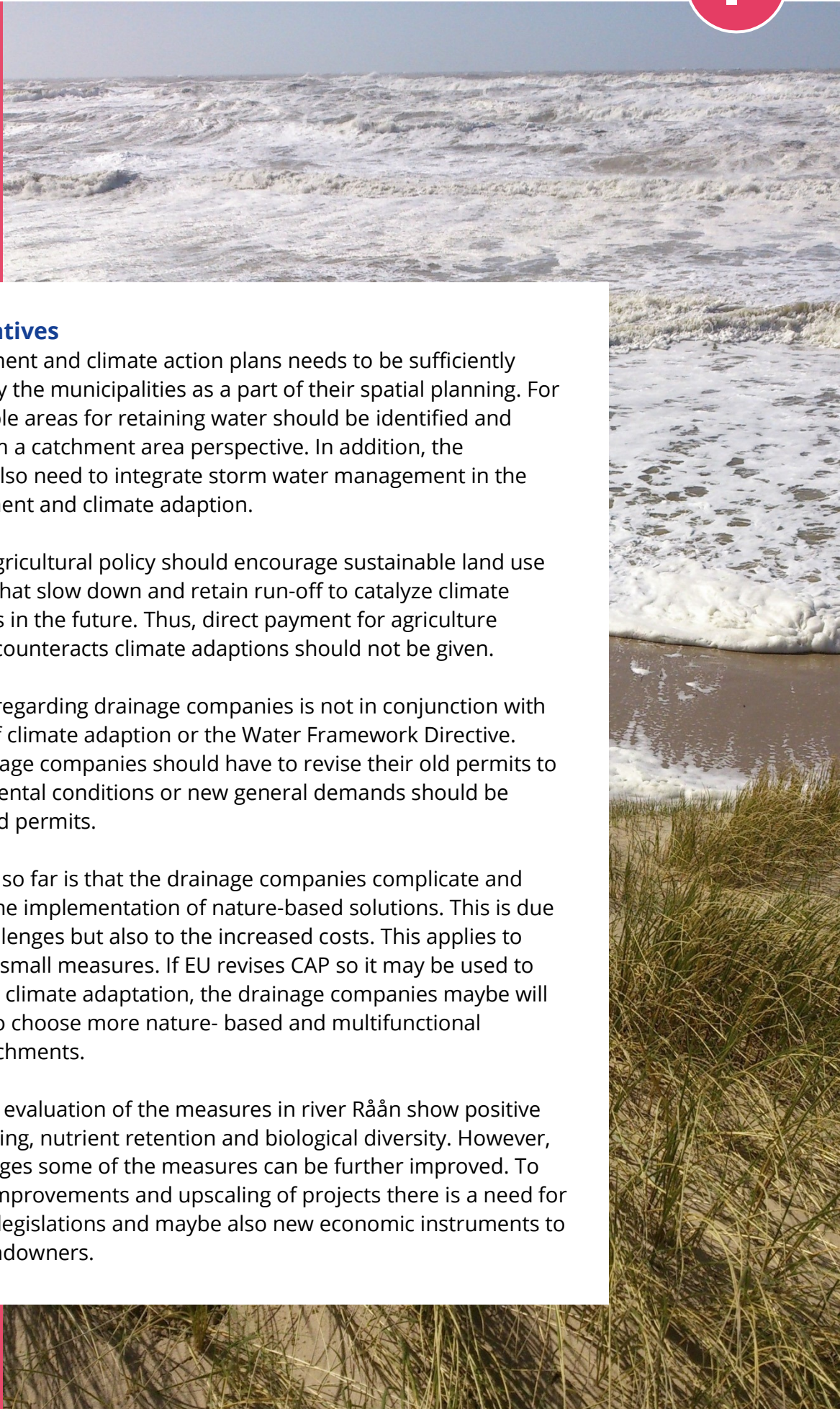
Flood management and climate action plans need to be sufficiently implemented by the municipalities as a part of their spatial planning. For example, suitable areas for retaining water should be identified and designated from a catchment area perspective. In addition, the municipalities also need to integrate storm water management in the flood management and climate adaptation.

The common agricultural policy should encourage sustainable land use and measures that slow down and retain run-off to catalyze climate adaptation efforts in the future. Thus, direct payment for agriculture practice which counteracts climate adaptations should not be given.

The legislation regarding drainage companies is not in conjunction with the demands of climate adaptation or the Water Framework Directive. Either the drainage companies should have to revise their old permits to meet environmental conditions or new general demands should be applied to all old permits.

The experience so far is that the drainage companies complicate and often prevent the implementation of nature-based solutions. This is due to the legal challenges but also to the increased costs. This applies to large as well as small measures. If EU revises CAP so it may be used to catalyze further climate adaptation, the drainage companies may be influenced to choose more nature-based and multifunctional solutions in catchments.

Monitoring and evaluation of the measures in river Råån show positive effects on flooding, nutrient retention and biological diversity. However, with small changes some of the measures can be further improved. To achieve these improvements and upscaling of projects there is a need for new or revised legislations and maybe also new economic instruments to compensate landowners.





Policy recommendations

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

Include flood management through nature-based solutions in the spatial planning.

It is desirable that municipalities identify and designate appropriate areas where water can be retained within the catchment areas. This action needs to be taken by the municipalities due to the strong municipal self-government. Coordination of different sectors in the municipalities is a key factor for success. For example, integration between storm water treatment and measures in the rural landscape. There is a need for new or revised legislations for achieving this action.

Revise the system of old permits for drainage companies so that water is retained in appropriate places within the catchments areas.

It is desirable that the Swedish state revise the law, since it is not possible to achieve proper flood management, nor good ecological status, in the majority of the waterbodies in the south of Sweden due to the existing outmoded legislation.

Revise the common agricultural policy to achieve sound land use and flood management.

It is desirable that EU revises CAP so it may be used to catalyze further climate adaptation for mitigating negative effects as predicted and to gain more multifunctional solutions in catchments.

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