

**Willemijn van Doorn-Hoekveld
& Marleen van Rijswick**

13 October 2021

A recipe with legal ingredients for Ecosystem-based Adaptation projects for Climate Adaptation

**Innovative double dike projects in estuaries and along mud coasts
Double dike pilot in Groningen as case study**



CENTRE FOR
WATER, OCEANS AND
SUSTAINABILITY LAW



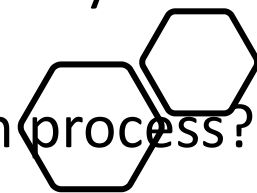
“Making Change Happen”
Pathways to Sustainability week
11 to 14 October 2021
Workshop hub Water, Climate Future
Delta’s, Enabling Ecosystem-based
Adaptation for Climate Adaptation;
Location: Event Space, Social Impact
Factory, Vredenburg 40, 3511 BD,
Utrecht





From recipe to creation:
rosehip marmalade (or sirop)
as an example

1. What's your aim: what do you want to create?
2. What ingredients/(policy) instruments do you need to create what you want?
3. Who should be involved in the creation process?
4. Who takes the lead/is the chief cook?
5. Is adaptation to changing or unforeseen circumstances possible or is adaptative capacity an aim in itself?





Ambitions in the field of **water management**

Sustainable Development Goal 6:

By 2020, protect and restore water-related ecosystems,
including mountains, forests, wetlands, rivers, aquifers
and lakes

EU Water Framework Directive

Sustainable, balanced and equitable water use: quality
and quantity, pollution, salination

**Protection against the effects of climate change:
floods, water scarcity**

Protecting waters based on an ecosystem approach



Add an ecosystem approach to your recipe

An **ecosystem** approach is a **strategy** for
the **integrated management** of
land, water and living resources
that promotes
conservation and sustainable use
in an **equitable way**

(UNEP/CBD/COP/5/23 (2000) annex A.1)

**An ecosystem requires flexibility, 'freedom' and long-term thinking
but law should provide certainty and predictability**

Innovative flood protection based on an ecosystem approach

Double dikes: twice the protection with twice the responsibility?

NWO-TTW ALL-RISK project

During an All-Risk webinar, the questions were discussed how a double (twin) dike can contribute to flood risk protection, and what the division of water management responsibilities between governments is or should be regarding this concept.

1. Aim:

The Double-Dike system in Groningen is a concept where two parallel dikes together provide the required safety for the hinterland during storms.

In the area in between, seawater can flow in and out, which offers opportunities for new land use. Think, for example, of aquaculture, saline cultivation, recovery of salt marshes and clay extraction that will be used to strengthen the double dike, but also provide natural land raising.

2. What ingredients/(policy)instruments do you need?

Reinforcement of the existing dike, a new dike, a construction for the salt water to enter the in between area, legal instruments to implement the plan, farmers who like to invest in saline agriculture, financial means.



Aim: flood protection based on an ecosystem approach?

3. Who should be involved in the creation process?

Government(s) responsible for both dikes (responsibility for protection against floods) and the quality of the surface water that lies between the dikes (but which becomes more saline), and governments responsible for the additional functions (agriculture, nature conservation, economic development).

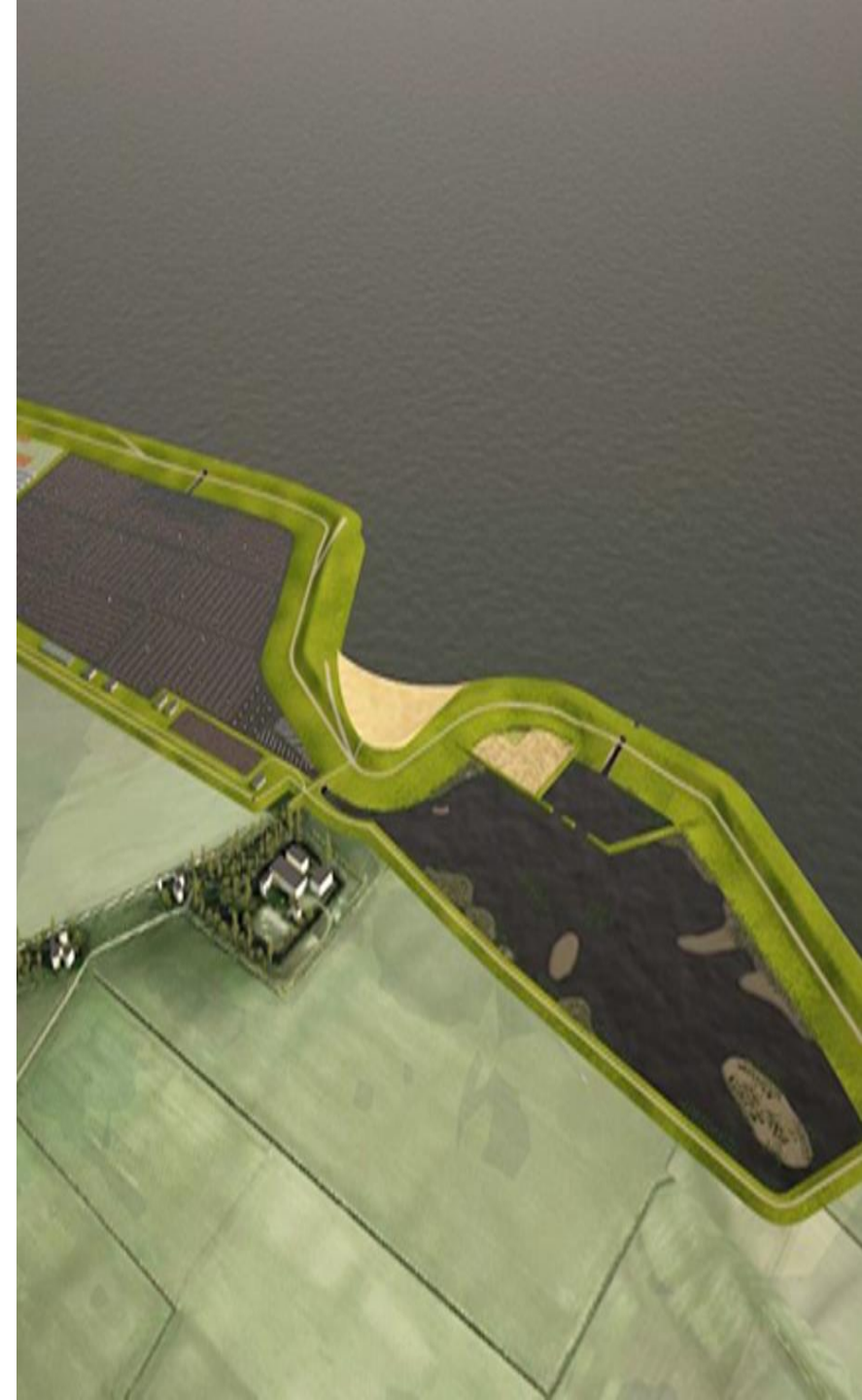
In this case are involved: the Dutch central government (Rijkswaterstaat), regional water authorities, province, municipalities, and investors/agro-business, perhaps also NGOs

4. Who takes the lead- is the chief cook?

This is not clear as long is not clear which dike (or both) will be regarded as primary flood defence as protection is only offered at the land side of the primary flood defence.

5. What will you do if circumstances change or in case of unforeseen circumstances?

In this case: discussion about who should or wants to take responsibility and which policy instruments can be used and would be most practical. Uncertainty for businesses about the quality of the water in between which can be guaranteed.



The discussion part II: applying the recipe steps

- First, it is important to consider what the intended goal is and what added value is created with a double dike. **In this case the aim – what to cook and why – is not clear.** Innovation in itself, creating additional functions? A more ecosystem-based design?
- Depending which dike(s) is/are the primary flood defence provides for the **necessary responsibilities** in the area (Rijkswaterstaat, water authorities, other governments?)
- Defining what will be the primary flood defense (technically and legally) will provide the **necessary policy instruments and financial means** (If the construction of the double dike is not for flood risk management reasons, funding from the HWBP will not be possible in advance. In case reinforcing only one flood defense is more cost effective the idea of a double dike could be undermined in the long run).
- Theoretically only at least one of the defense works/dikes must comply with legal safety norm. Participants prefer to classify both dikes in the double dike system as primary defenses. In practice however, it may be most convenient to assess the defense realizing the largest reduction in flood risk as the primary defense.
- **Adaptive approach:** Participants indicated that the question which flood defense should be the primary flood defense should also be placed in time. For example, accretion of the intermediate area could cause a shift: from an inner primary barrier to an outer primary barrier. The question remains how such a dynamic (eco)system can be regulated legally.
- If you only look at the short term, a double dike is not always an obvious choice. For a long-term perspective, a double dike can have an added value, also with regard to flood risk management in a broader perspective.

And what adds the double dike concept to an ecosystem approach?

“An ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way”

The double dike concept indeed focusses on integrated management and not only on flood protection. The aim to use the in-between area for new ways of agriculture and clay extraction might be more sustainable, and the recovery of salt marshes contributes to conservation. Whether the double dike in this example contribution to a more equitable use of natural resources is not clear and not researched.

An ecosystem requires flexibility and ‘freedom’ and longer periods of time to achieve the aims.

The law should provide certainty and predictability on who is responsible, what norms and standards should be guaranteed, and which policy instruments (including financial instruments) can be used.

This case shows that science and law should be combined right from the start, as at the moment uncertainties about responsibilities hamper the success of the pilot project. Maybe the double dike in this pilot is not the best example of an ecosystem approach.

Enabling transformative water management based on an ecosystem approach?

Create a fit between problems and solutions

- Overcome fragmentation in responsibilities and policy instruments
- Use scientific knowledge to better understand risks, complexity and ecosystems and include this in legal decision making
- Develop and monitor the effectiveness of integrated or better aligned policy mixes

Try the added value of 'new' approaches:

- **adaptive management**
- resilience thinking
- **ecosystem approach**
- 'rights for rivers, waters, seas?'
- but take care they don't hamper the effectiveness by using the wrong ingredients (including possibilities for enforcement) as in the end your marmalade will end up as a sirop (as did mine using the wrong gelatin)



7 minutes presentation, 3 minutes discussion

(i) the title of your presentation:

- **A recipe with legal ingredients for Ecosystem-based Adaptation projects for Climate Adaptation. Innovative double dike projects in estuaries and along mud coasts as case study**
(was: It takes more than two to tango: Shared or fragmented responsibilities in Ecosystem-based Adaptation projects for Climate Adaptation/ Innovative double dike projects in estuaries and along mud coasts as case study)

(ii) one (1) statement/ question you would like to share with/ ask the public. If you have specific recommendation or preference on how you would like the answers to be formatted on Mentimeter, please also feel free to let us know.

- **The distribution of responsibilities can hamper the effectiveness of Ecosystem-based Adaptation for Climate Adaptation. (agree, disagree, no answer/opinion)**
- **The ‘cultural’ differences between different disciplines and between science and policy can best be overcome by learning by doing and an open-minded attitude**
- **What words come into your mind when you think of Ecosystem-based Adaptation for Climate Adaptation? (word cloud)**
- (iii) One (1) question you would like to ask the panel during the panel discussion (if possible);
- **What are best practices to overcome the science policy interface when implementing innovations such as ecosystem-based adaptation projects?**