



Working on a Trilateral Approach for “Water as leverage”

WSF, March 2022



Foreword

Climate change is a fast growing threat affecting the Wadden Sea Region with the World Heritage site Wadden Sea and its hinterland, where people live, work and recreate. The Trilateral Wadden Sea Cooperation has dealt with climate change with regard to coastal protection and adaptation of the ecosystem for many years. Recently, the TWSC installed an Expert Group Climate to continue the work on the challenges for adaptation of the Wadden Sea ecosystem. As an integrative part, the Forum for the trilateral Wadden Sea Region (short: Wadden Sea Forum, WSF) took a closer look on the impacts of climate change to the hinterland, emphasizing that climate change is an inclusive challenge for the entire WSR affecting both the areas in front of and the cultivated landscape behind dikes.

The WSF aims at elaborating on challenges of climate change adaptation within the regional and local society with its socio-economic sectors and stakeholders. The WSF has conducted a workshop on climate change adaptation in November 2018 to start a process of carving stakeholder positions on relevant issues. The participants concluded that the awareness of the society must be raised with respect to increasing risks that will become essential, if opportunities for changes are not taken. Adaptation in various fields is needed to avoid unnecessary risks. As the society in general is used to keep their traditions, changes in behaviour and perceptions need to be initiated and supported in a slow but long lasting process. Herein, the "Water as Leverage" methodology introduced by the Program towards a rich Wadden Sea (PRW) offers a promising approach. The WSF was asked to support the percolation of this approach into the Wadden Sea Region.

Consequently, this report has been prepared under the auspice of the PRW in The Netherlands. This report reflects on the outcomes of the development process (Nov 2021 to March 2022) for implementing a "trilateral community (of understanding) on water management".

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1 Introduction

Climate change is a fast growing threat affecting the Wadden Sea Region (WSR) with the World Heritage site Wadden Sea and its hinterland, where people live, work and recreate. The Trilateral Wadden Sea Cooperation (TWSC) has dealt with climate change with regard to coastal protection and adaptation of the ecosystem for many years. Recently, the TWSC installed an Expert Group Climate (EG-C) to continue the work on the challenges for adaptation of the Wadden Sea ecosystem.

In former times, a trilateral working group elaborated on coastal protection and sea level rise with the focus on solutions for sustainable coastal protection and the role of spatial planning and sediment management in this respect. Furthermore, a Task Group Climate (TG-C) elaborated an adaptation strategy for the intertidal area within the framework of the trilateral cooperation.

As an integrative part, the Forum for the trilateral Wadden Sea Region (short: Wadden Sea Forum, WSF) took a closer look on the impacts of climate change to the hinterland, emphasizing that climate change is an inclusive challenge for the entire WSR affecting both the areas in front of and the cultivated landscape behind dikes.

The WSF aims at elaborating on challenges of climate change adaptation within the regional and local society with its socio-economic sectors and stakeholders. The WSF has conducted a workshop on climate change adaptation in November 2018 to start a process of carving stakeholder positions on relevant issues. The participants concluded that the awareness of the society must be raised with respect to increasing risks that will become essential, if opportunities for changes are not taken¹. Adaptation in various fields is needed to avoid unnecessary risks. As the society in general is used to keep their traditions, changes in behaviour and perceptions need to be initiated and supported in a slow but long lasting process.

At the end, this will achieve more willingness to strive for new opportunities and approaches. In this context, it is crucial to highlight that adaptation means to prepare for both, dealing with potential effects of climate change and taking new opportunities in (integrative) development and management into account. Herein, the "Water as Leverage" methodology introduced by the Program towards a rich Wadden Sea (PRW) offers a promising approach. The WSF was asked to support the percolation of this approach into the Wadden Sea Region.

¹ Also, take into account the recent publication of the IPCC in spring 2022.

2 Background & Community Building

2.1 Background

Based on the findings and the results of the comprehensive discussion within the WSF in 2018, the WSF favoured the promising “Water as Leverage” approach for a new way of dealing with long lasting challenges and problems in water management.

However, the start of the “Water as Leverage” process was set at the Climate Adaptation week in 2021. In the course of this start, the trilateral “Water as Leverage”-Group² identified several cases in the entire Wadden Sea Region. Different topics and problems were identified as content of potential cases, which are closely linked to climate change and the (traditional) way of land use, which imposes challenges on water management in general. These topics and problems are ranging from sometimes too much and sometimes too less water over the year, to soil subsidence partly induced by intense agricultural use and, of course, many more.

“Water as Leverage” as process-based approach is willing to offer a new way of thinking and cooperation in this respect to responsible organisations, institutions and administration in water management. Furthermore, the idea of building a community in and around the Wadden Sea Region is, with respect to water management, crucial and long-time pending.

The way of working and the administrative constellations are different in the member states of the Wadden Sea Region. For example, in Germany water management is organised on different levels with fragmented responsibilities. It exists even a difference between the two federal states Schleswig-Holstein and Lower Saxony, which show a low-lying topography and similar boundary conditions in water management.

On national level, the Water Resource Act (Wasserhaushaltsgesetz des Bundes) provides the framework for the acts on federal state level, which are integrating the European directives, i.e. Water Framework Directive (WFD). The Water Resource Acts on federal state level differ in slightly. However, the administrative responsibility is divided into different authorities and administrative bodies. Water (or drainage) boards are working on the lowest level. In Lower Saxony, the water boards are small entities of self-organised associations, which are supervised by the lowest administrative body. These boards are responsible for the management of the watercourses and the maintenance of drainage of the low-lying coastal area. Their specific tasks are laid down in their statutes and by-laws.

Over time, they merged to bigger, sometimes regional associations, but the local focus is still valid and vivid. In Schleswig-Holstein, smaller water (or drainage) boards are consolidated to bigger entities such as the Deich- und Hauptsielverband Dithmarschen (DHSV Dithmarschen). In Lower Saxony, non-professionals mainly lead these smaller water (or drainage) boards as chairperson. Staff of these boards range from engineers to officials in charge. However, on a

² This group is consisting of several Dutch colleagues in and around the Program towards a rich Wadden Sea

higher level (professional) managing directors are organising the tasks. Challenges and tasks imposed by climate change on the water sector are linked to a much broader perspective, e.g. urban and rural spatial planning, agriculture, nature conservation and so forth have to be taken into account. That means that an integrative approach is pending.

2.2 Community Building

Due this status of fragmented responsibility and existing structures as well as the size of these (German) organisations, it is difficult for them to participate in trilateral (and integrated) projects. Although, their challenges and problems are obviously clear and have been experienced over the past years, the reservation of being involved in integrative (research) projects is high. Although, responsible persons definitely acknowledge the necessity of “act now” and the exchange of knowledge and information between Wadden Sea member states.

Over the past years, many projects were conducted in order to establish integrated approaches for solving water management problems in low lying coastal areas³. Basic idea was to involve and engage as early as possible all relevant stakeholders and actors in order to develop solution options jointly. In the beginning of these projects, scepticism predominated the processes. Finally, at the end of many projects stakeholders acknowledged the sometimes hard-steering process as valuable, worthwhile for mutual understanding, and as basis for trustful cooperation, even collaboration, in future. However, these integrative and process-oriented approaches are neither fully common ground nor completely implemented, albeit recognised and demanded by most European directives.

In this respect, the “Water as Leverage” approach is recognised as another (although innovative) process-oriented approach. Consequently, this approach is “reduced” to another opportunity for project funding and international cooperation. However, for the potential German partners it is not totally clear what the benefit of their participation could be. The willingness of their participation strongly depends on the clear explanation and realisation of the benefit for each partner.

³ E.g. Climate proof areas (EU INTERREG IVB), KLEVER (BMU), KLEVER-Risk (BMU), FRAMES (EU INTERREG VB)

3 Challenges in the WSR

The next paragraphs indicate the challenges identified in the Wadden Sea Region within the comprehensive discussion process between the members of the WSF in 2018⁴. The challenges of water management by a changing climate for ...

... Water (or Drainage) Boards:

The challenges posed by a changing climate are almost the same within the entire WSR. Changes in seasonal precipitation patterns and increased frequency of extreme rainfall events could lead to seasonal draughts as well as to increased hinterland run-offs. Furthermore, a rising sea level will lead to a lower drainage capacity due to increased sedimentation or higher low water levels in front of the tidal gates. Consequently, the capacity of gravitational drainage is reduced or completely lost. Increased sealing of the hinterland by the development of new housing and industrial areas will lead to a faster run-off into ditches, canals and rivers, which will extend these challenges.

According to the institutional level, the responsibilities and the hierarchical order of the water (or drainage) boards are different in each Wadden Sea country. In The Netherlands, large and powerful Water Boards ("Waterschappen") are responsible for surface water management and coastal defence. These boards have almost the same legislative power as provinces and are professionally organised. In Germany, i.e. Lower Saxony and Schleswig-Holstein, more than 100 drainage boards exist, are self-organised associations managed by non-professionals and supervised by the regional water administration. In Denmark, the municipalities are responsible for climate adaptation planning. The landowners are responsible for protecting their own land against flooding. In the marshland, the landowners are organized in local dyke associations, who are maintaining the dykes, which is partly supported by financial and, into some extent, technical assistance of the municipalities and the Danish Coastal Authority.

In all regions, conflicts are linked to differing interests e.g. between water management goals and the agricultural or nature conservation aims. In addition, conflicts with regard to changing landscapes, the perceptions of the society and the tourism sector could arise. Further challenges due to lacking of financial support for the adaptation of the existing system to a changing climate as well as missing insurances against flooding have to be tackled, mainly in Denmark and Germany. In The Netherlands, the WSF members also demand for sound decisions by politicians on the best available knowledge and expertise.

⁴ WSF (2019): Policy paper of the Wadden Sea Forum regarding climate change adaptation in the Wadden Sea Region, source: <https://www.waddensea-forum.org/topics/core-issues/water-management>

... the Agricultural Sector.

According to surface water management, the agricultural sector faces challenges in a way that in winter too much water and during summer, too little water is available. In wintertime, a reduced drainage capacity can lead to wet land, which will not be ready for farming in spring. In a dry summer season, there might be shortage of surface water, which cannot be compensated by irrigation and, furthermore, maintenance of adequate water levels in the ditches cannot be secured.

Based on the above-mentioned challenges for the water boards the agricultural sector is suffering of the inadequate ability of drainage management. Furthermore, climate change will also impose another threat to agriculture, which is connected to ground water salinization in some areas, depending on sedimentological conditions. Due to a changed seasonal precipitation pattern, ground water recharge is reduced and, therefore, the natural counter pressure for saline ground water body near the North Sea is reduced. Consequently, a shift of the fresh saline ground water zone is likely to happen, which might have impacts on crops.

The agricultural sector has to deal with consequences of climate change due to water management in various fields. Farmers have to cope with changes in fertilisation, crop rotation systems and soil cultivation. Contractual nature management could be an option to survive.

... Changing living conditions.

The living conditions in coastal areas might also change in the future. People have to get used to more water in the WSR during extreme rainfall events and have to be better prepared in such cases (storm water management in urban areas). In The Netherlands, the slogan "living with water" was introduced to make people aware of the necessity for an adaptive water management. For example, in the province of Groningen many water management projects were implemented to increase the carrying capacity of the drainage management system by installing large retention ponds or creating artificial lakes with housing facilities. In Germany, the installation of retention ponds in new housing areas is obligatory. In Denmark, rules by spatial planning in low-lying coastal areas are obligatory. "Living with water" should be accompanied by different ways of experiencing and enjoying the landscape.

Besides living with water, the society has to learn perceiving and accepting changed landscapes. Higher or stronger dikes, retention areas, wetlands as nature reserves and other changing landscape features will be results of adaptive water management in the WSR. In addition, the cultural heritage values might be affected by climate adaptation measures.

Changing landscapes and living conditions are sensitive issues. Information and awareness rising are important measures to reach acceptance within the society.

... *Nature Conservation.*

Changes in surface water management will also show impacts on the development of nature and nature conservation in the WSR. The artificial drainage systems in Germany and The Netherlands have led in the past to different biotope types and habitats along the Wadden Sea coast. A further change in the management of the existing ditches and canals, i.e. maintaining higher or lower water levels, could lead to a loss of existing biotopes but also to a reclamation of new biotopes. Additional changes will affect the biodiversity with a change of species distribution and possibly to an introduction of alien species. According to the EU Water Framework Directive artificial barriers regulating the tidal influence, i.e. sluices and tidal gates should guarantee the migration of the fish fauna.

On the other hand, adaptation of surface water management could be used to improve the quality of nature areas, by creating new wetland areas, connecting habitats and new collaborations with the agricultural sector.

4 Conclusions

Based on the previous chapters the Wadden Sea Forum encourages the responsible administration for water management in the four regions of the Wadden Sea area to

- Support the relevant backbone, i.e. water management, in low lying coastal areas around the Wadden Sea;
- Take the concerns of the local society and stakeholders seriously to get support and acceptance for necessary adaptation measures;
- Provide adequate resources to meet the challenges of climate change and water management;
- Increase the adaptive capacity of the regions by stimulating and enhancing cross-sectoral solutions for an improved water management in the WSR;
- Use opportunities to enhance the quality of nature habitats and its biodiversity;
- Support the stimulation of cooperation on transnational level in order to learn from each other and exchange knowledge and information;
- Raise the awareness of the coastal society for the consequences and possible changes of a changing climate to the water management systems;
- Create “windows of opportunities” by policies (and policy makers) to accelerate the climate change adaptation process in water management.

In general, the application of the “Water as Leverage” methodology is not that new in the coastal area of the southern North Sea⁵, but has not been applied and implemented in a sustainable and long lasting process. Although, reservations are perceived on different levels linked to different reasons or to the poor staffing level is hindering the participation in the “Water as Leverage” approach. However, interviewees show basic interest in trilateral cooperation.

At present, the effort for the sustainable implementation of a “trilateral community (of understanding) on water management” by applying the “Water as Leverage” approach respectively the methodology is very high/ambitious.

⁵ See Literature

5 Annex

From November 2021 to February 2022, several meetings and interviews have been conducted in order to propagate the “Water as Leverage” approach. Here, only the institutions and organisations are listed. During the interviews, the interviewees provided their perception of potential further participants in the “Water as Leverage” approach.

Institution/Organisation	Affiliation to “Water as Leverage” approach
County of Friesland	Member of the WSF, responsible water administration
DHSV Dithmarschen	Water board in Schleswig-Holstein
Lower Saxon City and Municipality association	Umbrella organisation for most cities and municipalities in Lower Saxony
Marschenverband Schleswig-Holstein	Association to lobby for different sectors in the low-lying coastal area of Schleswig-Holstein
Municipality of Butjadingen	As lowest administrative body in Lower Saxony responsible for flood risk management
Jade University of Applied Science	Department of hydrology due to the former cooperation in different research projects
Integrative StadtLand-Entwicklung	SME consulting company on the idea of applying “Water as Leverage” together with the Internationale Bauausstellung (IBA)

Furthermore, several meetings and discussions have been conducted in order to carve the aims and the process of “Water as Leverage” as possible applicable methodology in coastal area of northwestern Germany.

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