

# CATCH

*Unterstützung mittelgroßer Städte auf ihrem Weg zur wassersensiblen Stadt im Rahmen der Klimaanpassung*

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**Interreg**  
North Sea Region  
**CATCH**

European Regional Development Fund



EUROPEAN UNION



# Was heißt CATCH?

*CATCH – water sensitive **C**ities: the **A**nswer **T**o **C**hallenges of extreme weather events*

*Wassersensible Stadtentwicklung in kleinen und mittelgroßen Städten im Nordseeraum*





## Ziele

- *Unterstützung bei der strategischen Klimaanpassung*
- *Entscheidungsunterstützung*
- *Transnationaler Erfahrungsaustausch (Pilotstädte)*
  - Werkzeuge
  - Beispiele guter Praxis
  - Maßgeschneidert für Akteure und Region (Identifizierung von Indikatoren)

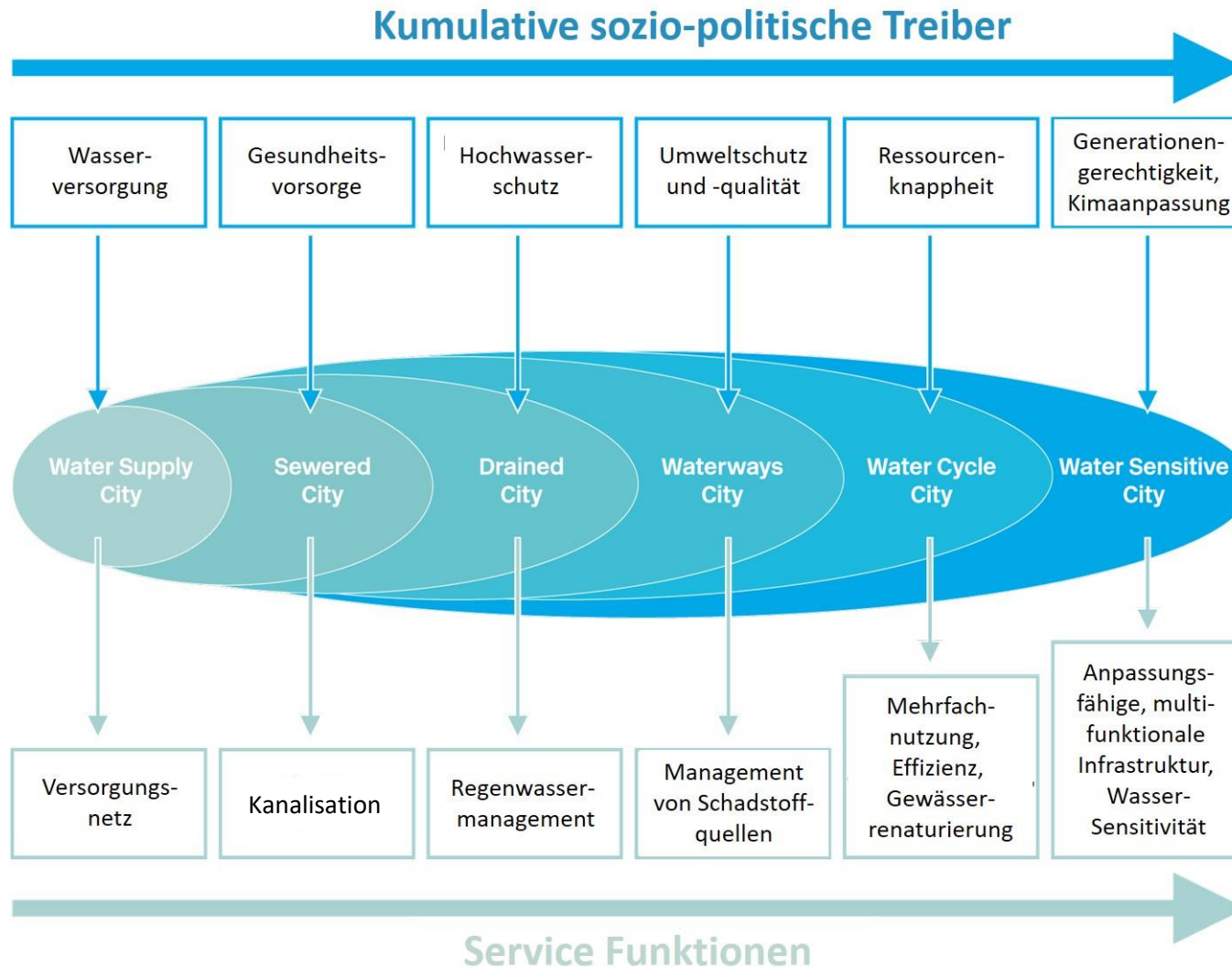


Vejle, DK



# Das Prinzip der wassersensiblen Stadt

## Historische Entwicklung und Entwicklungskonzept





## *Drei Säulen*

- *Städte als Wasserspeicher*

Städte werden als **Einzugsgebiete** betrachtet. Hierbei geht es insbesondere darum, die **natürlichen hydrologischen Prozesse** innerhalb einer Stadt zu fördern und Wasser auch als wertvolle Ressource zu betrachten. Anfallendes Regenwasser soll schonend dem Grundwasser zugeführt werden. **Wasserressourcen** sollen auch zur Deckung des regionalen Wasserbedarfs nutzbar sein.

- *Städte als Ökosystem*

Städte werden als Anbieter von **Ökosystemfunktionen** verstanden. Hier ist beispielsweise die Steigerung der **Lebensqualität** durch Gewässer und Grünanlagen (Naherholung, Schattenspender) zu nennen.

- *Städte als “wassersensible Gemeinschaft”*

Die Umsetzung integrierter Lösungen bedarf einer intensiven **Kommunikation der beteiligten Akteure**, die durch geeignete Formate und Werkzeuge gefördert werden kann.



# Pilot-Städte in CATCH

*Arvika (Schweden), Enschede und Zwolle (Niederlande),  
Herentals (Belgien), Norwich (England),  
Oldenburg (Deutschland) und Vejle (Dänemark)*



<https://northsearegion.eu/catch/pilot-projects/>



## *Fokus auf kleine und mittelgroße Städte - Charakterisierung*

- *Größe*
  - 20.000 bis 200.000 Einwohner
- *Herausforderungen (i.d.R.)*
  - Begrenzte personelle und finanzielle Ausstattung
  - Strategische Ausrichtung bzgl. Klimaanpassung ist nicht vorhanden
  - Unterstützung bei der Entwicklung und Konzeption von Klimaanpassungsmaßnahmen ist gewünscht
  - Intensive Interaktion mit ländlicher Umgebung



## *Bedarfsermittlung im Rahmen von city visits*

- *Bedarfe*
  - Fokus auf Starkregen und Hochwasser
  - Strategische Ausrichtung von Klimaanpassungsmaßnahmen (strategy development)
  - Unterstützung bei der Planung und Durchführung (guidance)
  - Beispiele guter Praxis (good practice)
  - Unterstützung bei Monitoring und Evaluation von Maßnahmen

→ *Entscheidungsunterstützung*



## *Tool-Entwicklung*

- *Viele Bausteine / Tools bereits verfügbar*
- Nutzung von good practice Beispielen aus CATCH
- Nutzung von Tools aus erfolgreichen früheren Projekten
- Bezug zu Konzepten, die andernorts bereits erfolgreich angewendet wurden

## *→ Water Sensitive City Theory*

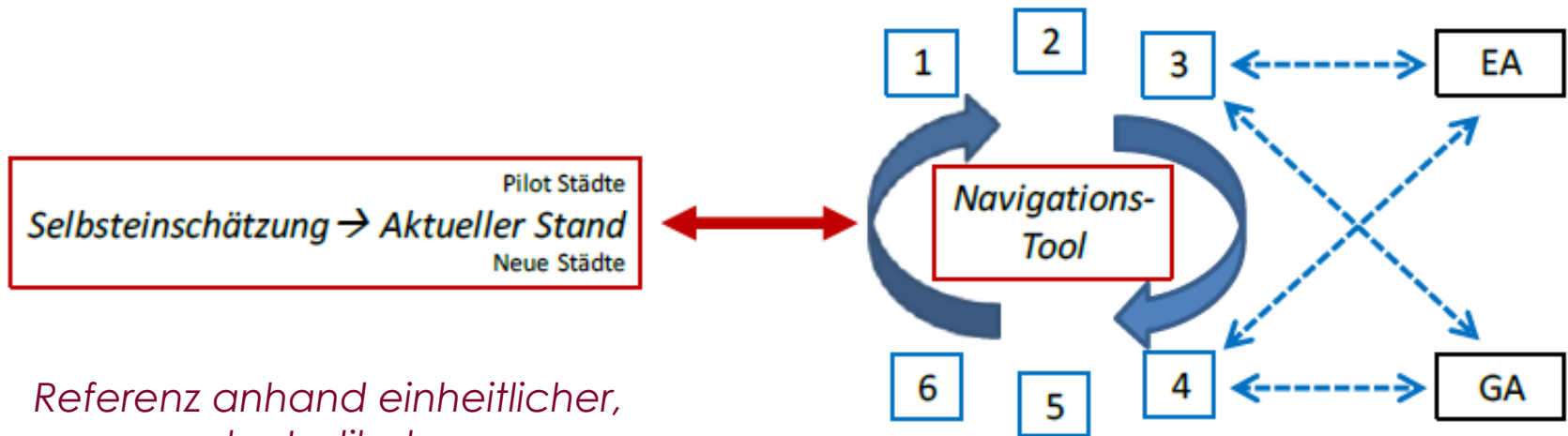
- Entwickelt in / für Australien
- Anpassung der inhaltlichen Schwerpunkte auf die Nordseeregion (stärkerer Fokus auf „zu viel“ Wasser)
- Anpassung der inhaltlichen Schwerpunkte auf mittelgroße Städte (Unterstützung in strategischen Fragen)

## *→ Tool-Komponenten*

- Management Cycle aus dem „Climate Proof Areas“ Projekt (Interreg IVB)
- Governance Assessment aus dem DROP Projekt



## Entwicklung eines Entscheidungsunterstützungssystems








Referenz anhand einheitlicher,  
angepasster Indikatoren  
(WSC Konzept)


- 1 = Problemdefinition
- 2 = Problemspezifizierung
- 3 = Generierung von Lösungsansätzen
- 4 = Auswahl eines Lösungsansatzes
- 5 = Implementierung
- 6 = Evaluierung

EA = Bewertung der Ökosystemfunktionen  
GA = Bewertung der Governance



https://catch-frontend-staging.herokuapp.com/#/

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WSC-state assessmentClimate adaptation cycleCity case stories and examples


## Planning for climate adaptation in the North Sea Region

### Climate change challenges

The negative effects of climate change are increasingly impacting all cities in the North Sea Region. But cities are responding to these challenges in vastly different ways. In the North Sea Region, most cities are midsize (20.000 to 200.000 inhabitants). While these cities also urgently need to develop climate adaptation strategies, the focus of researchers, politicians and planners is often on large cities and metropolitan areas. And, because midsize cities often don't have the financial resources or personnel to tackle these issues themselves, their needs are not being met. Some, like Rotterdam, Copenhagen and Hamburg are leading the way, with their climate adaptation plans at the ready, but others are being left behind.

A strategy for climate adaptation

Moving towards water sensitive cities





## Selbsteinschätzung

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https://catch-frontend-staging.herokuapp.com/#/wsc-state/dashboard

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Navigation Cycle Dashboard >>

### Assess - How climate resilient and water sensitive is my city?

Water Supply

Sewered

Drained

Waterways

Water cycle

Water sensitive

COMMUNITY

CATCHMENT

SERVICES

CLICK HERE TO START QUESTIONNAIRE

CLICK HERE TO START QUESTIONNAIRE

Export

Clear Answers



## Säulenspezifische Abfrage

Pillar	Indicator code	Indicator title	Description of scores					
			1	2	3	4	5	6
WSC1	WSC1.1	Organizational capacity (such as knowledge and skills) for	Organizational	Organizational	Knowledge on	Most of the	All relevant	New normal
	WSC1.2	Water as a key element in city planning and design/redesign	Water is not an	There are a few	There are several	There are many	There are many	New normal
	WSC1.3	City-level integrative arrangements across sectors (such as	No integrative	There are no	Most of the	All stakeholders are	Relevant sectors	New normal
	WSC1.4	Stakeholder participation in water and climate adaptation at	No stakeholder	Stakeholders are	Consultative	Diverse	All relevant	New normal
	WSC1.5	Leadership, long-term vision and commitment by the city-	City-level	City-level	City-level	City-level	City-level	New normal
	WSC1.6	Level of flood risk awareness of the population	Public is totally	Public awareness	Public awareness	Public awareness	Public awareness	New normal
	WSC1.7	Organisation of emergency management	There are no	One or two	Several	Most of the	All relevant	New normal
	WSC1.8	Regulations to reduce potential flood damage in the city (for	No regulations exist	There is one	Several regulations	Several regulations	Sufficient	For granted; e.g.
WSC2	WSC2.1	Availability and use of both flood hazard and flood risk maps	No flood hazard and	Flood hazard maps	Flood hazard and	All necessary flood	Up-to-date hazard	Early warning and
	WSC2.2	Areas to temporarily store water in the city without expected	No areas exist for	Few options	Few options for	Sufficient area is	Sufficient area is	Multifunctional use
	WSC2.3	Measures to increase infiltration (for instance through	No measures exist	There are plans to	Some measures	Some measures are	Comprehensive	Regenerative cities;
	WSC2.4	Status of infrastructure for water supply	There is no data	Serious problems	Problems exist	Minor problems	Water supply	Alternative water
	WSC2.4.sub1	Maintenance of infrastructure for water supply	Infrastructure for	Infrastructure for	Infrastructure for	Infrastructure for	Infrastructure for	Less maintenance,
	WSC2.5	Status of infrastructure for wastewater	There is no data	Serious problems	Serious problems	Minor problems	Wastewater	Thermal energy,
	WSC2.5.sub1	Maintenance of infrastructure for wastewater	Infrastructure for	Infrastructure for	Infrastructure for	Infrastructure for	Infrastructure for	Less maintenance,
	WSC2.6	Status of infrastructure for flood protection	There is no data	Serious problems	Serious problems	Minor problems	Flood protection	Multifunctional use
	WSC2.6.sub1	Maintenance of infrastructure for flood protection	Infrastructure for	Infrastructure for	Infrastructure for	Infrastructure for	Infrastructure for	Less maintenance,
WSC3	WSC3.1	Attention to the needs and protection of vulnerable groups	There is no data	There is some data	There is sufficient	There is sufficient	There is sufficient	New normal; a
	WSC3.2	Healthy and biodiverse habitat	Bad	Poor	Moderate	Good	Very good	Excellent; healthy
	WSC3.3	Protection of surface water quality and flow regime	Bad	Poor	Moderate	Good	Very good	Excellent; surface
	WSC3.4	Protection of groundwater quality and groundwater levels	Bad state in	Bad state in	Good state in either	Good state in either	Good state	Excellent; cities are
	WSC3.5	Activation of connected urban green and blue space	Very low number of	Low number of	Fair number of	High number of	Very high number	New normal; blue
	WSC3.6	Vegetation coverage at the city level	Very low degree of	Low degree of	Fair degree of	High degree of	Very high degree of	New normal; urban
Transition state of the Water Sensitive mid-size City in the North Sea Region								
anticipated evolution	6 - Water Sensitive City							
	5 - Water Cycle City							
	4 - Water Way City							
provide essential services	3 - Drained City							
	2 - Sewered City							
	1 - Water Supply City							



## Selbsteinschätzung

Navigation Cycle Dashboard >>

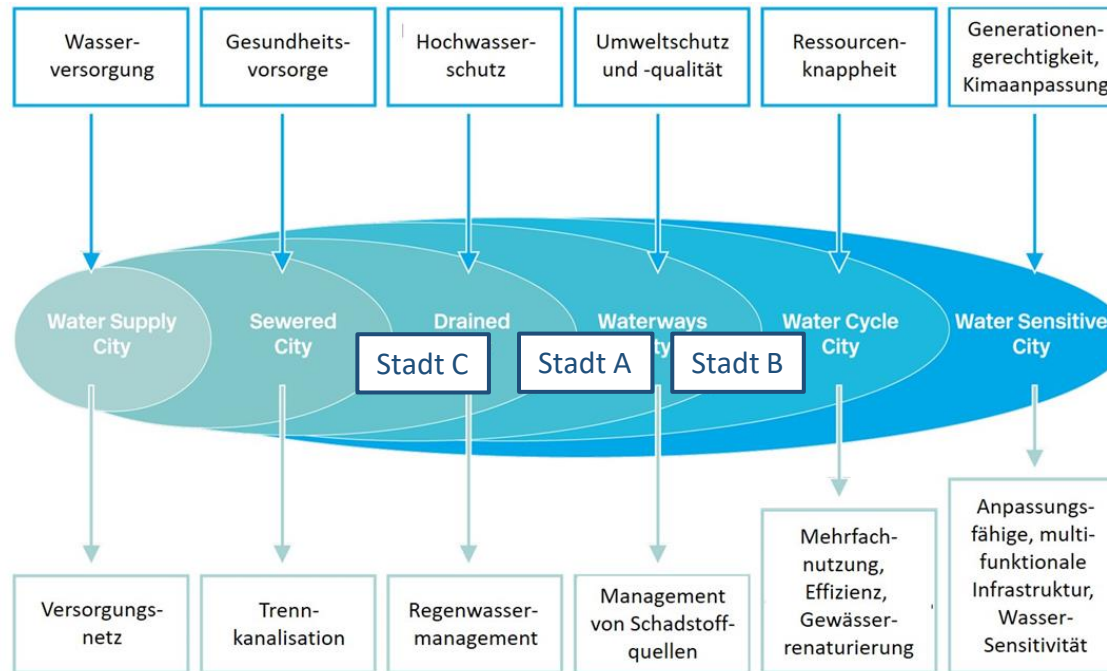
### Assess - How climate resilient and water sensitive is my city?

	Water Supply	Sewered	Drained	Waterways	Water cycle	Water sensitive
COMMUNITY				●		
CATCHMENT				●		
SERVICES			●			

Export Clear Answers



## Ergebnisse für Akteure und Stakeholder

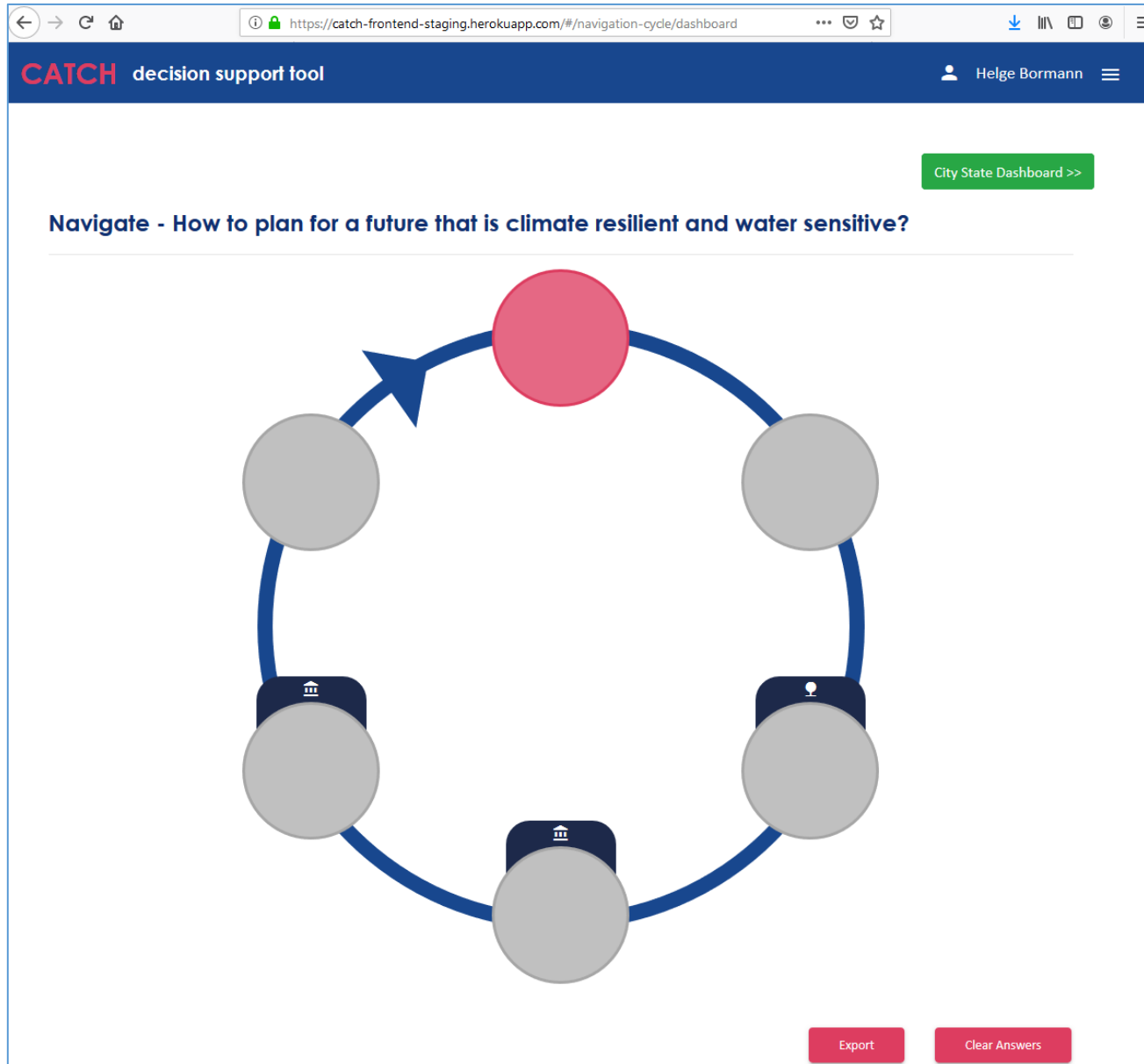


- *Bewusstsein für Stärken und Schwächen*
- *Bedarf für Strategische Ausrichtung (Klimaanpassungsstrategie) ?*
- *Erfahrungsaustausch mit anderen Städten (gute Beispiele)?*
- *Standards ?*

→ *Nutzung des Tools für Unterstützung im Anpassungsprozess*

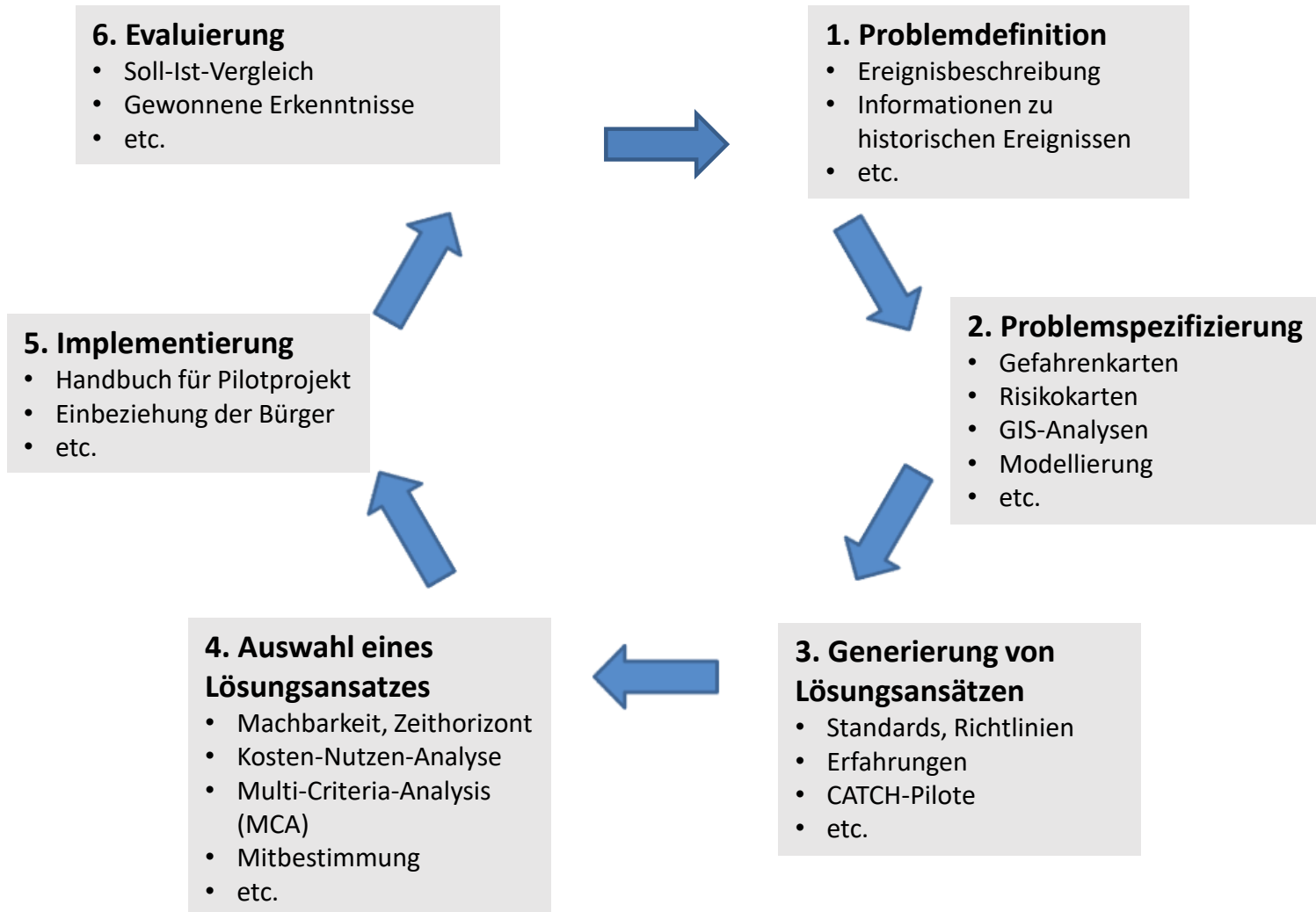


# Navigations-Tool





## Struktur





## Handlungsempfehlungen

Guiding document and good practice examples will be provided (doc/ pdf and online version) guiding the user through the MC (navigation tool)

Step	Specification	Question	Answer / recommendation	Exemplary document and justification – good practice examples to be added from the CATCH pilots/countries
1 – Problem definition	Identification of risk type	What's the main type of extreme weather risk?	<p>Select the main risk type (choose one main risk type; in case you are faced with several risks, run the cycle once more afterwards for another risk type):</p> <ul style="list-style-type: none"> <li>a) River flooding</li> <li>b) Lake flooding</li> <li><b>c) Rainfall induced flooding</b></li> <li>d) Groundwater induced flooding</li> <li>e) Coastal flooding</li> <li>f) Urban heat islands</li> <li>g) Water quality problems</li> </ul> <p>→ Proceed with next question</p>	<p>Here, illustrative pictures from historic events in the NSR should be provided for the different risk types, preferably from CATCH pilot cities.</p>
		Have historic events been described and analyzed for the selected risk type?	<p>Yes: → Proceed with step 2, if an event description and analysis is available for the selected risk type;</p> <p>No: → Proceed with recommendation below → Prepare the elaboration of an event description, e.g., by:</p> <ul style="list-style-type: none"> <li>- Search for a description of historic events,</li> <li>- Collect data and information of historic events (According to the list of criteria; see exemplary documents),</li> <li>- Contact institutes such as national weather services, regional water administration, regional media, insurance companies to gather additional data or analyses or reports;</li> </ul> <p>→ Elaborate a description according to the list of criteria (see exemplary documents),</p> <p>→ Proceed with step 2</p>	<p>Provide exemplary in-depth description and analysis of a historic event in the NSR, containing pictures, descriptions and analyses (typical information could be: rainfall charts and/or water levels, aerial pictures of inundations, statistical data of people affected, duration, damage, annuality of the event, etc.):</p> <ul style="list-style-type: none"> <li>a) River flooding (e.g., Rhine, 1993, 1995)</li> <li>b) Lake flooding (e.g., Arvika, 2000)</li> <li>c) Rainfall induced flooding (e.g., Dortmund, 2008)</li> <li>d) Groundwater induced flooding (?)</li> <li>e) Coastal flooding (e.g., Zeeland, 1953; North-West Germany, 1961)</li> <li>f) Urban heat (e.g., N-W-Europe, 2003)</li> <li>g) Water quality problems (e.g., Lake Kyrkviken)</li> </ul> <p>Provide description of exemplary helpful tools: e.g., exemplary tool for extreme value analysis (to determine annuality of historic events) → descriptions are made available as <a href="#">www-based link or document according to a list of criteria</a></p>



# Navigations-Tool

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**problem definition**

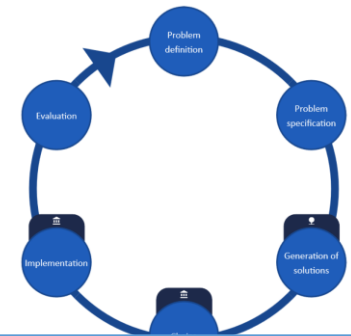
Progress bar (100%)

1 2

**Problem definition**

Have historic events been described and analyzed for the selected risk type?

YES NO




Prepare the elaboration of an event description, e.g., by:

- Search for a description of historic events
- Collect data and information of historic events (According to the list of criteria to the [LAWA for Germany](#))
- Contact institutes such as national weather services, regional water administration, regional media, insurance companies to gather additional data or analyses or reports

Elaborate a description according to the list of criteria (see exemplary documents).

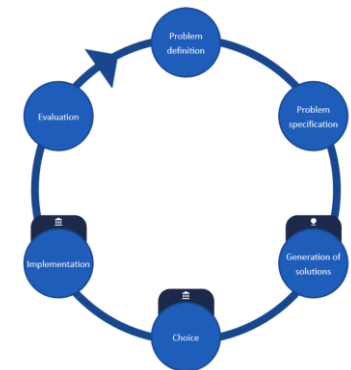




Close



# Navigations-Tool



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## generation of solutions

1

### Generation of solutions

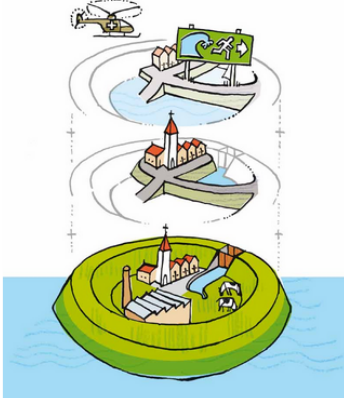
In this third phase of the navigation tool assistance for the identification of possible strategies and measures will be provided. Such strategies and measures shall help in adapting to those problems which have been identified in the previous step.

Since the impacts of extreme weather events are diverse, the spectrum of possible action is large, as well. Concerning flood risk management, possible solutions can be structured according to the Dutch MLS (multi-layer-safety) system, combining engineering solutions (e.g., flood protection), preventive solutions (e.g., spatial planning) and emergency response (e.g., disaster management).


Many different actors might be involved and/or affected. Therefore, participation of those people/organisations is important as also required by the EU floods directive.


Possible solutions can be analyzed and pre-selected based on their capabilities of solving (or at least reducing) the climate change problems. The outcome of this step should be a list of solutions and their characteristics.

Is a set of possible solutions available, contribution to a better protection, prevention and/or preparedness concerning the selected risk type?



**Read more about:**

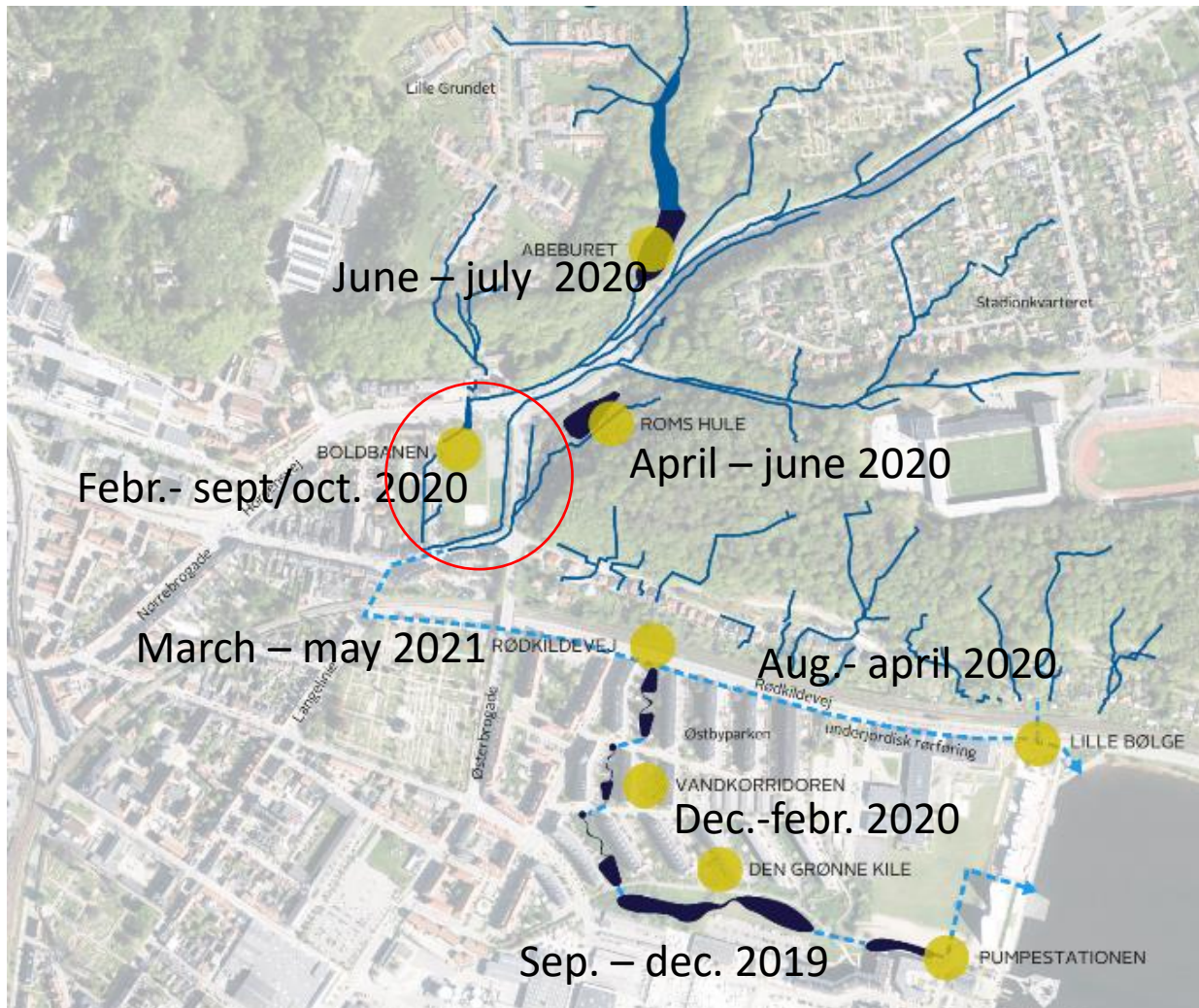
 Good practice Velje

 Good practice Arvika



## Good practice

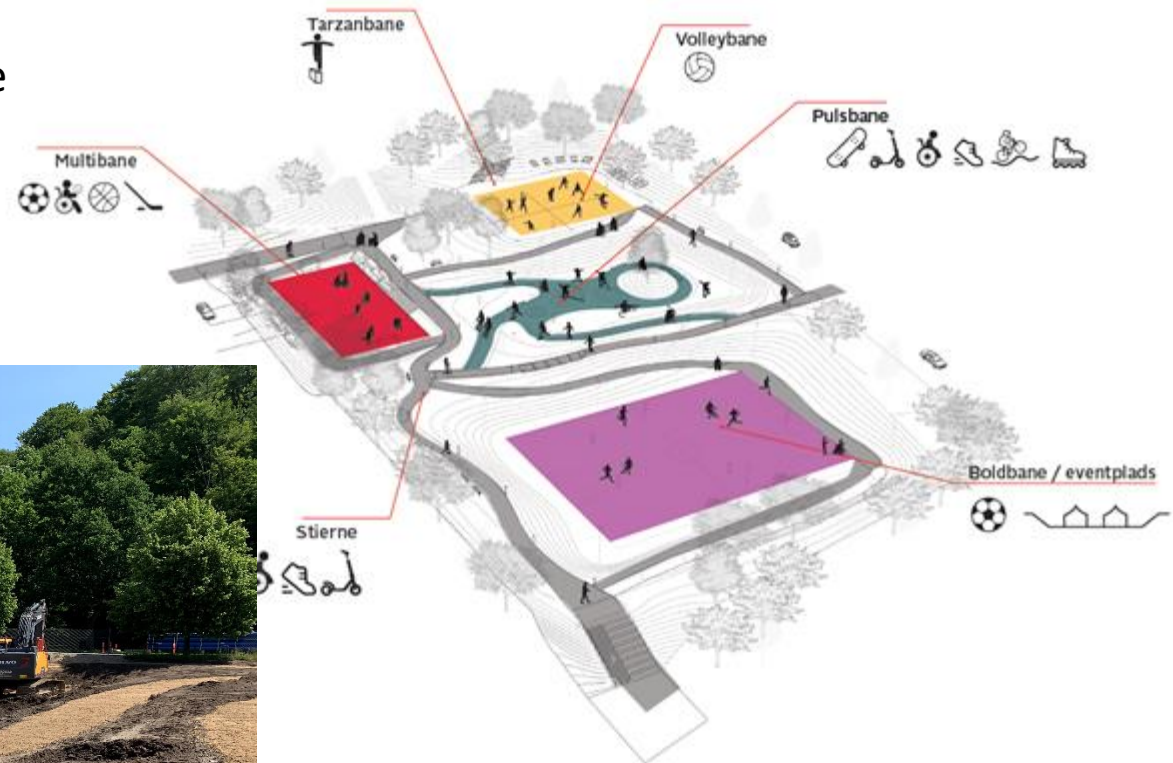
Vejle: Kombination verschiedener Maßnahmentypen aufgrund der hohen Exposition





## Good practice

### Vejle: Multifunktionale Flächen - Sportplatz als Retentionsfläche






## *Good practice*

### Enschede: Multifunktionale Flächen - Spielplatz als Retentionsfläche





# Navigations-Tool


<https://catch-frontend-staging.herokuapp.com/#/questionnaire/choice;modelId=53>

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## choice

1

### Choice



In the fourth phase of the navigation tool, an assessment of different solution options is supported to be able to select an adequate – preferably the best – adaptation solution. The relevant criteria for a choice should be determined by the involved parties. After negotiation, those parties with decision power should be able to make a choice which strategy and/or measures is going to be implemented. This choice is often based on indicators such as costs, durability, maintenance, and flexibility, which can be integrated in available tools such as cost-benefit-analysis, multi-criteria-analysis, or others.

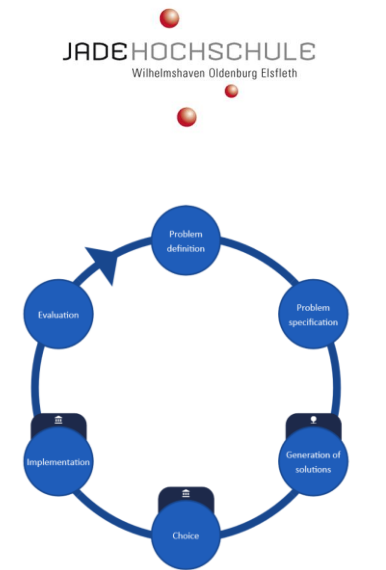
An important factor to be considered is the time scale of the planning process. In case of short-term planning (mainly bug-fixing), different solutions might be identified compared to a long-term, strategic planning process. Thus, in case of climate adaptation, such decision process should be embedded in a general, integrative adaptation process (or a strategy, if possible) of a city. In general, the negotiation process can be accelerated if the involved parties agree on a joint vision on the future development of the region/city.

Has the choice already been made?

Maßnahme		Einschätzung der Relevanz										Einschätzung der Relevanz									
		Institutionen										Handlungsbedingen									
		Wandlungsfelder	Wasser/Wald	Landwirtschaft	Umwelt	Wirtschaft	Sozial	Infrastruktur	Wohnung	Freizeit	Wohnung	Wohnung	Wohnung	Wohnung	Wohnung	Wohnung	Wohnung	Wohnung	Wohnung	Wohnung	
Kategorie 1	Maßnahme 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Maßnahme 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Maßnahme 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Maßnahme 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Kategorie 2	Maßnahme 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Maßnahme 6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Maßnahme 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Maßnahme 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Kategorie 3	Maßnahme 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Maßnahme 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Maßnahme 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	Maßnahme 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		

**Read more about:**

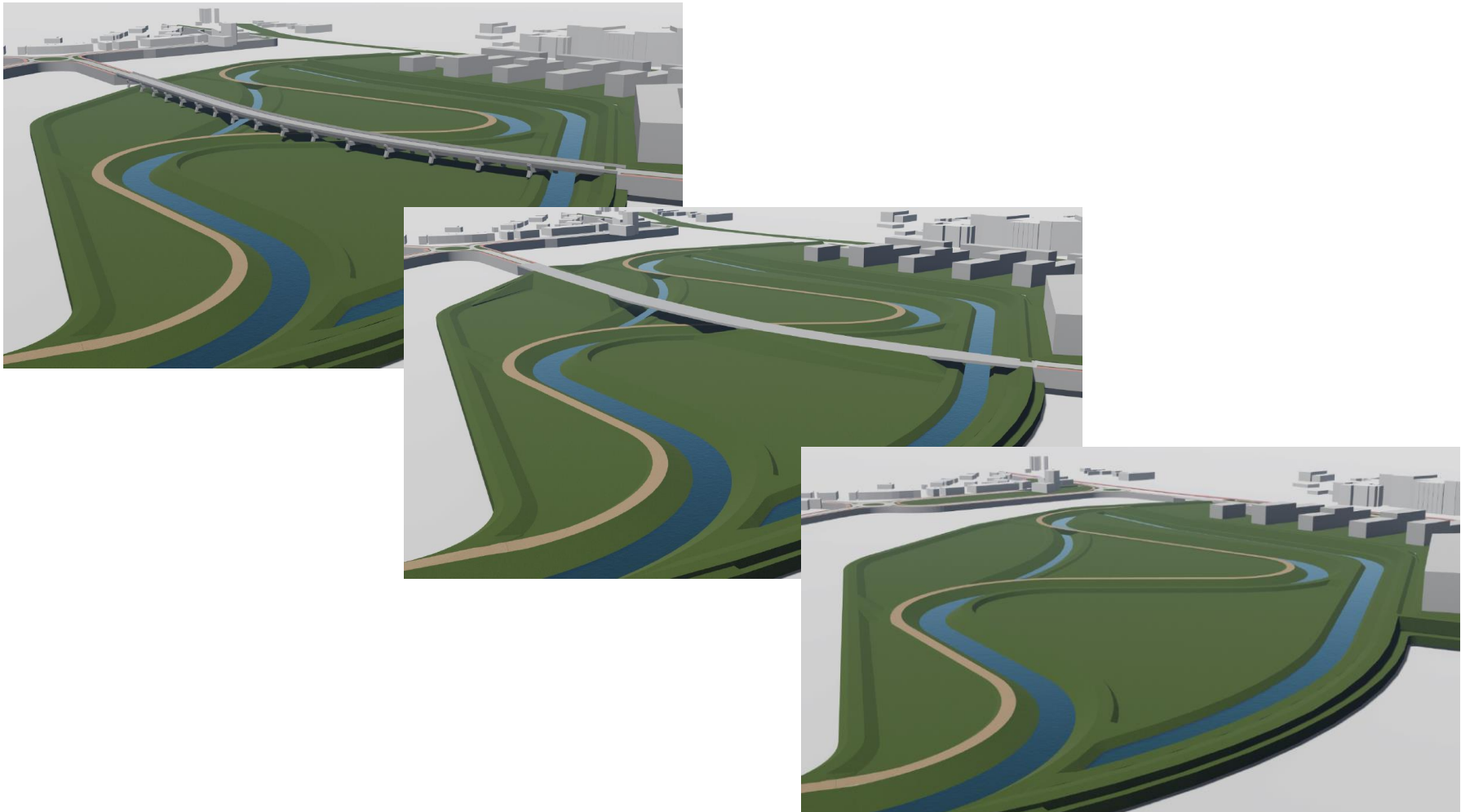
 Good practice Norwich
  Good practice Germany





## *Good practice*

### Herentals: Langfristige Planung





## Good practice

### Good practice Germany

Preventive measures are essential for a successful climate adaptation in the field of flood risk management. The German Association for Water, Wastewater and Waste (DWA) therefore has introduced an **audit on the status of preparation of cities against floods**, considering land provision, water retention, physical protection, risk prevention, behavior, information as well as hazard control and civil protection.

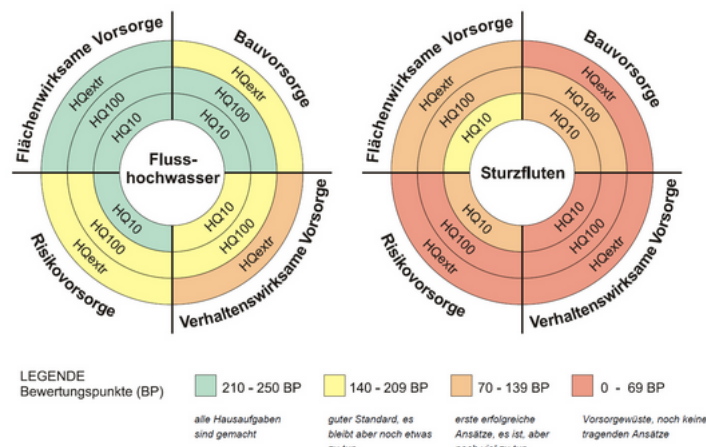
The audit is interactive and involves city representatives as well as external experts. Transparent indicators are applied to assess the current status of flood preparedness. Based on the status assessment the auditors suggest tailored measures to improve flood prevention of the city. City representatives then take the responsibility to implement suitable measures within a control period. Finally, a list of best practices is compiled based on the implemented measures.

[Flyer\(German\)](#)

[Presentation \(German\)](#)

[Code of practice \(German\)](#)

[Article \(German\)](#)



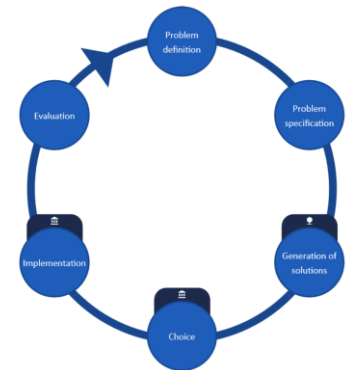
Close



## Konkrete Handlungsempfehlungen

	Criteria					to raise awareness	
	Dimensions	Completeness	Coherence	Flexibility	Pressure for Change		
• Involve local /regional representatives / champions	Levels and Scales						
	Actors and Networks						
• Set-up a “committee” for making the choice of tool <ul style="list-style-type: none"><li>◦ Check whether the stakeholder group from the pilot region is involved in the decision making process</li><li>◦ Carry out a cross-check of the results from the pilot region with the results from the other pilot regions</li></ul>	Problem Perspectives and Goal Ambitions					ould be taken into account, e.g., by scenario analyses; the focus is on the long-term	
	Styles and Instruments						
• Define the preferred time horizon of your pilot action <ul style="list-style-type: none"><li>◦ In case of short-term bug fix (e.g., limited time and resources)</li><li>◦ In case of a long-term strategic process, e.g., by scenario analyses; the focus is on the long-term</li></ul>	Responsibilities and Resources					ould be available	
Colours: red: restrictive; orange: neutral; green: supportive; grey: not important; white: We don't know							
• Check whether the choice is embedded / should be embedded in the existing policy framework <ul style="list-style-type: none"><li>◦ Reflect whether this sectoral decision may be integrated into the existing policy framework</li><li>◦ Try to identify synergies and conflicts of the pilot action with the existing policy framework</li><li>◦ If available, integrate your decision into your CC adaptation strategy; if not available, try to initiate a new strategy in your region / pilot: Integrated decision making can help to identify win-win-situations and no-regret situations</li><li>◦ If an integrative process for long-term horizon is not realistic, consider to step back from long-term horizon and focus on short-term bug fix</li></ul>	1	Basics	Is the concept urban ecosystem known among urban planners?			Yes	
	2		Do urban planners have knowledge of ecosystem services and their relevance?			Yes	
	3		Do the urban planners have skills to analyse ecosystem services of climate change adaptation measures?			No	
	4		Do the urban planners apply an integral inclusive approach towards too much water, too little water and city heat?			No	
	5		Is knowledge on components of grey infrastructure, green infrastructure and blue infrastructure available?			Yes	
	6		Is there ample awareness of the benefits of green and blue inclusive strategies?			Yes	
	• Select a set of criteria for making the choice <ul style="list-style-type: none"><li>◦ Identify, which available types of indicators reflect the diverse interest of the actors involved in the pilot action (e.g., cost; governance; ecosystem services; but also consider synergies and conflicts as mentioned at the top of the page)</li><li>◦ Think about giving priority to nature based solutions (=solutions that are inspired and supported by ecosystem services (cost-effective, simultaneously providing environmental, social and economic benefits))</li></ul>	7	Advanced	Are the available ready to use green and blue infrastructure building blocks well known?			No
		8		Do urban planners have the knowledge and skills to elaborate and compare ecosystem services for alternative measures?			No
		9		Are the tools for calculating costs and benefits in an efficient way known and available?			Yes
		10		Is the knowledge how to secure inclusive climate change adaptation in policy, decision-making and implementation available?			No
	• Select and apply a tool for taking the decision which option to choose <ul style="list-style-type: none"><li>◦ A number of tools are available to assist decision making (e.g., cost-benefit analysis; social cost-benefit analysis; multi-criteria analysis; etc.)</li></ul>						





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## implementation

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### Implementation

After having chosen a solution or agreed upon a strategy, the accompanying measures can be taken. The measures can be physical (i.e. construction of a levee), can be of organizational nature or support the development of policies. Implementation usually gets little attention. However, it is this phase in which outside parties or individuals can become obstructive, or the costs exceed the prospects. Preventing surprises can partly be done in earlier stages (i.e. good stakeholder analysis, cost benefit analysis), but should be done mainly or also in this stage.

Since climate change related risks and possible solutions are divers, implementation can only be tackled from a process-oriented perspective. Such perspective explicitly includes a clear and well-elaborated communication strategy. A communication strategy should include both, involvement of important actors as well as the information of the public. Nevertheless, for specific cases even implementation checklists and/or recommendations in terms of do's and don'ts might be available.

Has your measure been implemented already?



[Read more about:](#)  
Good practice Zwolle



# Navigations-Tool

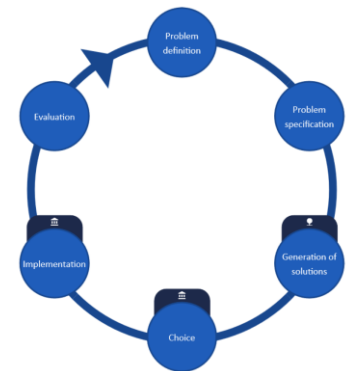
## *Good practice*

### Zwolle: Beteiligung und Planung (Community building)





# Navigations-Tool



← → ↺ 🏠

🔒 https://catch-frontend-staging.herokuapp.com/#/questionnaire/evaluation;modelId= ... 🛡️ ☆

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**CATCH** decision support tool 

👤 Helge Bormann ☰

**evaluation**

1

### Evaluation

After the implementation it is essential to monitor and evaluate the intended unforeseen consequences of the measures and strategies. This step is often ignored. However, evaluation is essential for the identification of further development options and strategic adjustments. General evaluation concepts are available in literature, case-specific checklists can also be developed in tight cooperation with regional stakeholders.

The CATCH self-assessment can be used as evaluation tool. During the evaluation phase, a second self-assessment can be carried out. Results from the initial and the second self-assessment can be compared, and the progress can be quantified. Furthermore, progress can be compared against the Water Sensitive City theory (WSC transition scheme)). Thus, two different types of evaluation are feasible: progress over time and comparison against the WSC standard.

In case of a strategy, the evolution of the developments have to be continuously monitored, evaluated and adjusted. If needed, additional measures have to be taken. In case a problem has not been solved, or if a new problem emerged, a new problem definition is needed.

Has your project been evaluated already?

Water Supply

Sewered

Drained

Waterways

Water cycle

Water sensitive

COMMUNITY

CATCHMENT

SERVICES

YES

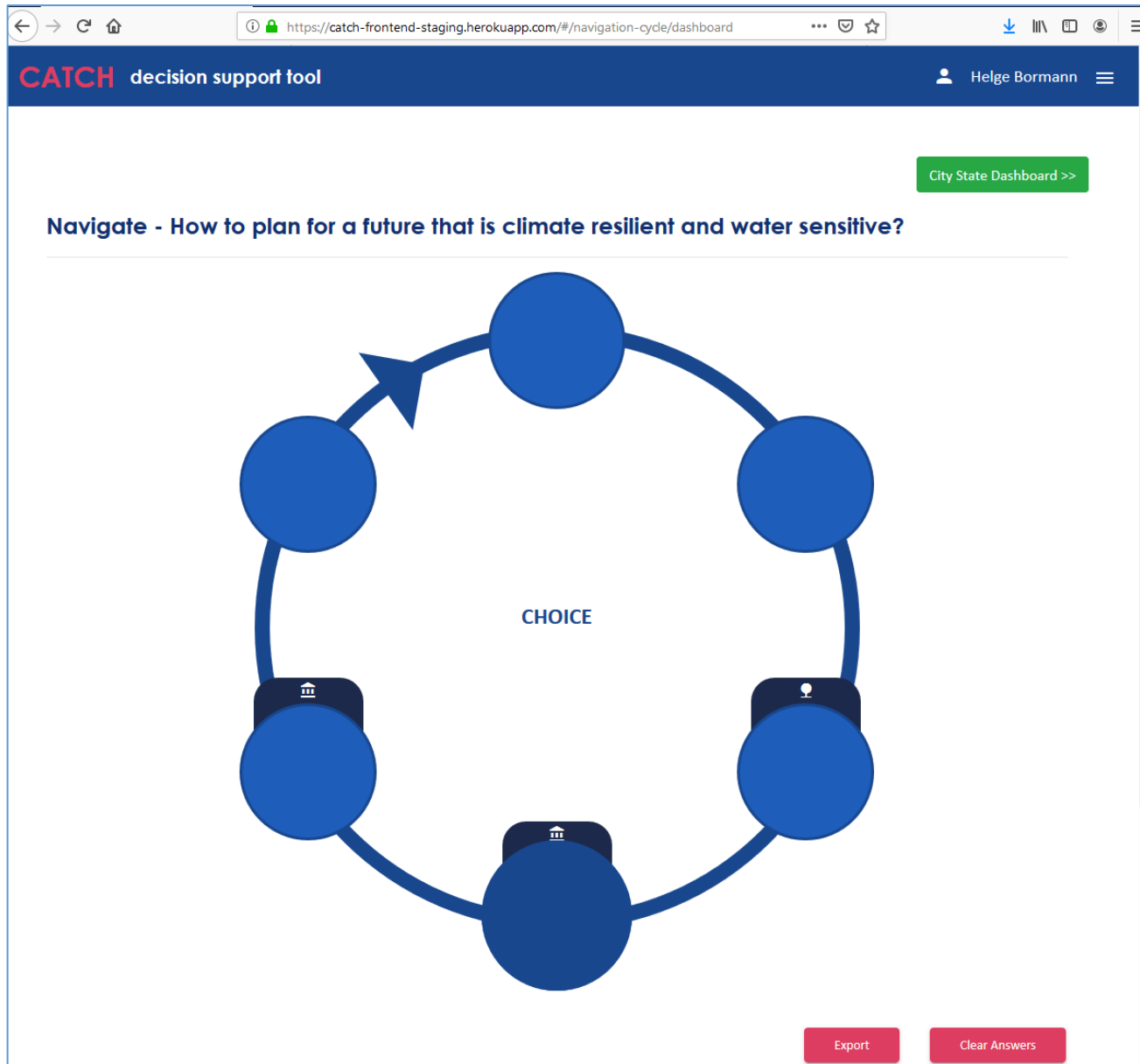
NO

<< Previous

Next >>



# Navigations-Tool





## *Lessons learned*

- Wetterextreme stellen Städte vor große Herausforderungen
- Mittelgroße Städte haben besondere Bedarfe
- CATCH adressiert diese spezifischen Bedingungen

## *Der CATCH Klimaanpassungstool*

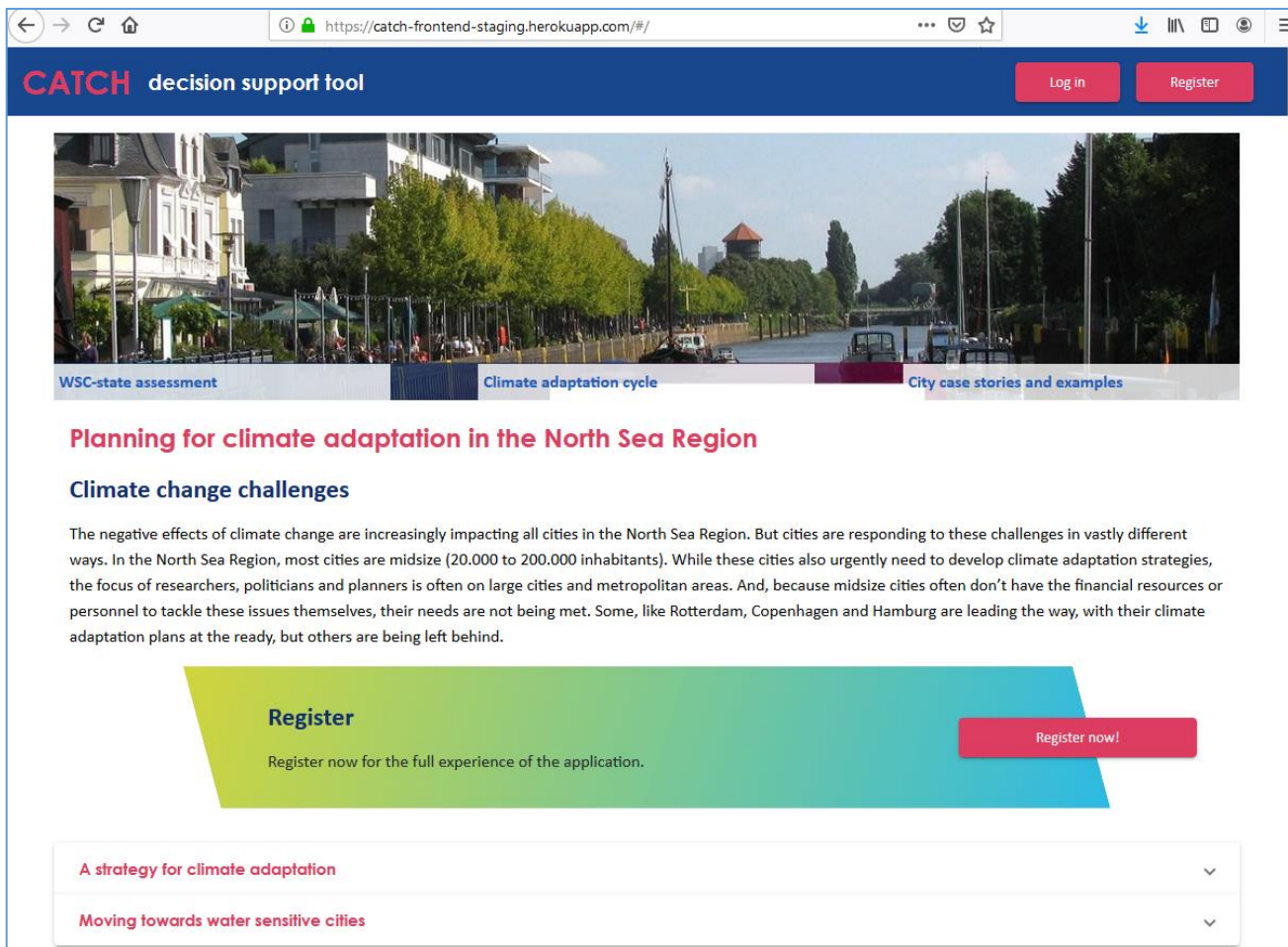
- ... spiegelt aktuelle Stärken und Schwächen der Nutzer\_innen wieder
- ... bietet die Möglichkeit zu Benchmarking und zum gegenseitigen Lernen
- ... unterstützt bei der strategischen Ausrichtung und der Maßnahmenentwicklung
- ... zeigt Beispiele guter Praxis aus Nordseestaaten
- ... ist frei verfügbar für alle interessierten Nutzer\_innen
- ... bietet Potenzial für eine Weiterentwicklung mit wachsender Nutzer-Community



# Transfer und Tests

*Blick in das Tool hinein*

<https://catch-frontend-staging.herokuapp.com/#/>



The screenshot shows a web browser displaying the CATCH decision support tool. The browser's address bar shows the URL <https://catch-frontend-staging.herokuapp.com/#/>. The website has a dark blue header with the text "CATCH decision support tool" and two buttons: "Log in" and "Register". Below the header is a large banner image of a waterfront city scene. Underneath the banner are three tabs: "WSC-state assessment", "Climate adaptation cycle", and "City case stories and examples". The "Climate adaptation cycle" tab is currently selected. The main content area has a heading "Planning for climate adaptation in the North Sea Region" followed by a subheading "Climate change challenges". The text below discusses the challenges of climate change for midsize cities in the North Sea Region. At the bottom, there is a green and blue banner with the word "Register" and a "Register now!" button. Below this banner are two expandable sections: "A strategy for climate adaptation" and "Moving towards water sensitive cities".

**CATCH** decision support tool

Log in Register

WSC-state assessment Climate adaptation cycle City case stories and examples

## Planning for climate adaptation in the North Sea Region

### Climate change challenges

The negative effects of climate change are increasingly impacting all cities in the North Sea Region. But cities are responding to these challenges in vastly different ways. In the North Sea Region, most cities are midsize (20.000 to 200.000 inhabitants). While these cities also urgently need to develop climate adaptation strategies, the focus of researchers, politicians and planners is often on large cities and metropolitan areas. And, because midsize cities often don't have the financial resources or personnel to tackle these issues themselves, their needs are not being met. Some, like Rotterdam, Copenhagen and Hamburg are leading the way, with their climate adaptation plans at the ready, but others are being left behind.

**Register**

Register now for the full experience of the application.

Register now!

A strategy for climate adaptation

Moving towards water sensitive cities



*Hinweise und Fragen sind sehr willkommen*

Dipl.-Ing. Mike Böge

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**Technologie**

Institut für Rohrleitungstechnologie (IRT)

an der JADE HOCHSCHULE  
Wilhelmshaven/Oldenburg/Elsfleth





# Diskussion

**Interreg**  
North Sea Region  
**CATCH**  
European Regional Development Fund



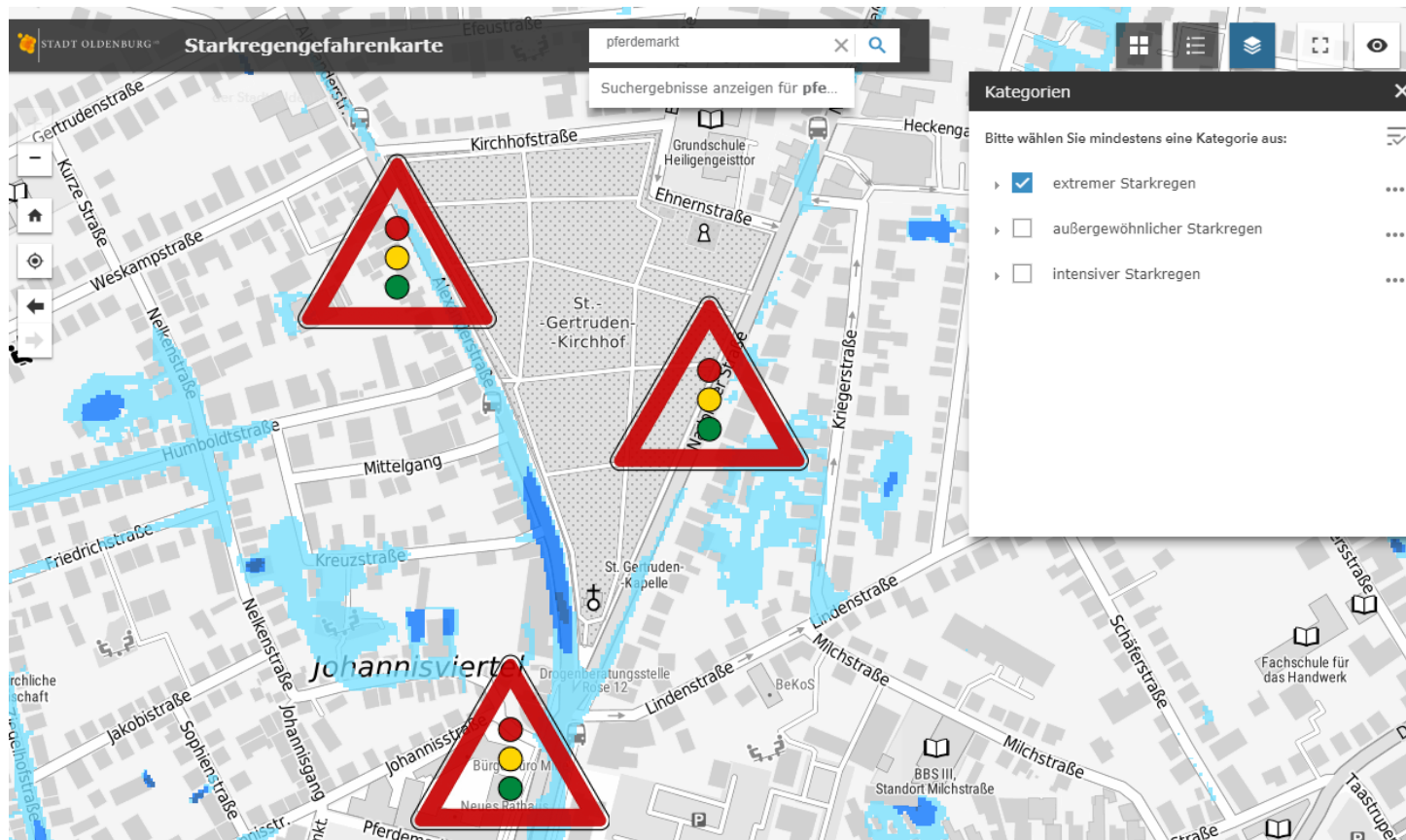
**JADE HOCHSCHULE**  
Wilhelmshaven Oldenburg Eilsfleth





# Pilotprojekt in Oldenburg

## Aufbau eines Verkehrsinformationssystem

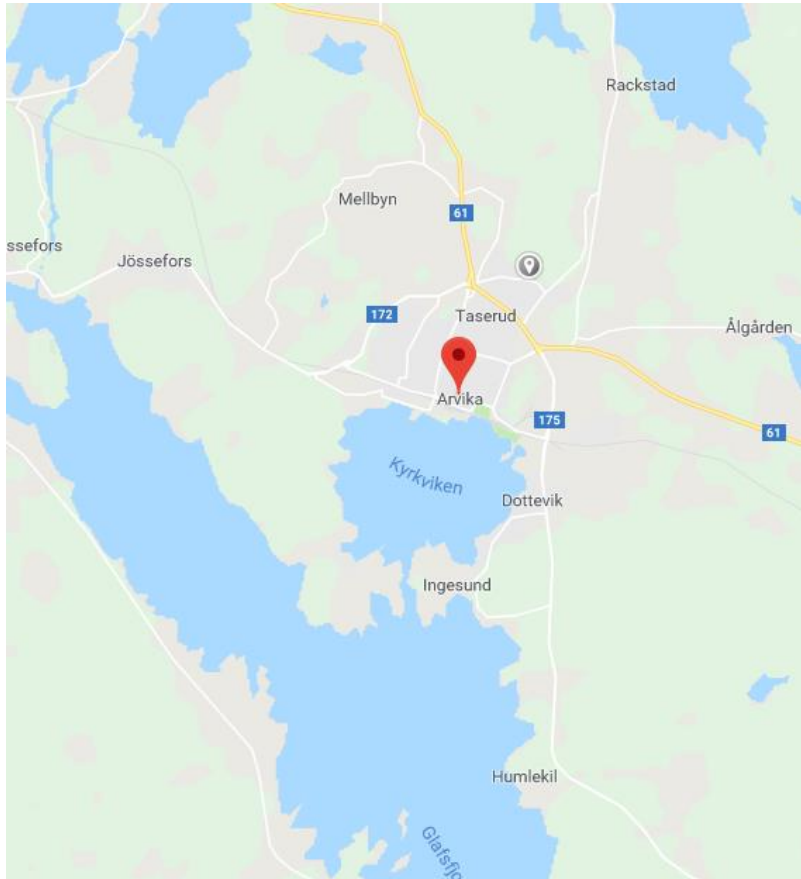


<https://gis4ol.oldenburg.de/Starkregengefahrenkarte/index.html>



# Pilotprojekt in Arvika

## *Filterbarrieren zur Eindämmung der Eutrophierung des Sees „Kyrkviken“*



<https://northsearegion.eu/catch/pilot-projects/>

<https://www.google.com/maps>



# Pilotprojekt in Herentals

## *Studie zur Wasserspeicherung bei Quartiers(neu-)entwicklung*



Signaalgebied Olympiadelaan - watertoetskaart

<https://northsearegion.eu/catch/pilot-projects/>



# Pilotprojekt in Enschede

*Neugestaltung eines Spielplatzes im Rahmen der Errichtung  
eines City-Bachlaufes*

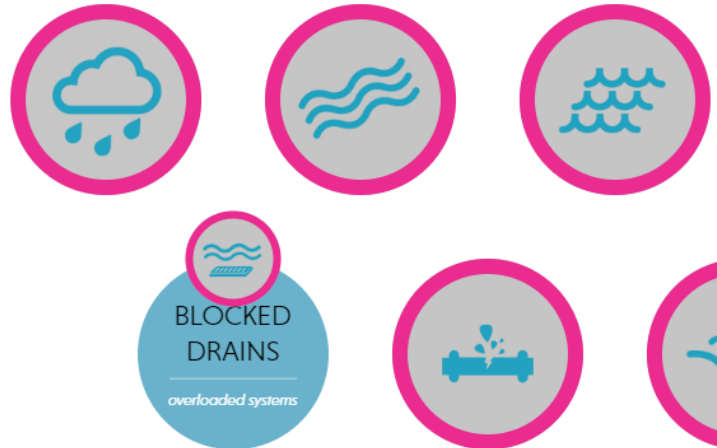


<https://northsearegion.eu/catch/pilot-projects/>



*Errichtung eines Bürgerinformationsprogrammes zur Schärfung des Bewusstseins – Kommune hilft bei technischer Umsetzung*

Sources of floodwater which may affect your





# Pilotprojekt in Zwolle

*virtuelle Stadtentwicklung (Serios Gaming)*



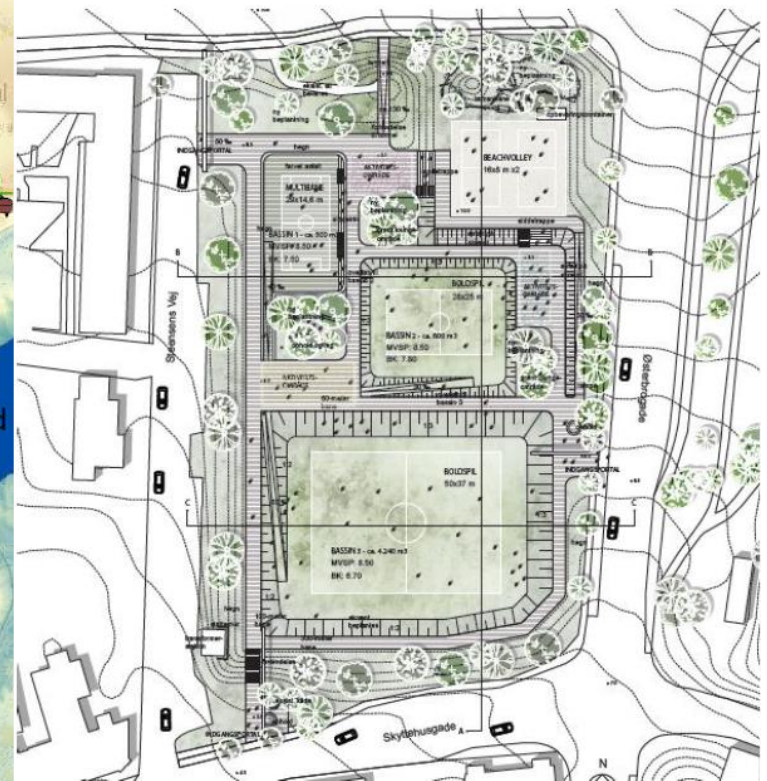
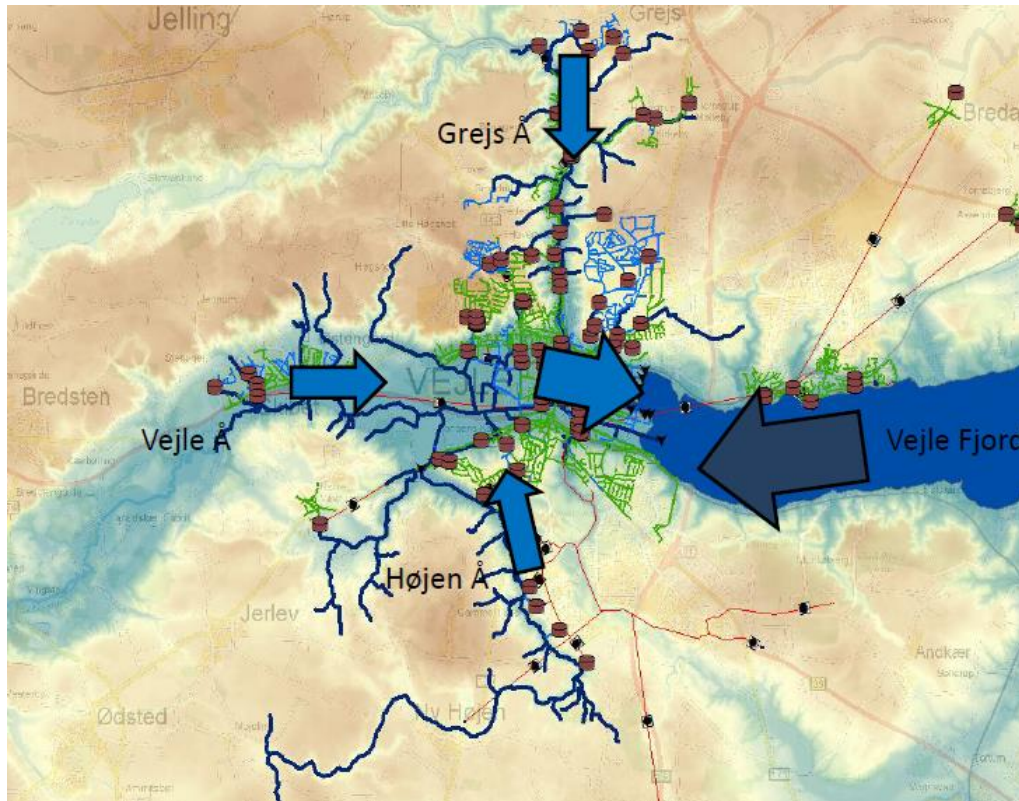
<https://www.ea.com>

<https://www.google.com/maps>



# Pilotprojekt in Vejle

*Verbesserung der Klima-Resilienz durch Schaffung multifunktionaler Flächen (Sportplatz)*





## Governance Einschätzung

Dimensions	Criteria			
	Completeness	Coherence	Flexibility	Pressure for Change
Levels and Scales	red	white	red	orange
Actors and Networks	orange			
Problem Perspectives and Goal Ambitions	green		orange	green
Styles and Instruments	green	orange		
Responsibilities and Resources	orange		red	

Colours: **red**: restrictive; **orange**: neutral; **green**: supportive; **grey**: not important; **white**: We don't know



## Ökosystem Einschätzung

1	Basics	Is the concept urban ecosystem known among urban planners?	Yes
2		Do urban planners have knowledge of ecosystem services and their relevance?	Yes
3		Do the urban planners have skills to analyse ecosystem services of climate change adaptation measures?	No
4		Do the urban planners apply an integral inclusive approach towards too much water, too little water and city heat?	No
5	Advanced	Is knowledge on components of grey infrastructure, green infrastructure and blue infrastructure available?	Yes
6		Is there ample awareness of the benefits of green and blue inclusive strategies?	Yes
7		Are the available ready to use green and blue infrastructure building blocks well known?	No
8		Do urban planners have the knowledge and skills to elaborate and compare ecosystem services for alternative measures?	No
9		Are the tools for calculating costs and benefits in an efficient way known and available?	Yes
10		Is the knowledge how to secure inclusive climate change adaptation in policy, decision-making and implementation available?	No