



# EcorisQ Symposium

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20-8-2022

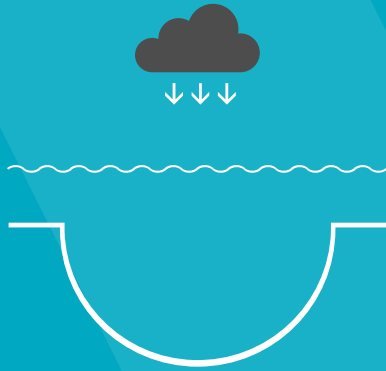


20-8-2022

Door het oog van de naald

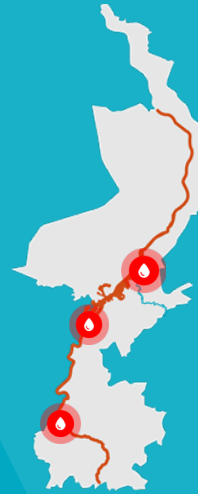
# July 2021: What happened?

Unprecedented combination of factors



Crisis 1

Rainfall South-Limburg  
1:500 1:1000



Crisis 2

50x water flow in  
streams



Crisis 3

Meuse discharge  
+/- 3300m<sup>3</sup>/sec

July 2021: Meuse valley

Minimal damage





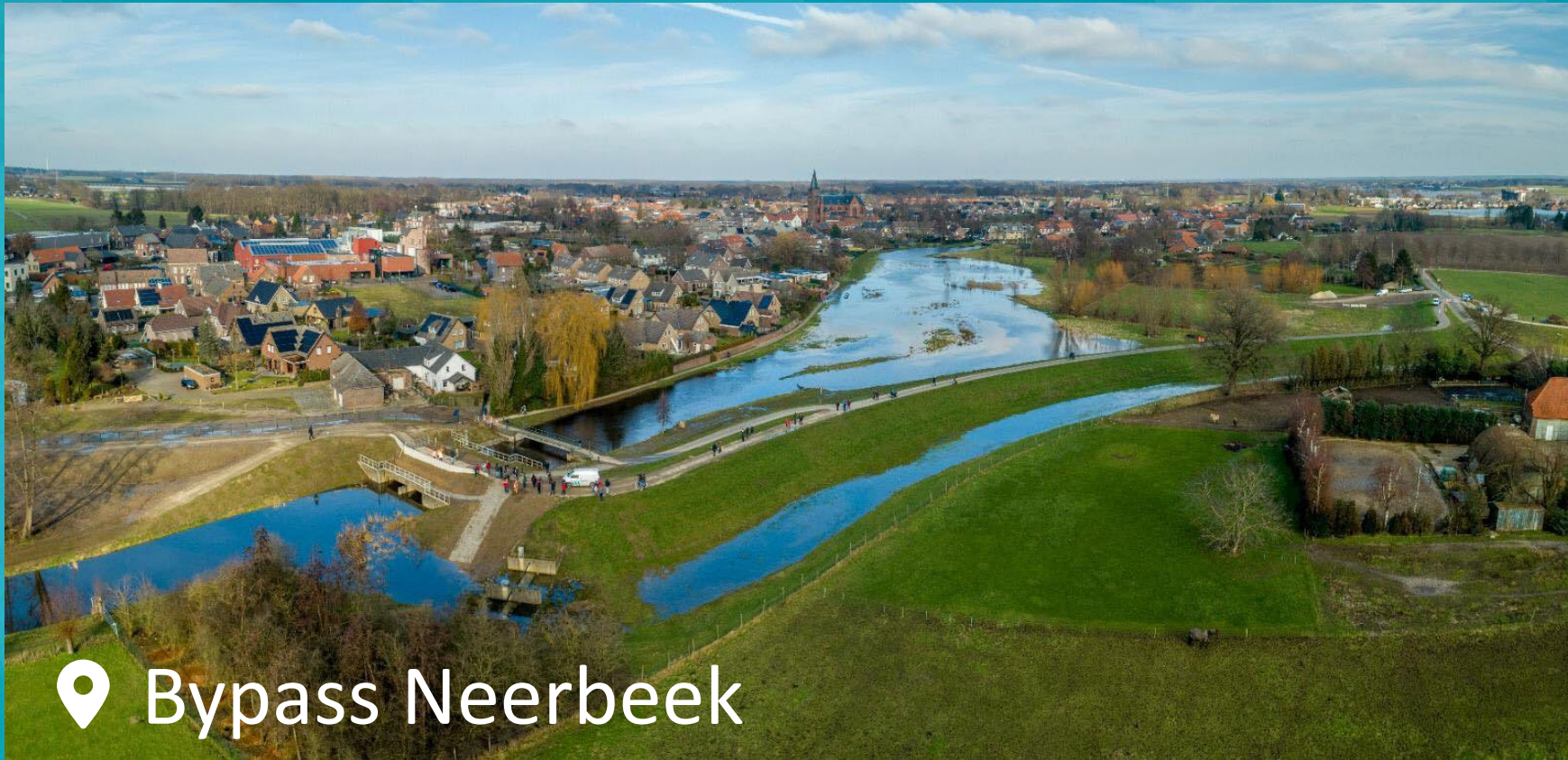
# July 2021: Meuse valley







# July 2021: Meuse valley







# July 2021: Meuse valley



 Ooijen-Wanssum

# July 2021: Meuse valley



Measures taken  
were effective



# 2021: Minimal damage?

What if...

- Winter?
- Windy?
- 10-15cm extra?





# 2021: Minimal damage?

What if...

- Winter?
- Windy?
- 10-15cm extra?
- 1995 all over?



1995

# Flood protection standards

**1:100**

-

A quick historic perspective

# July 2021: Meuse valley





# January 1995: Meuse valley



# December 1993: Meuse valley



1993



# January 1926: Meuse valley



97 years  
4x 1:100

1926



# 2021: Minimal damage?

**Sub-conclusion I:**

Review the standards of the main system

# July 2021: Regional system

Two crises:  
Local rainfall and stream capacity



# Flooding of streams

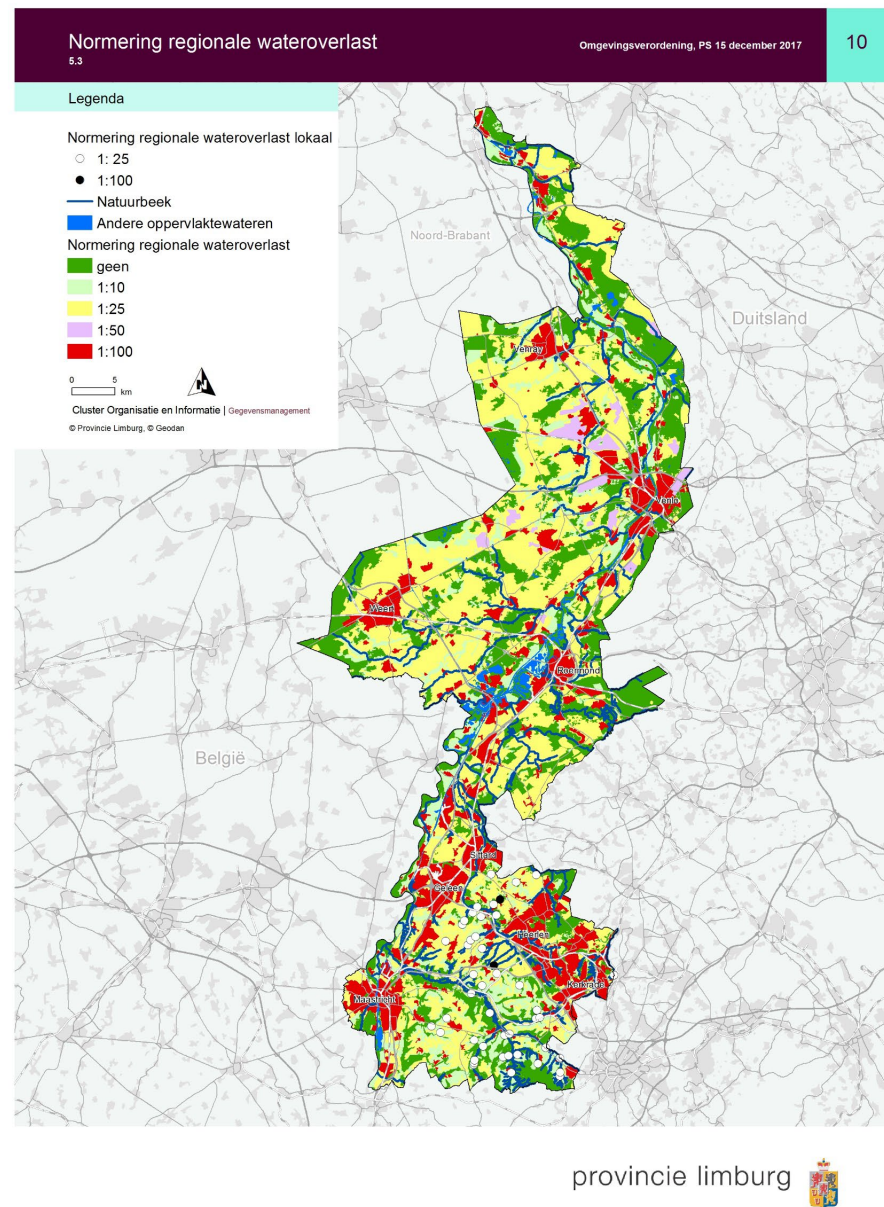
## Rainfall:

- Wallonia:  
100-140mm
- Germany:  
140-240mm

Stream	Normal discharge	Peak discharge
Geul	2m <sup>3</sup> /s	100m <sup>3</sup> /s
Gulp	0,25m <sup>3</sup> /s	15m <sup>3</sup> /s
Geleenbeek	1m <sup>3</sup> /s	30m <sup>3</sup> /s
Roer	12m <sup>3</sup> /s	250-300m <sup>3</sup> /s

# Regional flood protection standards

- 0 Nature
- 1:10 Grassland
- 1:25 Agriculture
- 1:50 Horticulture
- 1:100 Built-up area





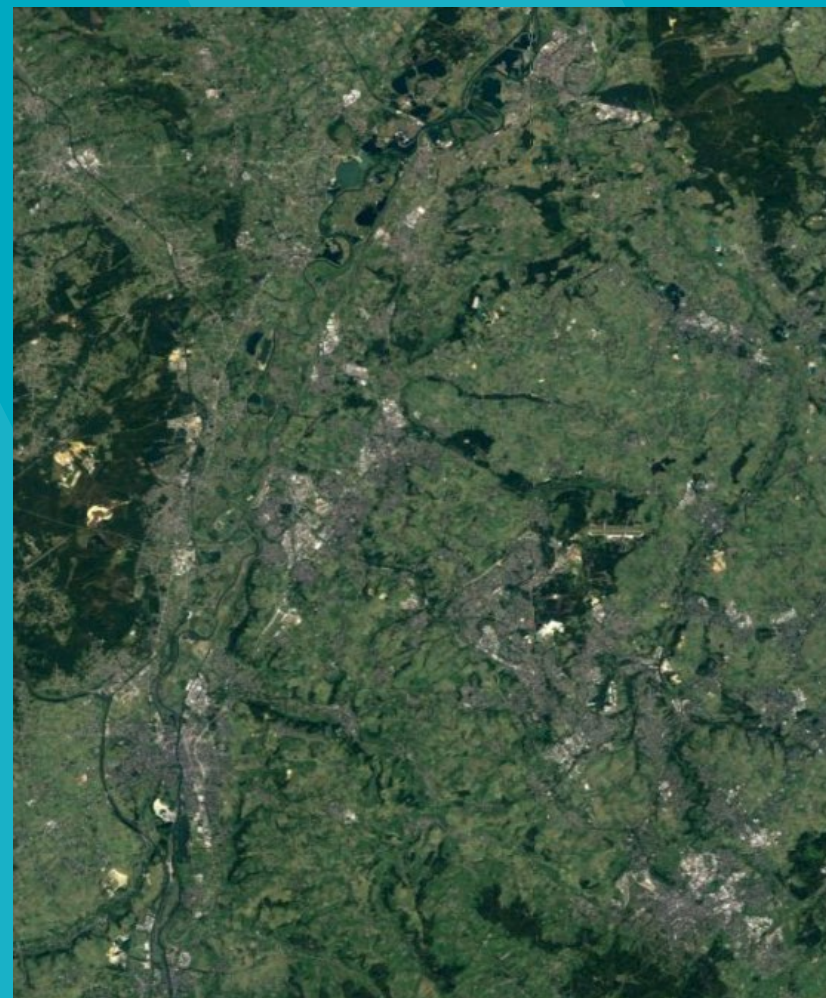
# Regional flood protection standards

South Limburg:

- Densely populated
- Valley landscape

Some built-up areas are  
therefore 1:25 (instead of 1:100)

Current standards are inadequate

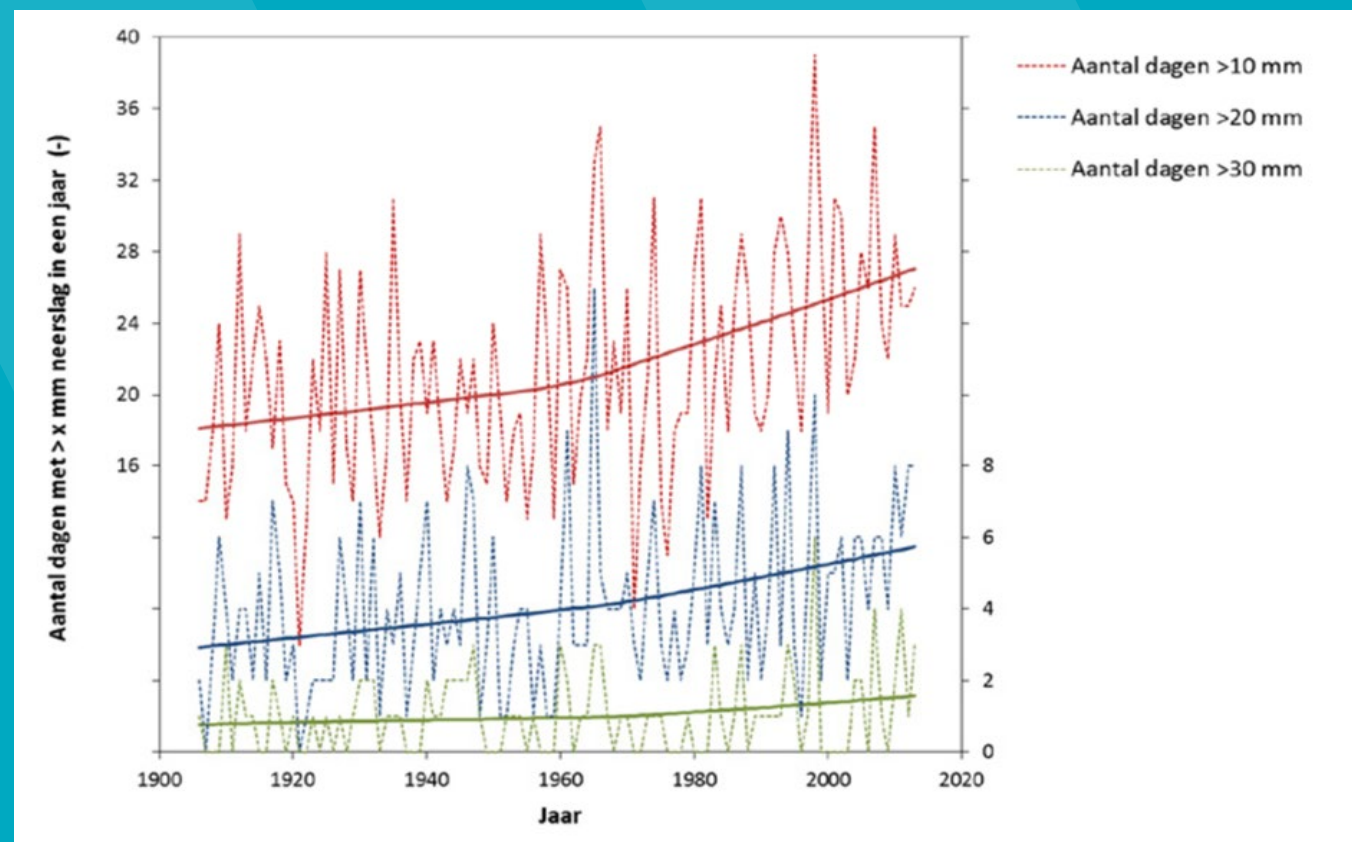


# Regional flood protection standards

A new reality:  
Climate change

**2021** 1:500 – 1:1000

**2050** 1:100





# Regional flood protection standards





# Regional flood protection standards

Sub-conclusion II:

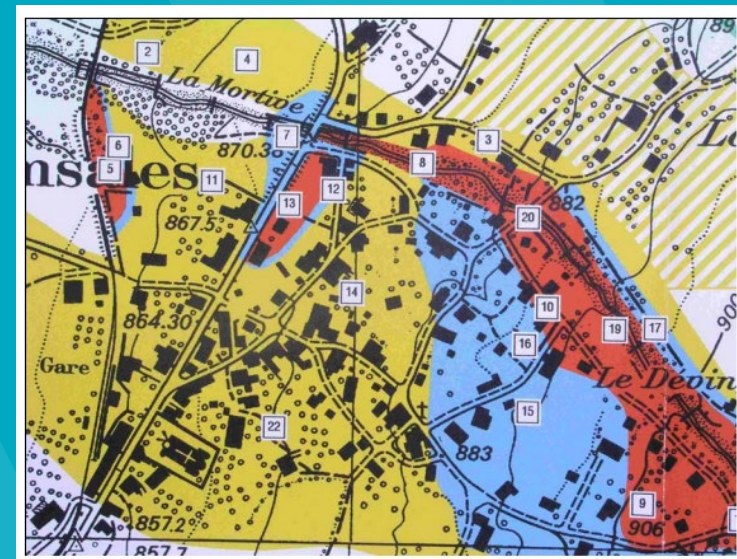
Review the standards of the regional system

# What to do?

## Review the standards

### How to do it?

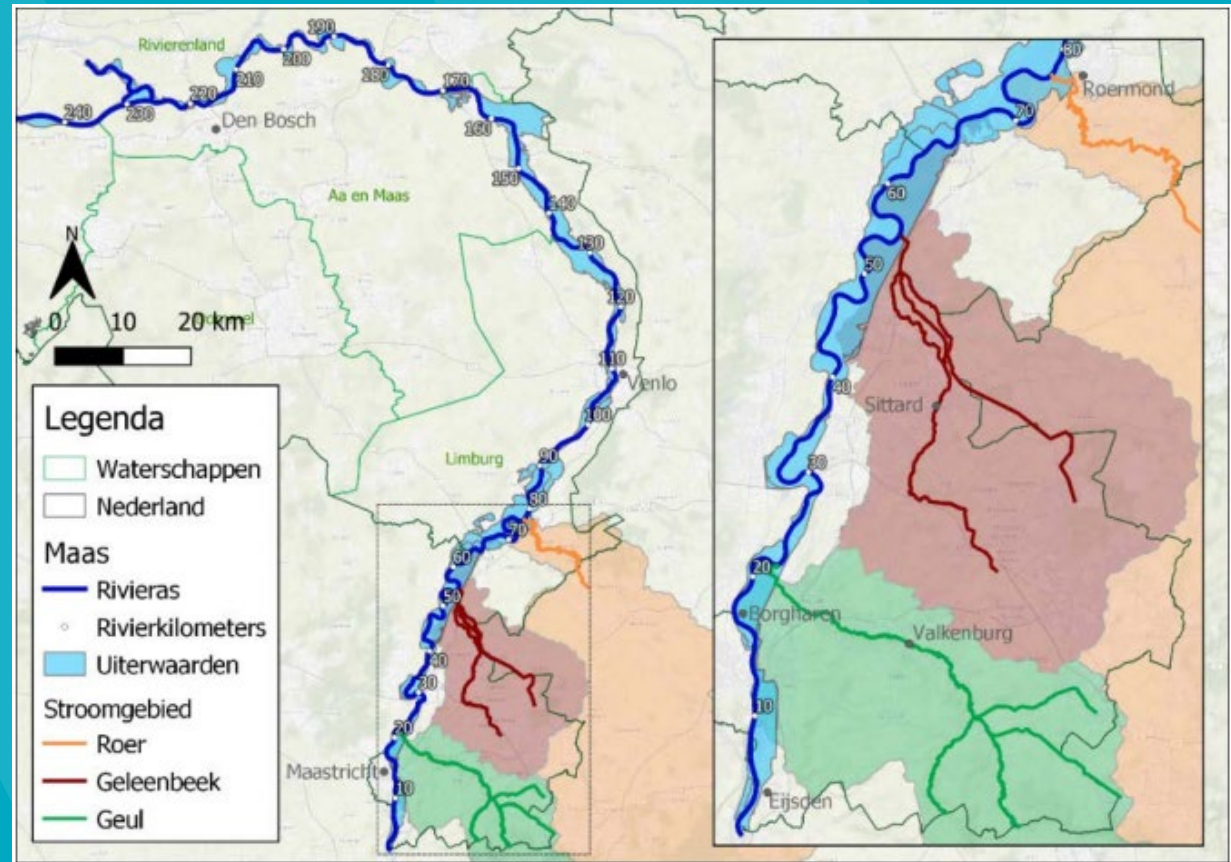
- Adapt the standards to the new reality
- A new system:
  - Location based -> Risk based
  - Swiss system?



# What to do?

The local system and the main system also interact:

Take into account larger discharge from streams when predicting Meuse water levels





# What to do?

Sub-conclusion III:

The Meuse and the regional system cannot be seen separately

# What to do in the future?

A one-dimensional solution to water safety is not sufficient

# What to do in the future?

Create solutions that integrate...

- Water safety
- Nature
- Recreation
- Economy
- Livability
- Sustainability
- Spatial planning



# What to do in the future?

**Sub-conclusion IV:**  
Examine the bigger picture

**Area-Oriented Approach**  
Centered on water and land use

# Area-Oriented Approach

## Four conclusions:

- I. Review the standards of the main system
- II. Review the standards of the regional system
- III. The Meuse and the regional system cannot be seen separately
- IV. Area-Oriented Approach

Further **development** requires further **knowledge**



Thank you for providing the

expertise,  
knowledge,  
help,  
and inspiration

Together we can find solutions for the challenges of tomorrow