ACTIVITY: Workshop2/3_Holland Lowland Peat Landscape_PILOT LANDSCAPE
DATE and TIME: Autumn 2019 (no physical workshop could be realised; several smaller meetings were held)
PLACE: Head Office of the Province of Zuid-Holland, The Hague (NL), and other places
ORGANIZERS:

- Bas Pedroli / Wageningen University *[1]
- Caroline Ammerlaan *

PARTICIPANTS:

- Caroline Ammerlaan / Province of Zuid-Holland *
- Werncke Husslage / Province of Zuid-Holland *
- Daan Willems / Water Authority Rivierenland *

KEY OBJECTIVES and EXPECTED OUTCOMES of THE ACTIVITY (expected outcomes):

- Assessment of Climate change impacts and Development of a Landscape Climate Adaptation Plan for the implementation of the AELCLIC-pathfinder project in the Holland Lowland Peat Landscape

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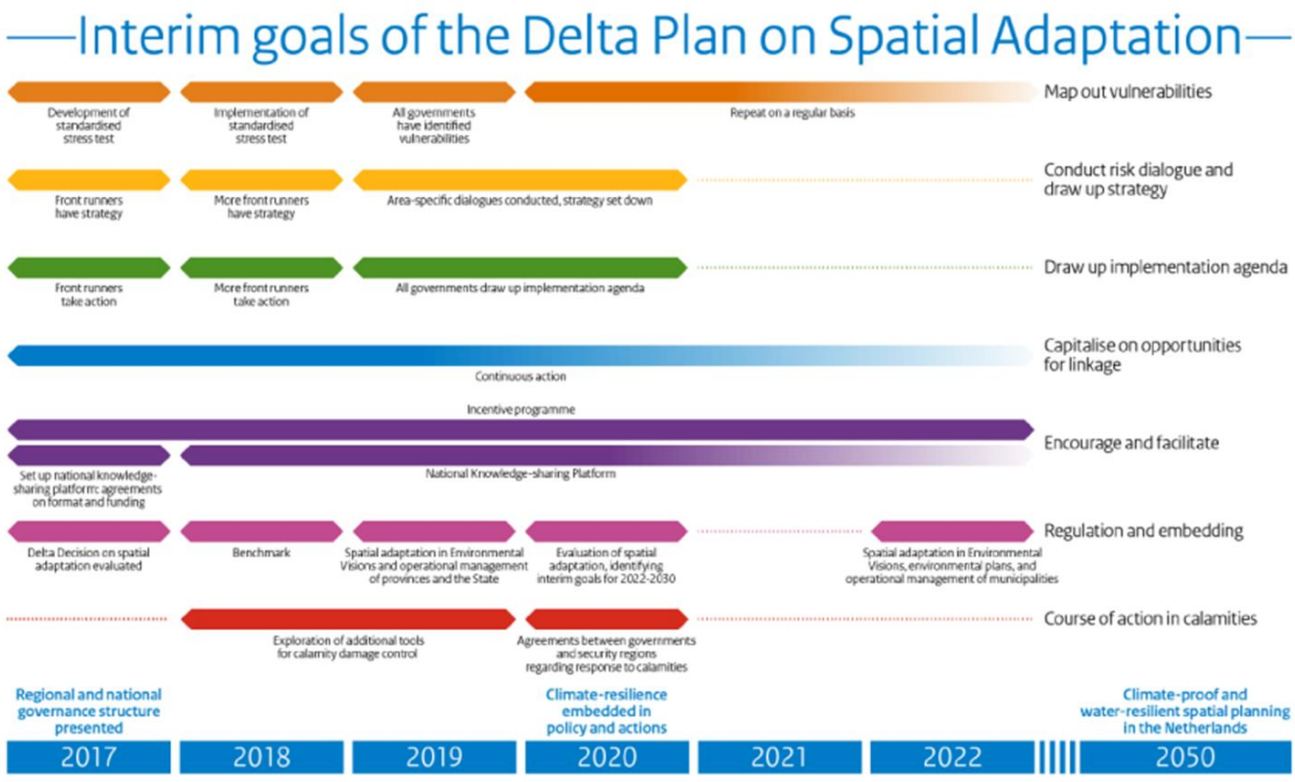
SPECIAL FOCUS: ALBLASSERWAARD - VIJFHEERENLANDEN

Based on existing developments in the process of Climate Stress Tests (the first interim goal of the Delta Plan on Spatial Adaptation, see figure below), the Alblasserwaard-Vijheerenlanden is chosen as the pilot area in the Holland Lowland Peat Area, because of the topicality of the adaptation challenges in this area.



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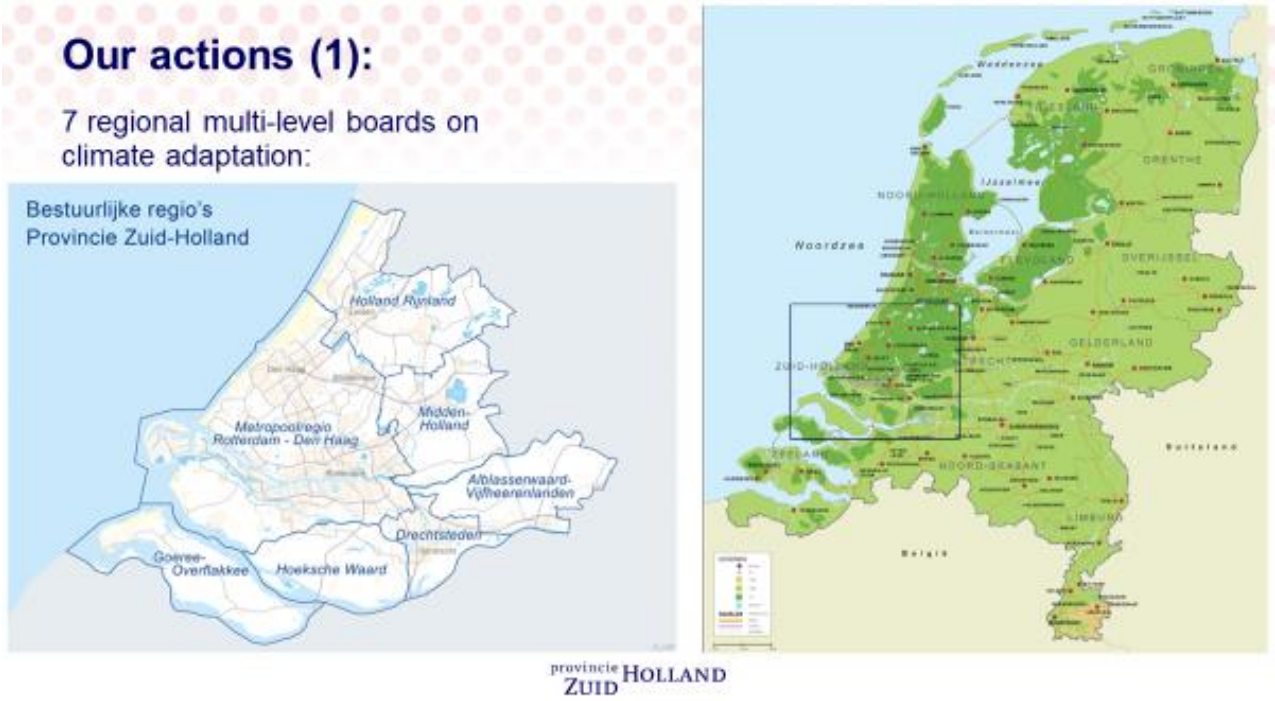
* Names of persons and logos of their affiliations may be used on the AELCLIC website

Location of Alblasserwaard-Vijfheerenlanden (easternmost region of the Province of Zuid-Holland)



STRESS TEST ALBLASSERWAARD -- VIJFHEERENLANDEN[2]

1. Starting points

In order to retain its character and make the area more resilient to the effects of a changing climate, deliberate choices must be made. As a client the Alblasserwaard-Vijfheerenlanden Regional Council indicated that it wants to take steps to ensure that the region's climate is robust. This command is one of the first steps to this ambition to achieve and align with national agreements made in the Delta Plan on Spatial Adaptation. In the Delta Plan on Spatial Adaptation (2018), all municipalities, water boards, provinces and central government agreed to have the vulnerabilities for climate and extreme weather mapped by 2019 at the latest. Climate change has consequences for the working region Alblasserwaard-Vijfheerenlanden (A5H). In addition to the sea level rise, we are faced with higher temperatures, wetter winters, more intense rain showers and drier summers. This entails risks such as rainwater nuisance, groundwater problems, heat stress, additional subsidence and problems with the freshwater supply. In line with the Delta Plan on Spatial Adaptation the A5H region wants to look at where challenges and opportunities will arise in the future, so that it can prepare for this. The Alblasserwaard work region Vijfheerenlanden includes the municipalities of Alblasserdam, Gorinchem, Hardinxveld-Giessendam, Molenlanden, Papendrecht, Sliedrecht and Vijfheerenlanden in cooperation with the Rivierenland Water Board, the provinces of Utrecht and South Holland.

2. Objectives

The purposes of the Climate Stress Test, together with the Alblasserwaard-Vijfheerenlanden work region and the main stakeholders of the area, are:

- To identify the bottlenecks and opportunities within the region for the four climate themes of flooding, heat, drought and floods.
- To formulate a first draft of the climate challenge, with which the ambition discussion can be conducted administratively.

[2] *Translated from " Resultaten klimaatstresstest Alblasserwaard-Vijfheerenlanden. Eindrapportage Stresstest Alblasserwaard-Vijfheerenlanden. In opdracht van: Gebiedsraad Alblasserwaard-Vijfheerenlanden Uitgevoerd door: Nelen & Schuurmans. Datum: 21 mei 2019*

- To develop an equivalent level of knowledge among the area partners and key stakeholders involved.

3. Threats and Opportunities

TOO MUCH WATER

Major bottlenecks and tasks:

• There is flooding in many urban centre locations.
• Heavy showers in urban areas often lead to water on the street (> 10 cm) and flooded tunnels. This plays a big part in the cores.
• Accessibility of emergency services.
• Water in homes and buildings with a social function in many centres.
• Potentially vulnerable fruit growing. Sequel research into expensive flooding desirable.
• Not all model results are recognized by based on current practical experience. If need is present, model update in certain cores with sewage.

Greatest opportunities:

• Lots of knowledge and experience with municipalities and water board about flooding in built-up areas surroundings. How to deal with provincial policy around housing? Extension and necessity for a climate-robust urban environment.
• In what way can the available storage capacity in urban and rural be used to prevent nuisance to go?
• A lot of 'unutilized' water due to extreme showers. Opportunities for energy extraction from, for example, water basins.
• Water storage on peaty soil in combination with e.g. meadow bird management (watering of lots).
• Change of use on peat soils to recreational areas and wet nature.

HEAT STRESS

Major bottlenecks and tasks:

• Industrial areas and compacted city centres most sensitive to heat stress. Point of attention for e.g. labour productivity.
• In residential areas based on public health attention for vulnerable population groups (elderly).
• Adverse effects on infrastructure (track / bridges).
• Attention to bathing water locations of water quality (blue-green algae) and safety (swimming in rivers).
• Heat stress for humans, livestock and plants.

Greatest opportunities:

• Trees along the roads: "cooling ribbons".
• Water circulation to cool the city area.
• Greening of roofs on business parks.
• Operation crushing stone in city link.
• Creating green structures at locations with transformation task from working to live.
• Cooling down the edge of the city link, the green heart of A5H and rivers to three sides of the area.
• Have a conversation with care locations, shopping centers and schools about greening.

DROUGHT

Major bottlenecks and tasks:

• Inclination and lowering of undefended houses.
• Water shortage for water level management, falling groundwater levels, subsidence and settlement.
• Higher salinity of river water with limited water inlet from the Lek.
• Worse harvests due to drought. Grass in particular vulnerable to drought in growing months (April until September).
• Poor quality surface water in relation to Watering.
• Validate soil subsidence with practice.

• Increase in development costs subsidence. Cables and pipes sensitive to settlement differences.

Greatest opportunities:

• New polder inlet at Groot Ammers. Opportunities for sufficient water.
• Large-scale research into region-specific solutions for subsidence. Connect to current RMA statement subsidence
• More research into the extraction of water from peat through trees in nature reserves and urban area.
• Opportunities for innovative due to subsidence pilots, such as pressure drainage, housing and natural water treatment.
• Use change: Opportunities for meadow bird management and recreation.

FLOOD RISK

Bottlenecks and tasks:

• Effects with a dyke breach from a river is very large at maximum flood depth. The chance is small to very small.
• Effects in the event of a breach of the quay can be overseen (up to 50 cm of water). The chance is small.
• Vulnerable to evacuation from the area (number roads), many livestock and vital infrastructure outage. Evacuation strategy known (time / duration)?
• Accessibility and recovery time.
• High-risk industry and hazardous presence fabrics. How do you handle this and how do you save it on?
• Supra-regional effects in the event of a flood of drinking water and energy infrastructure unclear.

Greatest opportunities:

• City link A5H: What can you do for a crisis phase adapt in infrastructure and buildings for evacuation and survival? Investigation Multi-layer Safety (MLV) / Flood Resilient Areas by Multi-lay Safety (FRAMES).
• Evacuation strategy: + 50 KV stations 2 meters raise up. New energy infrastructure at height and climate adaptive installation.
• Old ribbons and dikes. Opportunity for emergency services. Further research desirable.
• Flooding is mainly in rural areas conceivable.

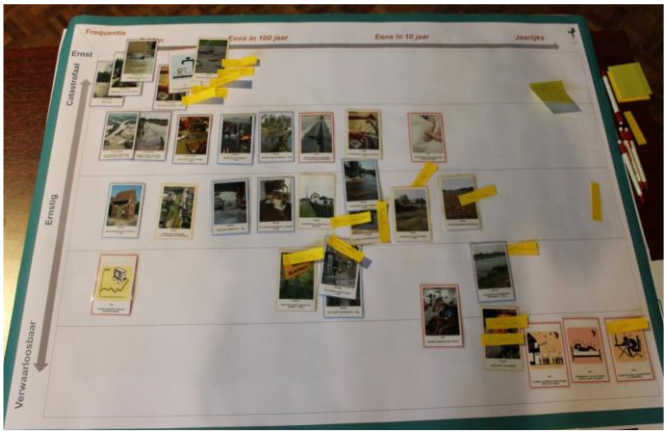
4. From climate Issue towards Spatial Quality

For each of the four climate stress issues Spatial Quality issues can be targeted:

- Urbanisation and healthy environment
- Agriculture and Nature
- Landscape and Recreation
- Infrastructure and vital objects

	Verstedelijking en gezonde leefomgeving	Landbouw en natuur	Landschap en recreatie	Infrastructuur en vitale objecten
WATER OVERLAST	• Gevolgen afvoeren van (overtollig) water uit stedelijk gebied en opvangen in landelijk gebied inventariseren. • Klimaat robuust inbreiden en transformeren.	• Potentieel kwetsbare fruitteelt. Verdiepend onderzoek naar duur wateroverlast. • Tijdelijke waterberging op veengrond toestaan (grasland).	• Leidende principes voor inpassing van een klimaat robuust watersysteem.	• Aanpakken onbegaanbaarheid verbindingswegen en tunnels. • Robuuste netwerken gas, water, elektriciteit, internet. • Energie terugwinnen uit water.
HITTE	• Watercirculatie inzetten voor verkoeling van het stedelijk gebied. • Operatie streenbreek in stedenband. • Vergroenen kwetsbare verzorgingslocaties. • Klimaat robust inbreiden en transformeren.	• Hittestress vee en planten.	• Aandacht voor zwemwaterlocaties ten aanzien van waterkwaliteit (blauwalg) en veiligheid (zwemmen in rivieren). • Bomen langs de wegen: 'linten' planten. • Groene rand langs stedenband en het groene hart inzetten voor verkoeling.	• Nadelige effecten op infrastrucuur (spoor en bruggen) inventariseren en in kaart brengen.
DROOGTE	• Regionale aanpak voor kwetsbare niet onderheide panden opstellen. • Rekening houden met toename in ontwikkelingskosten door bodemdaling.	• Mogelijkheden voor zoetwateraanvoer vergroten. • Gewasschade door watertekort beperken. • Meer onderzoek naar de onttrekking van water uit veen door bomen in natuurgebieden en stedelijk gebied. • Grootschalig onderzoek naar regiospecifieke oplossingen voor bodemdaling. • Waterkwaliteit verbeteren voor veedrenking.	• Link bodemdaling en weidevogelbeheer onderzoeken.	• Rekening houden met bodemdaling • Kabels en leidingen gevoelig voor zettingsverschillen.
OVER STROMING	• Stedenband A5H: Wat kan je voor een crisisfase aanpassen in de infrastructuur en bebouwing voor ontruiming en overleving? Onderzoek Meerlaagse Veiligheid (MLV) / Flood Resilient Areas by Multi-layEr Safety (FRAMES).	• Levende have kwetsbaar bij overstroming. Evacuatie van levende have bij een overstroming is belangrijke factor.	• Oude linten en dijken inzetten voor hulpdiensten.	• Veilige uitvalswegen bij overstroming • Informatie: wat moeten we doen bij overstromingen? • Risicovolle industrie en aanwezigheid gevaarlijke stoffen. Hoe ga je hier mee om en hoe sla je deze op? • Nieuwe energie infra op hoogte aanleggen.

5. The Risk Dialogue



A dialogue was conducted during the climate workshop on the basis of 32 examples of negative climate effects. A negative climate effect of drought is for example: "Management area subsidence> 2 cm per year" and of a flood: "Failure main stations vital infrastructure (gas, electricity, communication)> 1 week '. Those present indicated in four groups which climate effects they find the most serious, and how often they think that such effects should occur.

Result

A diagonal pattern is created on all four tables, which establishes a relationship between seriousness and display the desired repeat time:

• The consequences of flooding are considered the most serious and lie all within the red circle. About this category you will find when depositing the cards relatively little discussion takes place.

• Climate effects that result in natural and economic damage considered average and are within the orange circle. Within this circle shows the most variation in assessment when placing the cards relative to each other.

• "inconveniences" such as "poor sleep", "low labour productivity" and "noise nuisance" least serious. There is limited insight into the, often indirect, consequences of these climate effects. In addition, it is indicated that with some effects (such as "Sleeping problems due to heat") can be handled differently, such as loving "Siesta" and work longer in the evening. In other words, instead of the physical environment, behaviour can also be adjusted to the circumstances. Think here of tropical timetable at schools.

With different climate effects, there is a lively discussion about the seriousness and scope of the effect, such as:

• An increased national death rate for vulnerable people due to a heat wave.

• The consequences of water inflow into homes.

In addition to the dialogue, the parties present have indicated which climate risk they find, in the moment, the most relevant and where they themselves can possibly contribute to thinking along in opportunities or looking for solutions with regard to this risk. This is an indication overview and is in no way exhaustive because one could only choose one risk and one person does not represent a complete organization.

At the end of the climate workshop, all parties were asked what they considered important and with which parties they would like to talk. The answer to this provides insight into which parties should not be missing in a subsequent climate studio and is a first step and a first exploration of ambitions at parties and whoever wants to fight for it. It is important to invite other stakeholders to the discussions.

6. Recommendations

The purpose of this stress test is to gain joint insight into the greatest opportunities and bottlenecks within the region. For this we have made a first step with the first climate workshop where a broad group of stakeholders from the A5H region was present. The bottlenecks and opportunities have got outlines. This overview is not yet exhaustive, but it is a good start. Also environmental themes have been defined and an incentive for climate ambitions has been formulated. Finally retrieve information about which stakeholders to engage, and which dialogues.

Recommendations working region A5H

After the first regional risk dialogue (the climate workshop) we recommend:

• Look for administrative coordination on the results described in this memorandum and the start to use climate ambitions to conduct the ambition discussion.

• From there, continue to work on linking the climate bottlenecks and opportunities with current ones spatial visions and ambitions for the area. In this way a connection is made with environmental policy.

• Make connections with other developments in the area. A first step, which is not exhaustive, is made below:

• In the Regional Social Agenda of the Alblasserwaard-Vijfheerenlanden Region (municipalities of Molenlanden, Gorinchem and Vijfheerenlanden), 15 assignments have been named. Some of the tasks from this agenda have a relationship with climate adaptation. For the elaboration of the subsidence, energy transition and landscape developments tasks, there is close cooperation coordination of importance on both process and content.

• The Alblasserwaard-Vijfheerenlanden department of LTO-Noord has drawn up a new agricultural vision last year (Landbouwvisie Alblasserwaard-Vijfheerenlanden 2030) with ambitions in the field of landscape, soil and water, among other things. In discussions about regional opportunities and risks and an adaptation strategy to be formulated, the agricultural sector is a crucial link.

• The Rivierenland Water Board has drawn up a vision for the future with regard to the regional water system (storage basin system) and makes this concrete in an Area Program. The calls for close coordination with the water board to determine the substantive points and moments at which the elaboration of an adaptation strategy and the area program meet could affect.

• The "Green Deal Connect Area Deal" (http://www.gebiedsdeal.nl) contains a multi-year program in which opportunities are mentioned with regard to climate adaptation. There is one in this project included under the name "Blue-green foundation" in which connections are made between education, business and governments. This project is being drawn by the water working group of the Blauwzaam Foundation.

• In the context of the "Water safety and space 2017 - 2018" project, innovation tables have been organized to raise water awareness among businesses and to to build an innovation network. This can be a valuable network for the risk dialogues to be conducted.

As a follow-up to the stress test:

• Collect regional strategies in a second climate studio, focusing on parts where climate effects conflict with the intended visions and ambitions for the area.

• To summarize the result in a regional adaptation strategy and regional (spatial) implementation agenda, for administrative determination (see figure below).


Regional Process
Climate Stress Test
(ready by Q2 2019)
Risk Dialogue
Q3/4 2019
Adaptation Strategy
Q2 2020
Implementation Agenda
Q4 2020
Resultaten klimaatstresstest
Alblasserwaard-Vijfheerenlanden
provincie ZUID HOLLAND