



PBL Netherlands Environmental
Assessment Agency

How to avoid social disruption

Options for the Dutch flood
risk management
policy to reduce the societal
risk

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What is social disruption?

- The ultimate goal of flood risk management policy
- Complex concept, many angels
- More than just damage and casualties
- Tangible and intangible assets
role of perception
- Casualties more important than damage



Role of risk perception

- Risk = probability * consequences
- Risk = probability + consequences

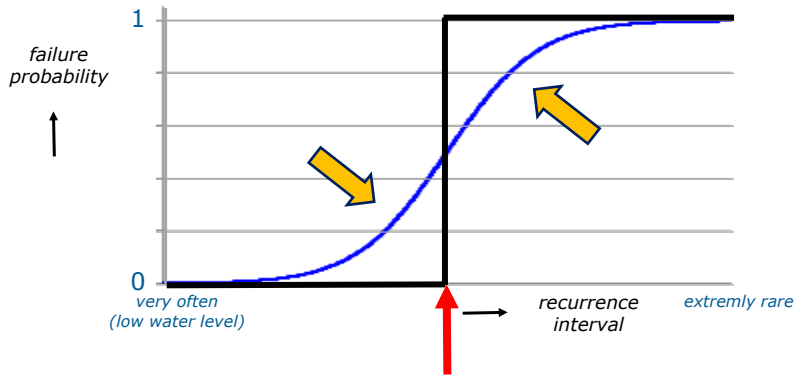


Options to reduce the number of casualties

- Spatial adaptation
 - flood proofing
 - raising of build-up areas
- Disaster emergency plans
 - leave (preventive evacuation)
 - shelter (vertical evacuation)
- Construction of levees
 - avoid surprises (piping)
 - height versus width



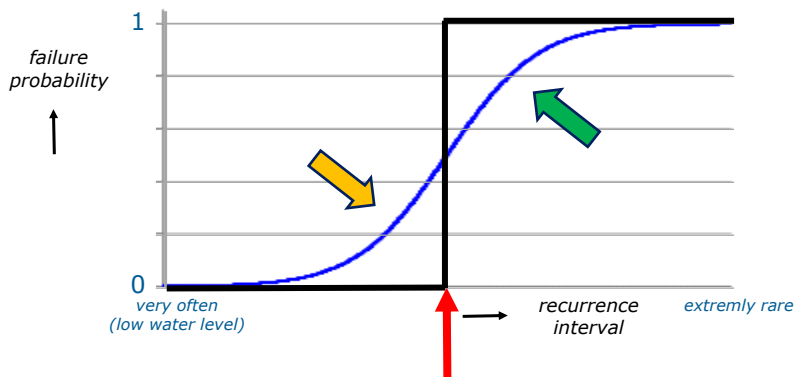
Probability of failure - casualties



5

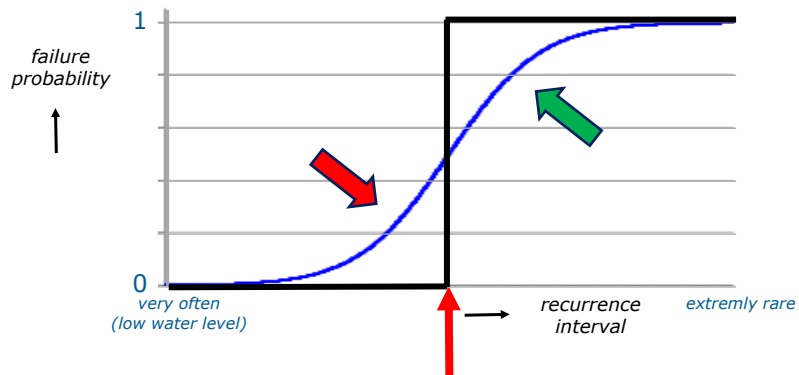


Probability of failure - casualties



6

Probability of failure - casualties



7



8

Breach or overtopping



413 km²
6-12 month flooded
7.25 mld econ. damage
182 thousand affected
933 casualties



192 km²
2 month flooded
0.91 mld econ. damage
28 thousand affected
34 casualties

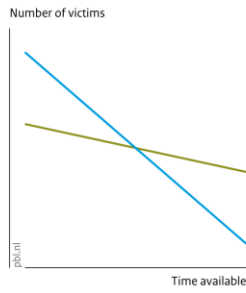
Flood risk standard based on number of casualties



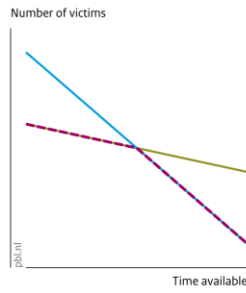


Effectiveness of evacuation

Vertical and horizontal evacuation



Evacuation according to adaptive evacuation strategy



- Vertical evacuation
- Horizontal evacuation (preventive)
- Evacuation according to adaptive evacuation strategy

11

Potential contribution of existing build-up and evacuation

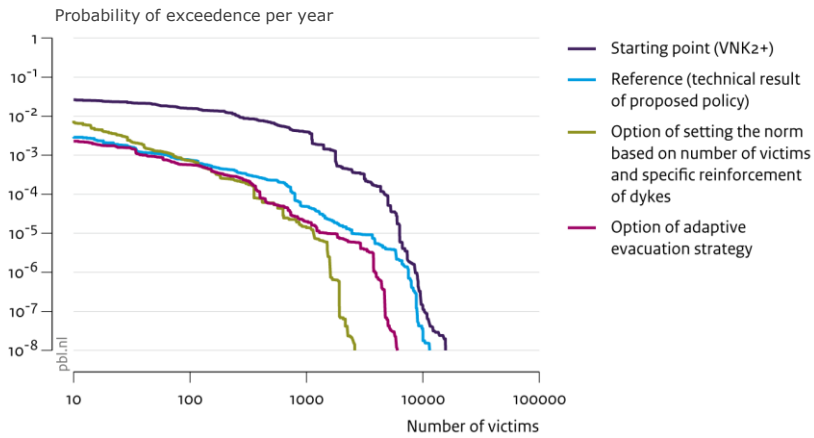


- 1
 - 2
 - 3
 - 4
 - 5-9
 - 10 and more
- Water depth in metres
- 0-1
 - 1-2
 - 2-4
 - > 4

12



Societal risk reduction



13



Thank you for your attention



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14



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Thank you for your attention