



# Free-flowing rivers in the Netherlands

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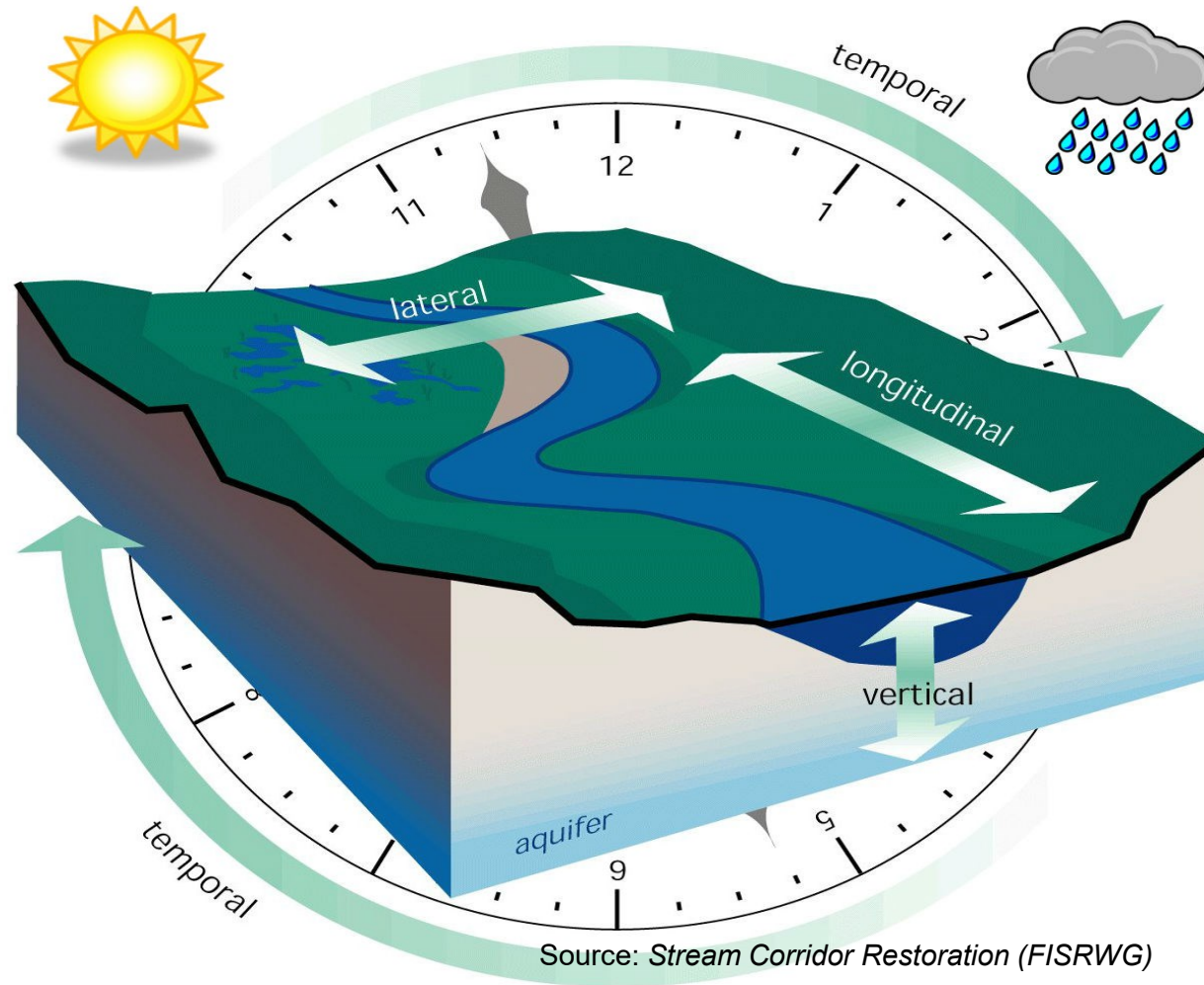
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# Does the Netherlands have free-flowing rivers?



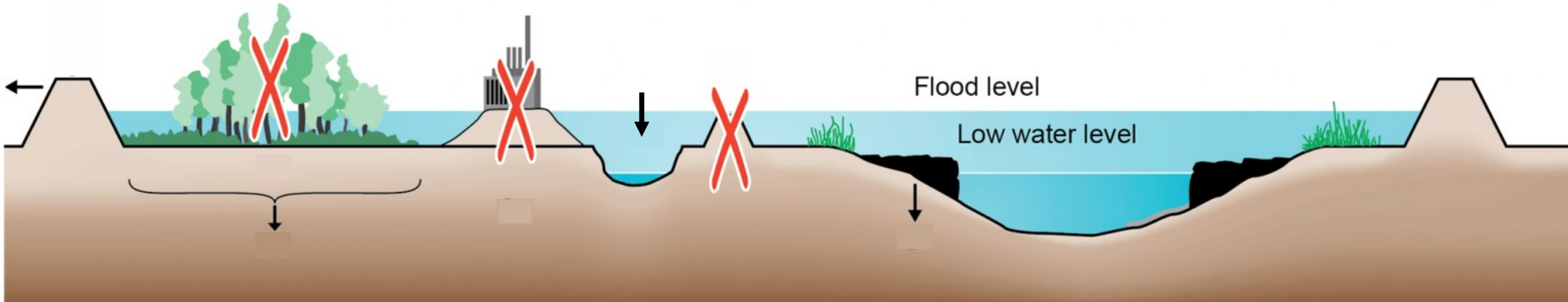
Source: Stream Corridor Restoration (FISRWG)





# Room for the River: 2006 - 2017

Based on WWF's 'Living Rivers' concept: give the river (lateral) space by combining flood safety with spatial quality, incl. nature restoration



After Straatsma et al. (2019)



- 34 measures in 12 years, €2,3 billion
- 4 million people protected against floods
- 12.000 ha new river nature
- **Proof:** integral approach works



# But we face more socio-economic challenges, apart from flood risks

- ❖ Navigation challenges
- ❖ Droughts, affecting agriculture, water supply, nature
- ❖ Biodiversity crisis, especially rheofile species
- ❖ Climate change = more floods and droughts

**We seek an integral solution that creates:**

- More riverine nature
- More robust navigation
- Reduced impacts of floods and droughts

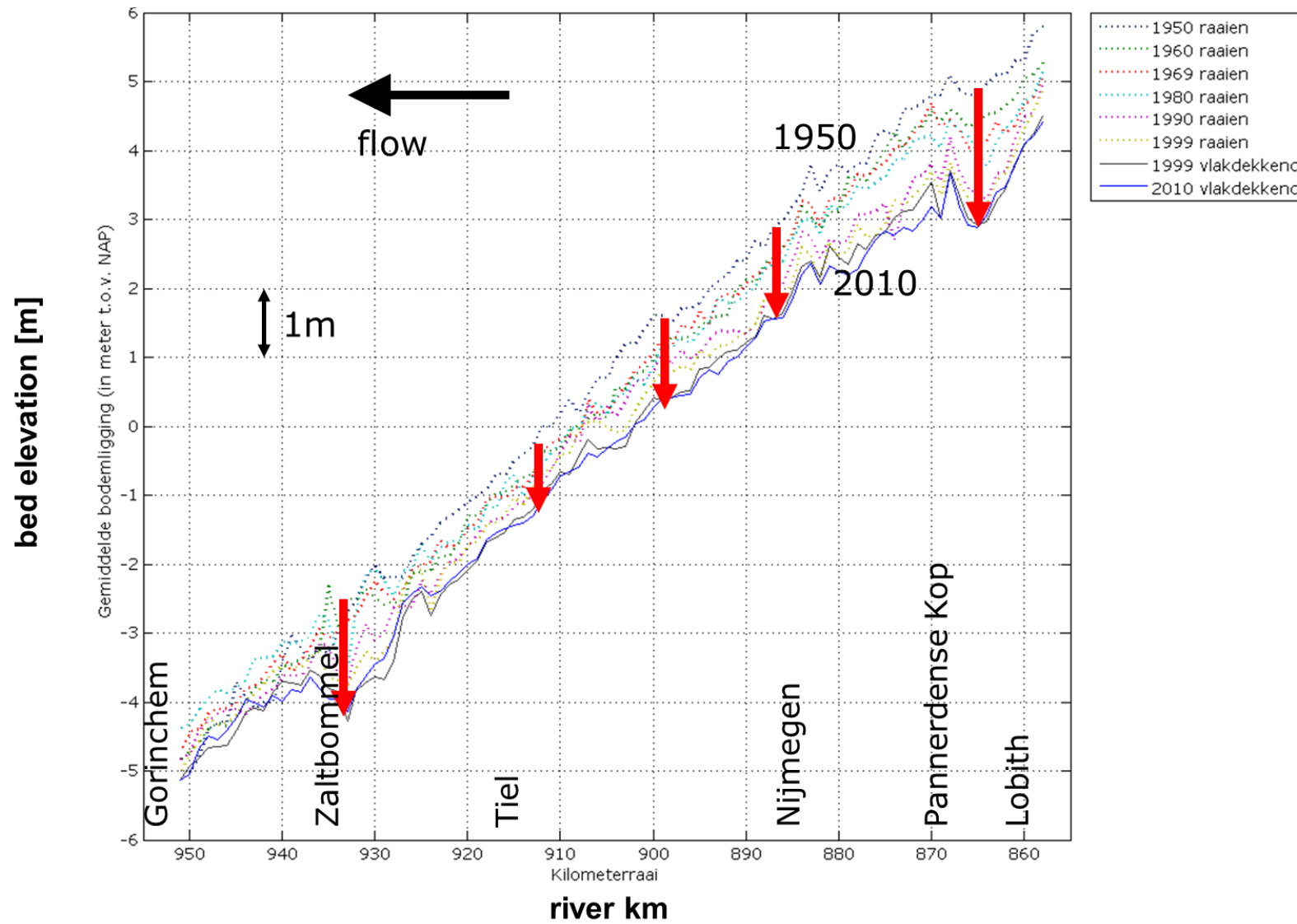


# Huge challenge: navigation, due to river bed erosion

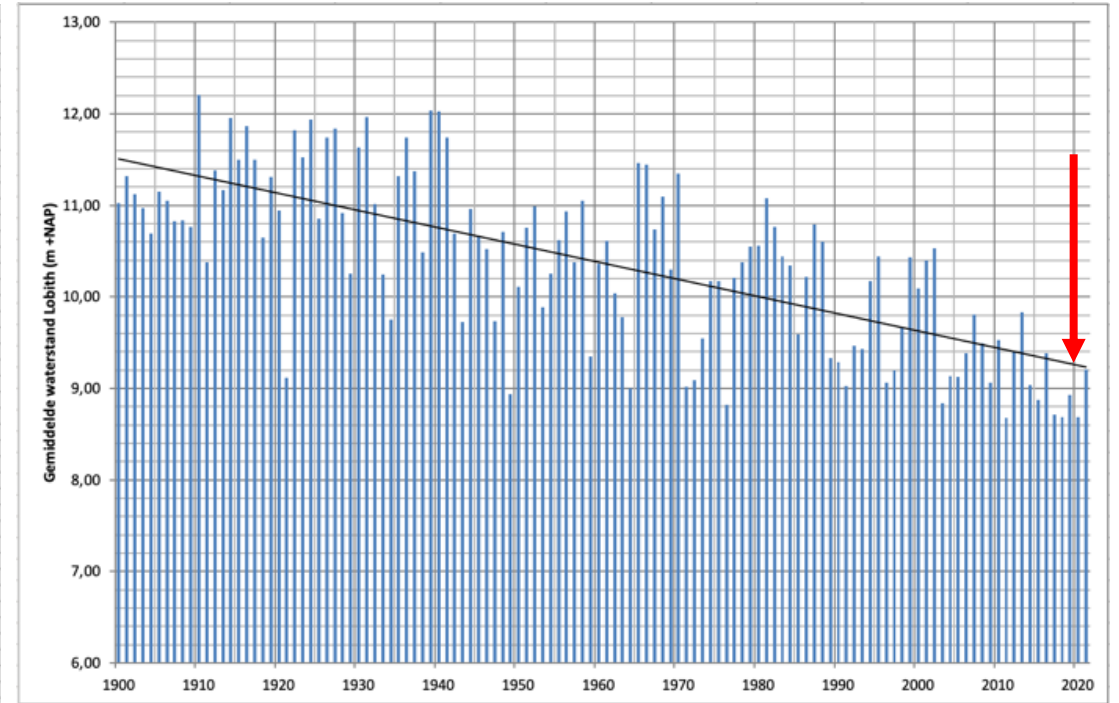
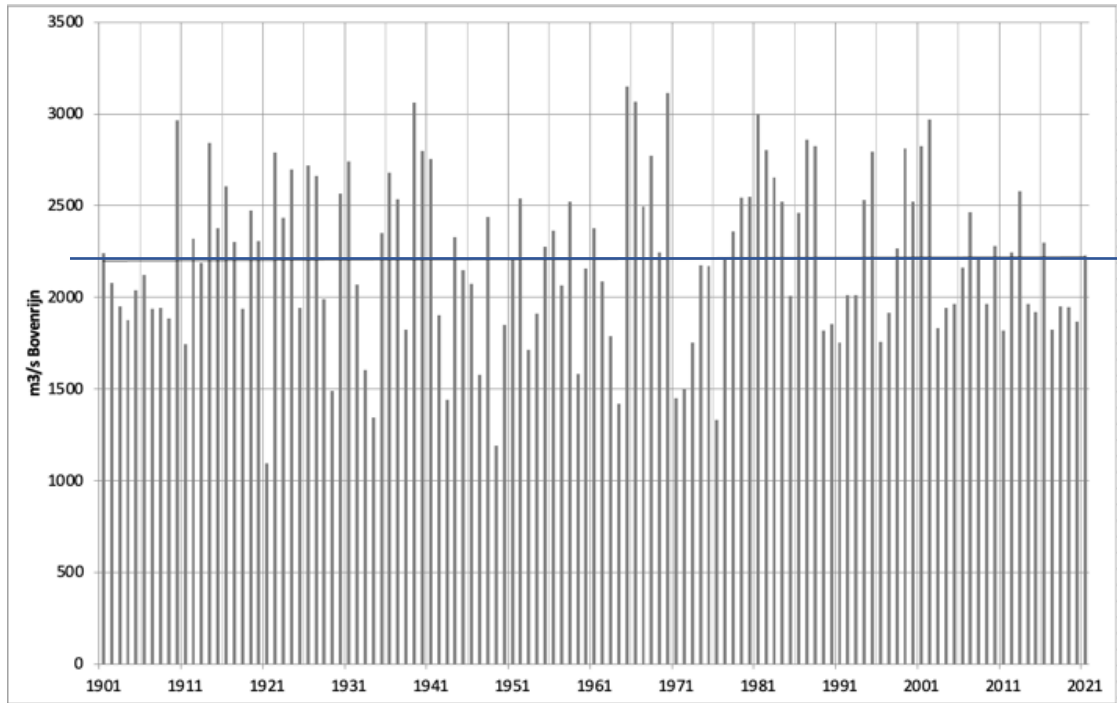




# River bed incision up to 2 meters in 60 years...



# River bed erosion of the River Rhine 1900-2020

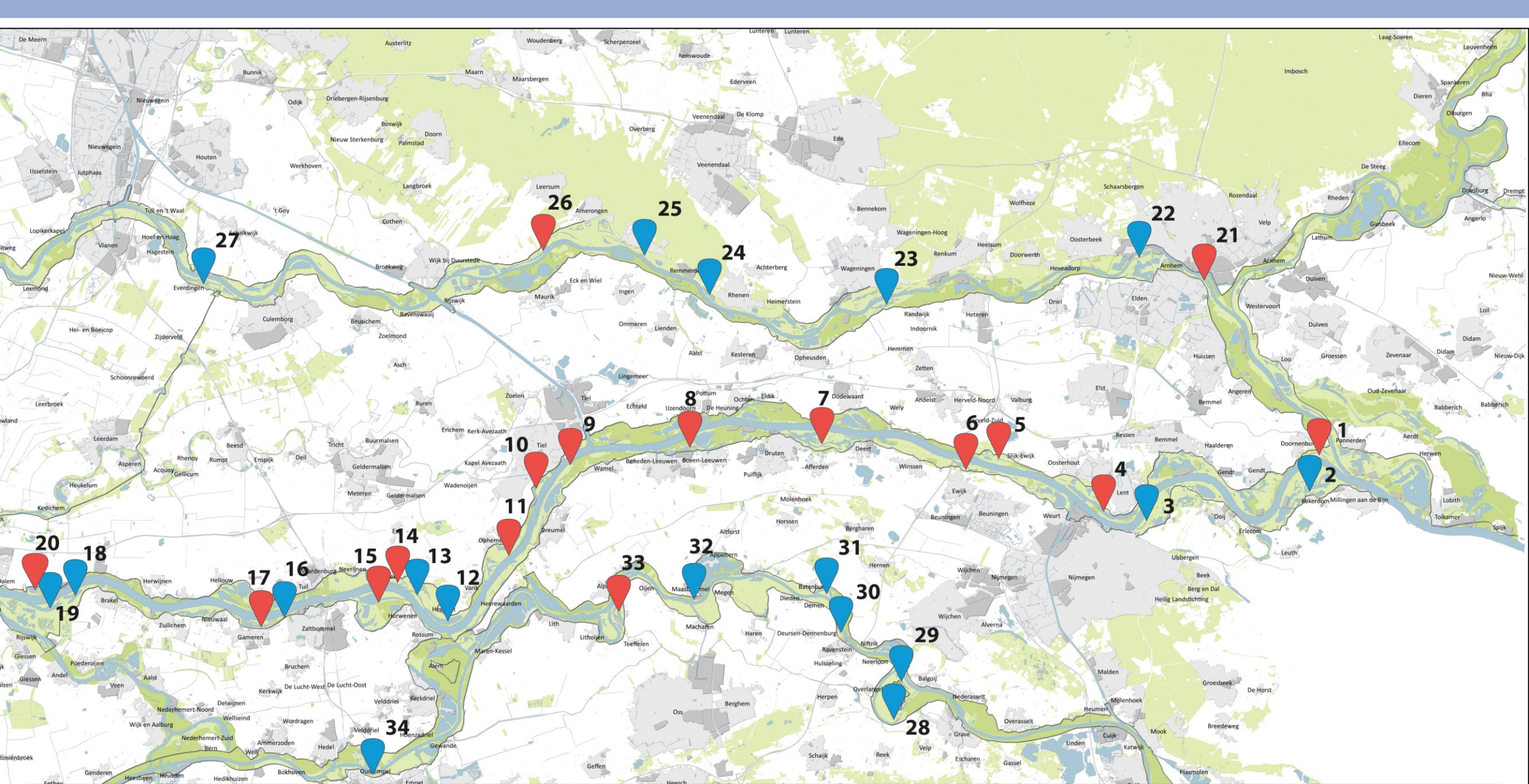


Left: Water discharge (m<sup>3</sup>/sec) of the River Rhine at Lobith  
Right: Water levels (m +NAP) of the River Rhine at Lobith



... affecting shipping, nature, agriculture





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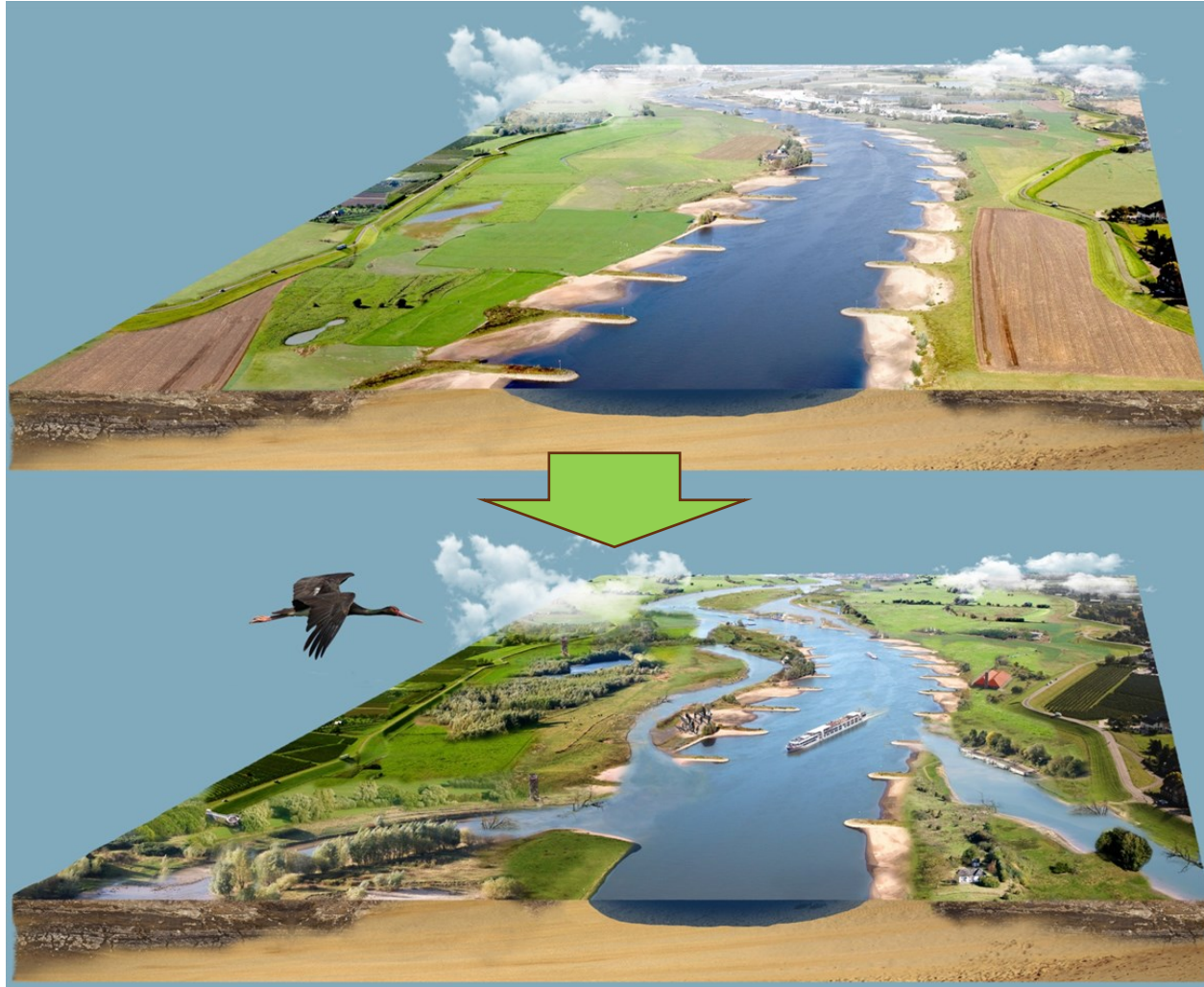


# Side-channels are allowed 1-3% of the river discharge; this is not enough to properly function ecologically

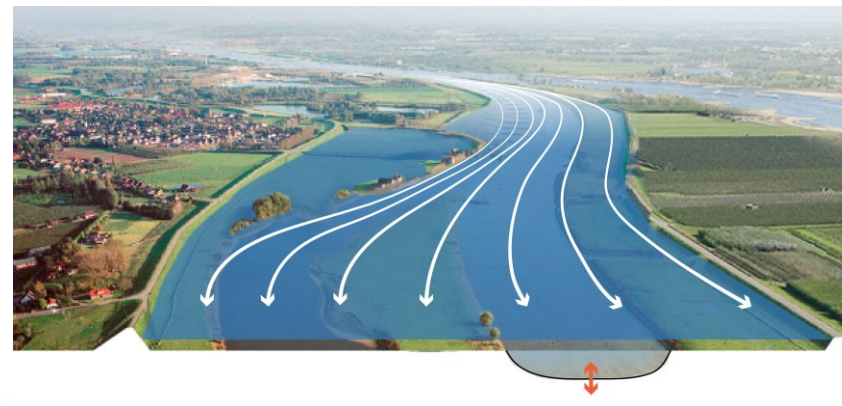
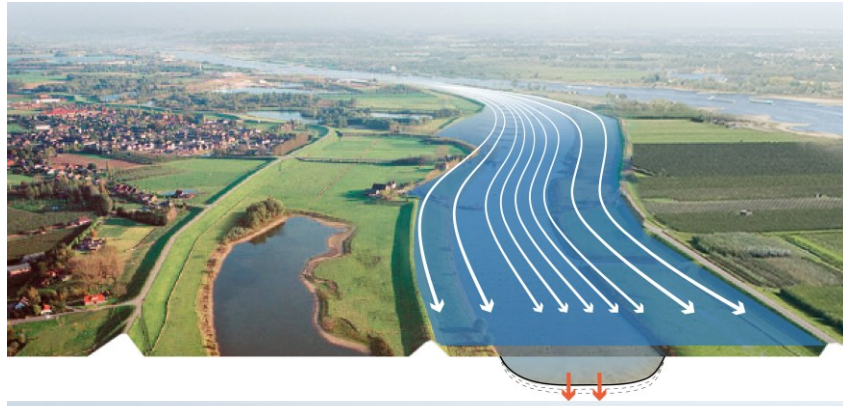
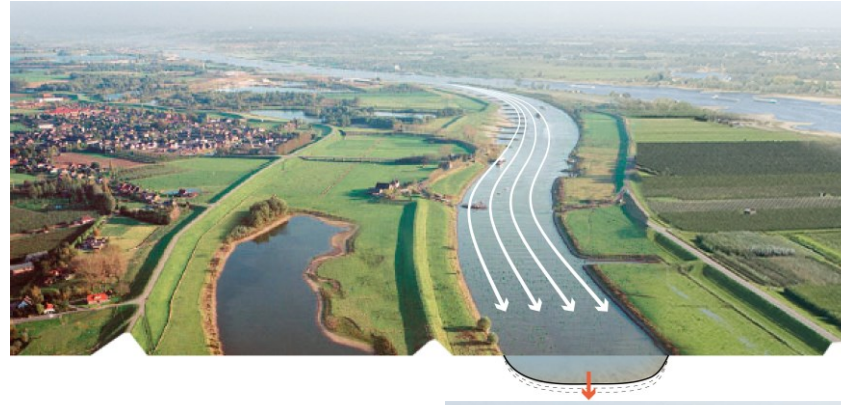
	Yearly chance of a channel without water	Yearly chance of a water depth <0,5 m	Average # days without water (1901-2023)	# days without water in the year 2018	# days without water in the year 2022
Ewijkse plaat	64%	83%	184 days	223 days	278 days



# River's nature, her navigation and agricultural users, they all need room for living rivers



# Let's support the river to use her energy wisely



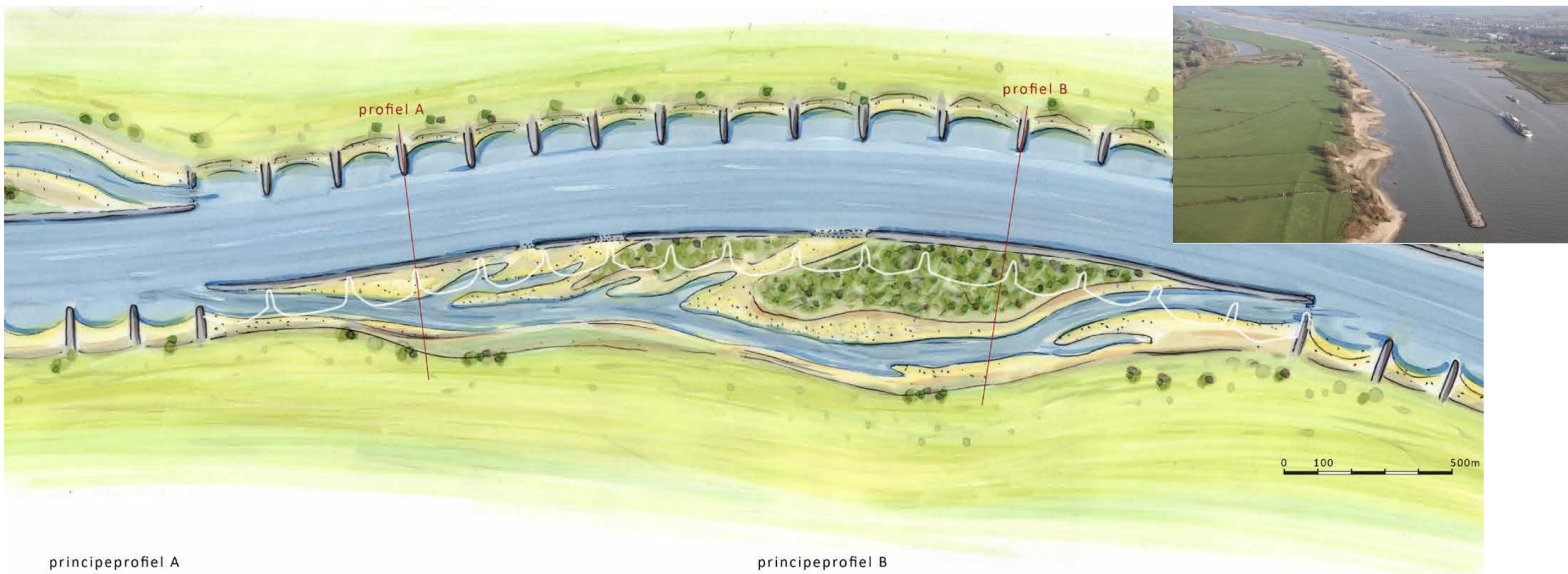
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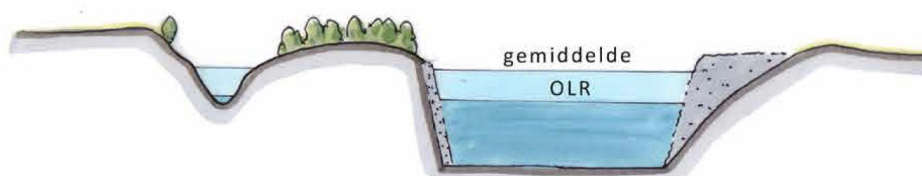
# Design of a side-channel that allows nature to be our ally in reducing river bed erosion and drought



principeprofiel A



principeprofiel B





# Room for Living Rivers provides:

**Agriculture**  
Less drought

**Nature**  
Less drought; more room for (aquatic/ rheofile) nature

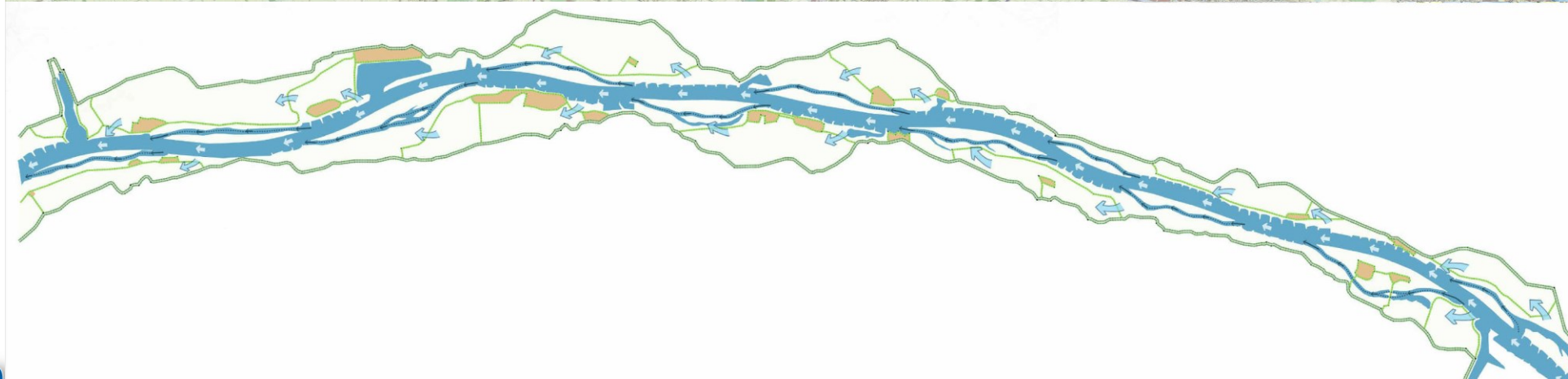
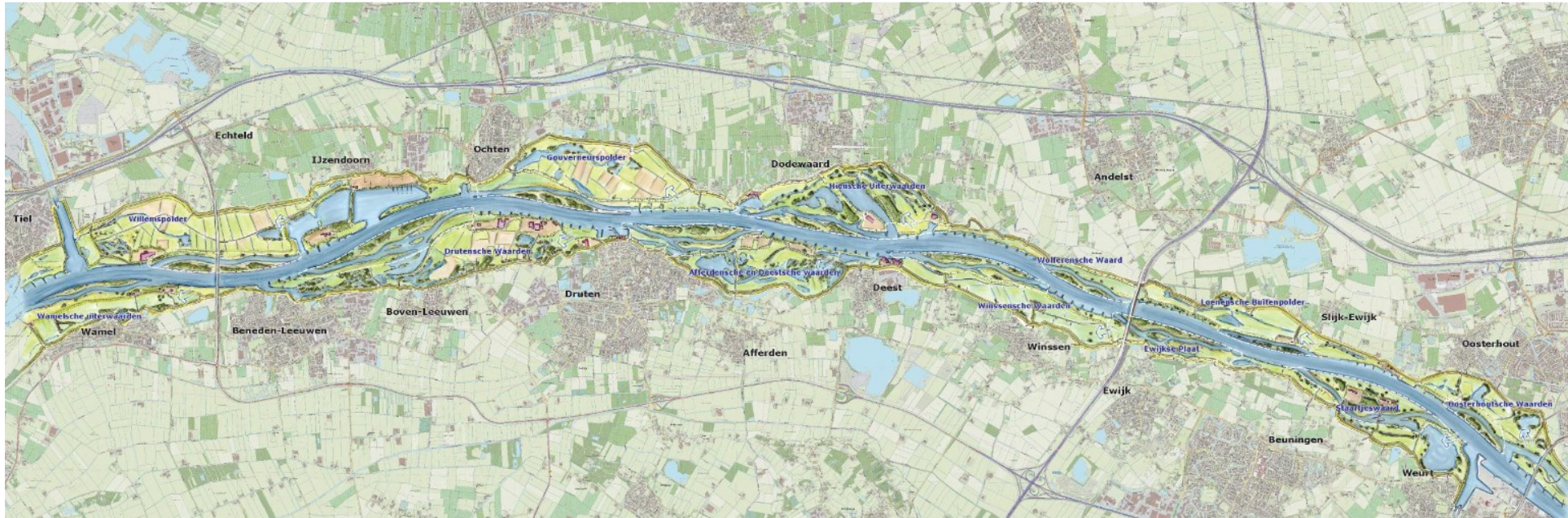
**Recreation**  
More spatial quality, more joy-opportunities

**Safety**  
More room for the river, flood reduction

**Shipping**  
Improved low-flow navigation



# String of RfLR-type side channels prevent river bed erosion and improve the nature of dynamic flood plains



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# Free-flowing rivers

go beyond  
just the  
Netherlands



Time for an  
Action plan



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A group of people are paddling canoes on a river. The river is surrounded by dense green trees and bushes on the left and right banks. A prominent dead, leafless tree stands on the right bank. The sky is clear and blue. The water is dark blue with some ripples. The canoes are in various colors, including red and yellow. The people are wearing casual summer clothing. The overall scene is peaceful and scenic.

**Flow free, if you dare**

**Thank you**