

hoogheemraadschap  
Hollands  
Noorderkwartier

# Water Safety anno 2030

## 'Towards continuous insight'

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- DAM-Live (PL: Niels Betten)



# Area

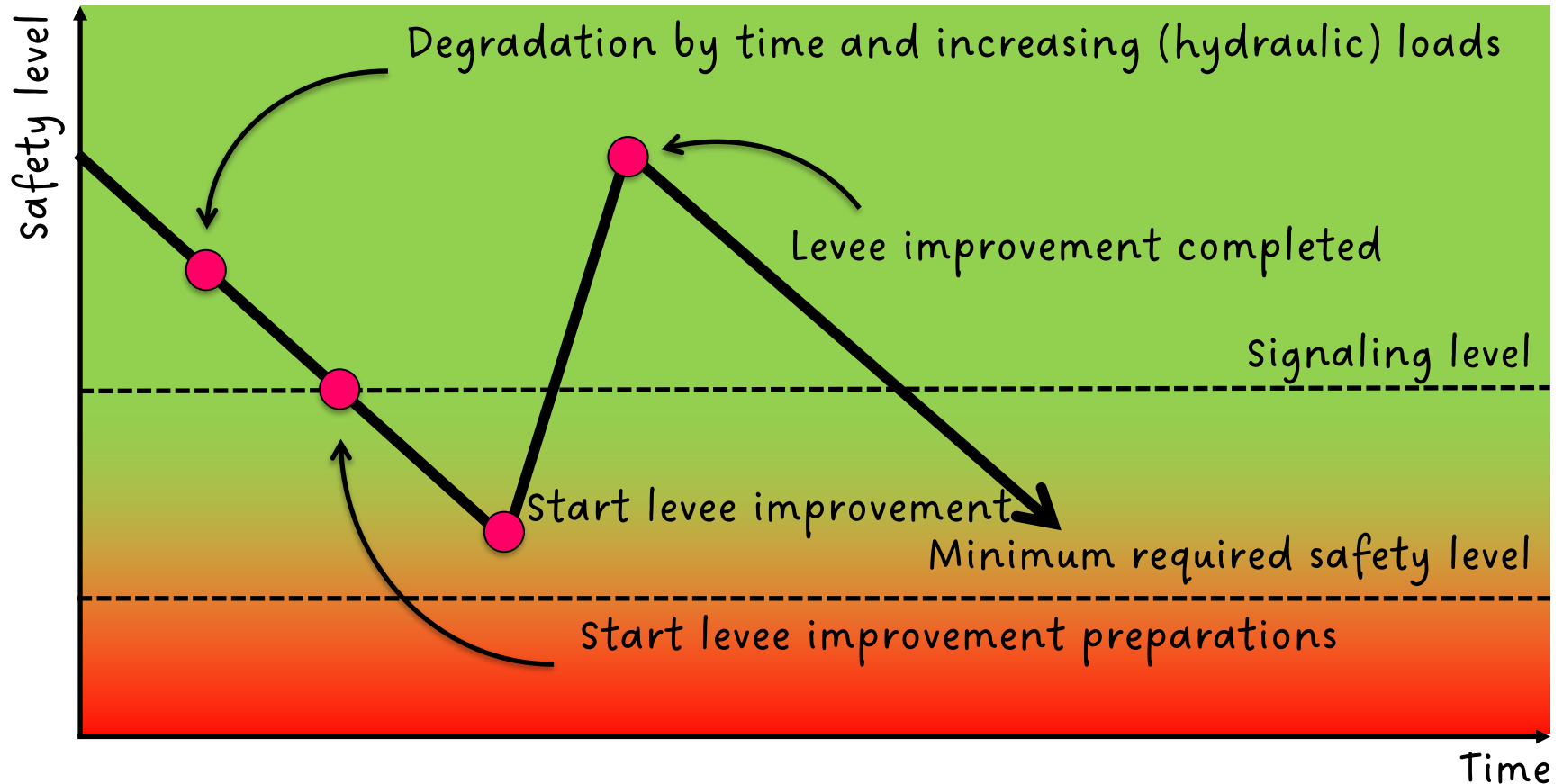
- Primary levees
  - +/- 270 km
  - +/- 100 objects
- Secondary levees
  - +/- 1065 km
  - +/- 1100 objects



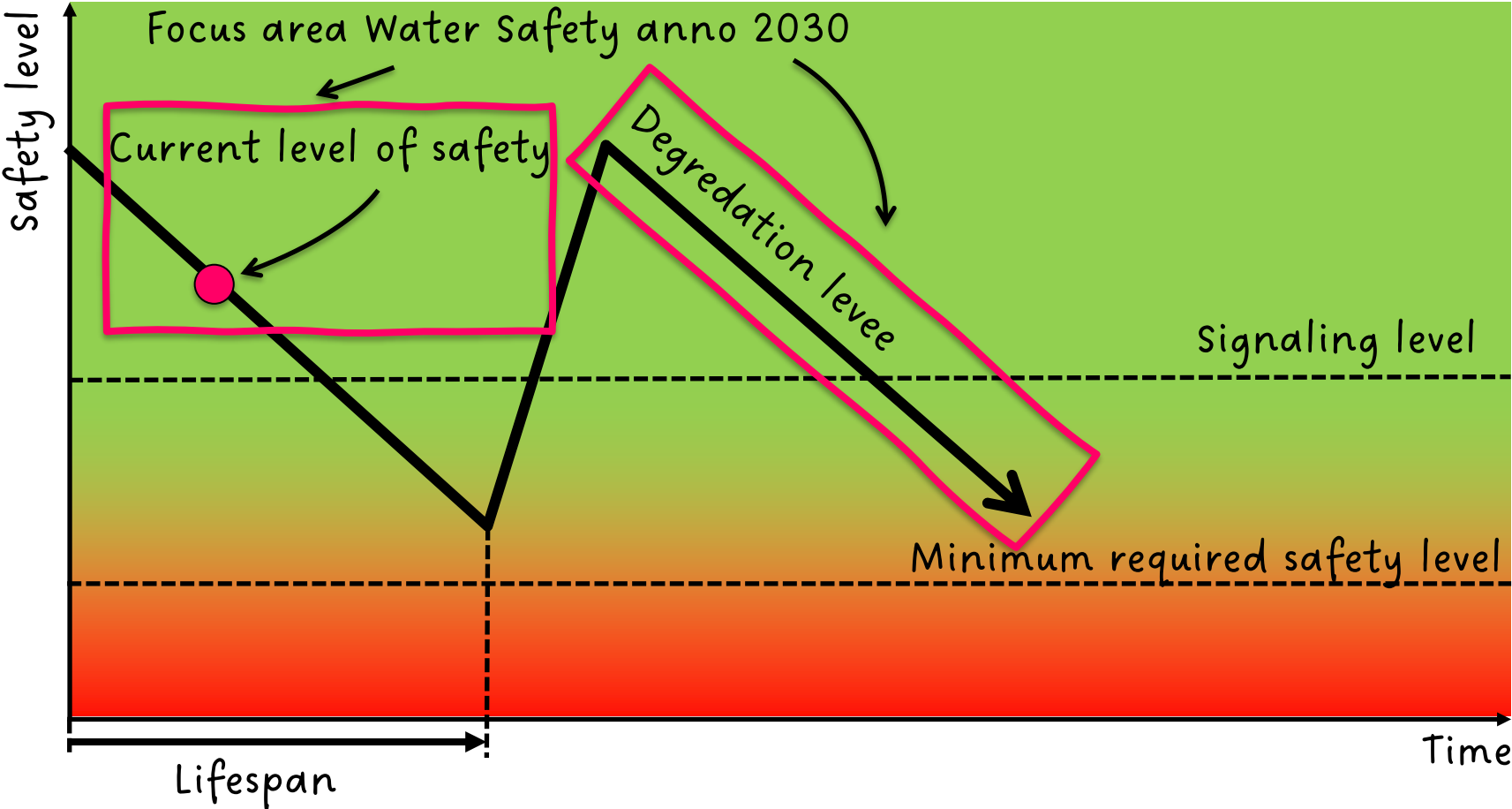
# What HHNK is working on

- Preventing levee status below safety norms by using continuous insight and **risk based management**.
- From 'snapshot' assessments to **continuously in control** for our duty of care (zorgplicht).
- Focusing on **changes relative to a baseline** and the effects on the assessment.
- Better understanding of the **behaviour** of levees (degradation, normative conditions), for which we measure, predict, interpret, calculate, visualize.
- Testing ground near Purmerend, after which we can scale up and differentiate in a risk based approach.

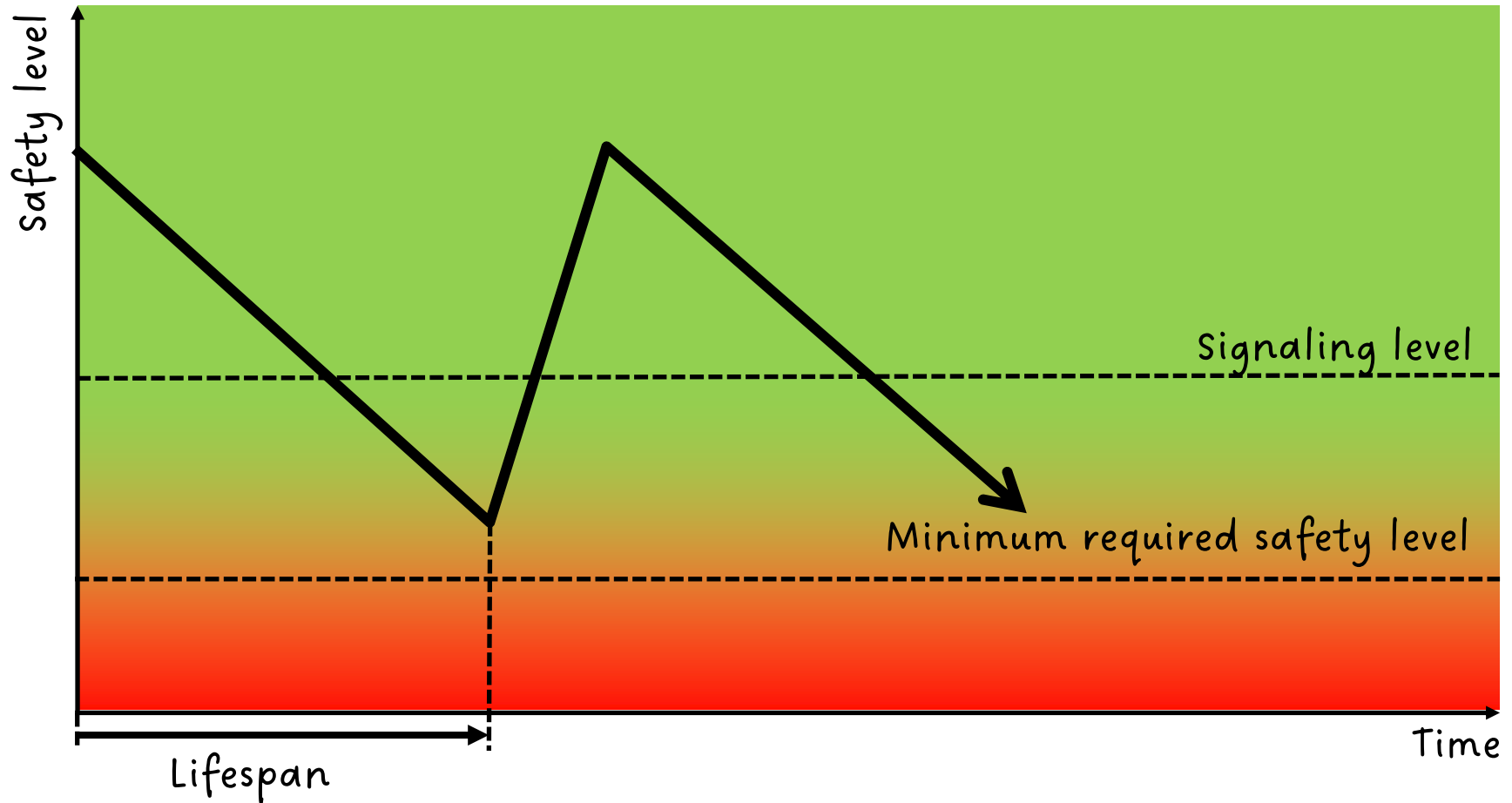
# Safety level during lifespan



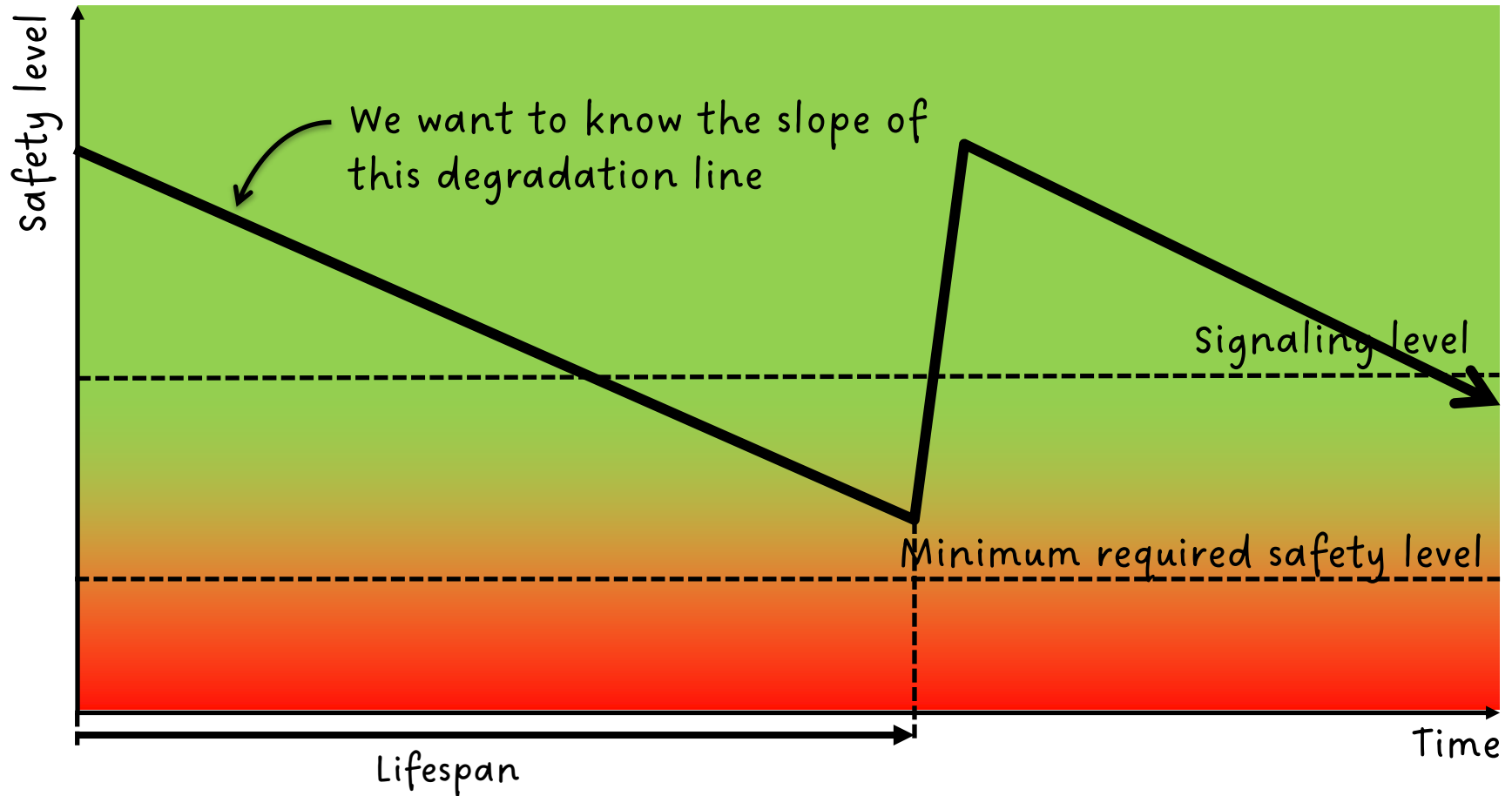
# Safety level during lifespan



# Safety level during lifespan

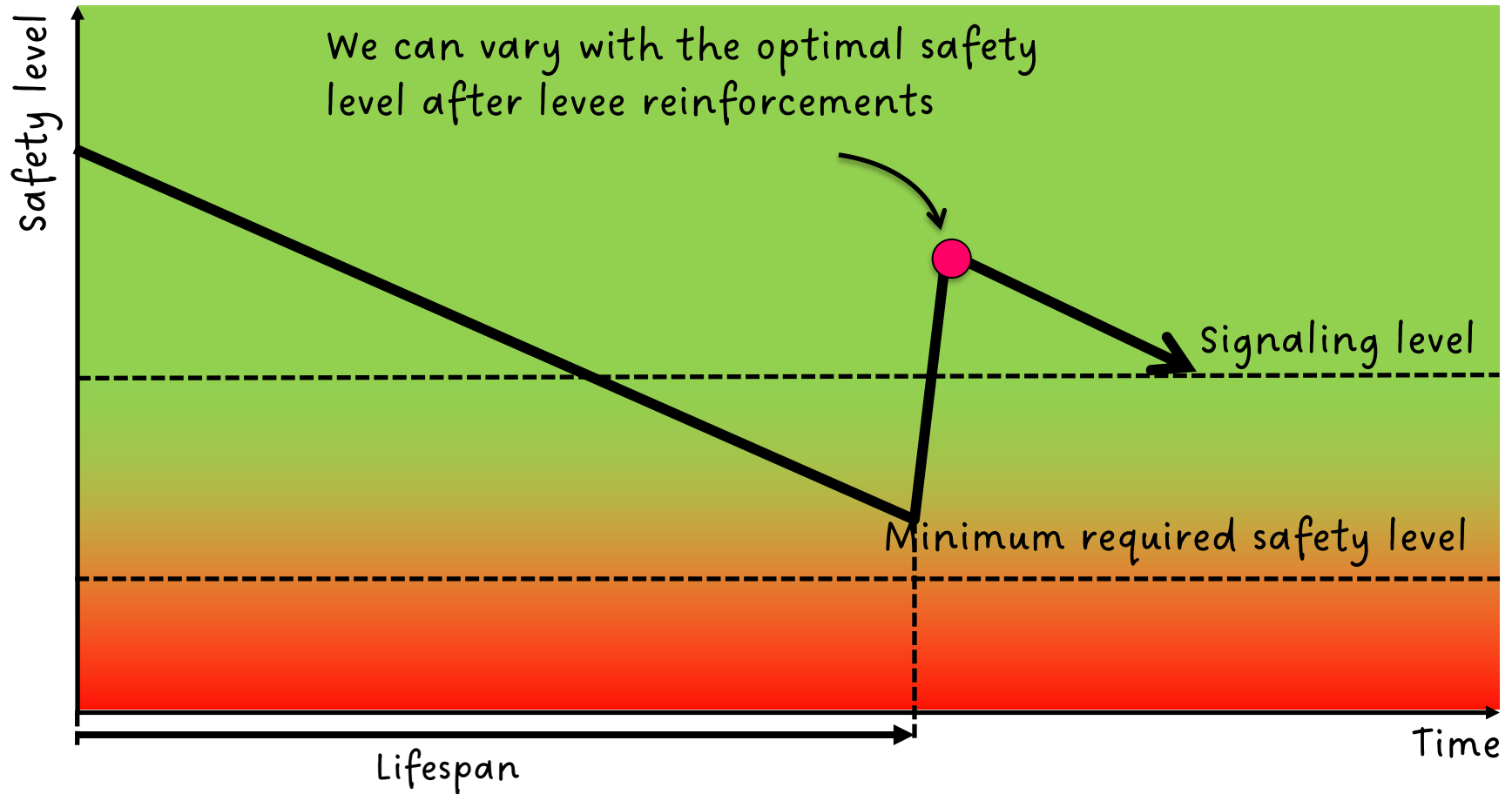


# Safety level during lifespan





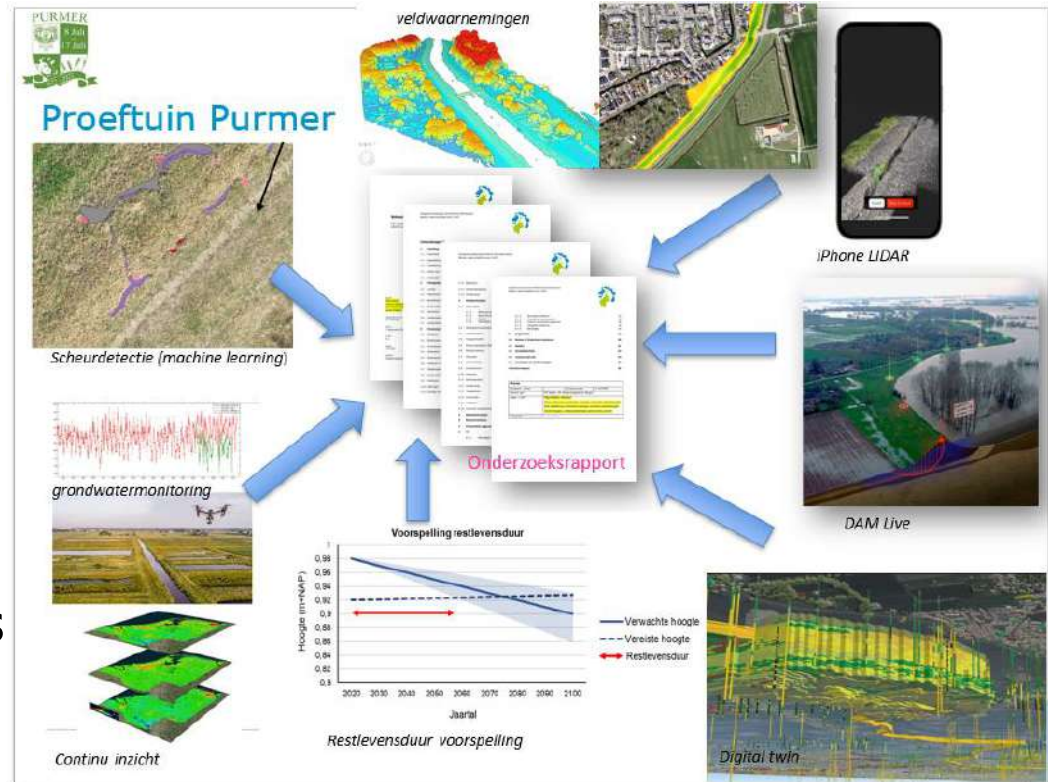
# Safety level during lifespan



# Testing ground near Purmerend

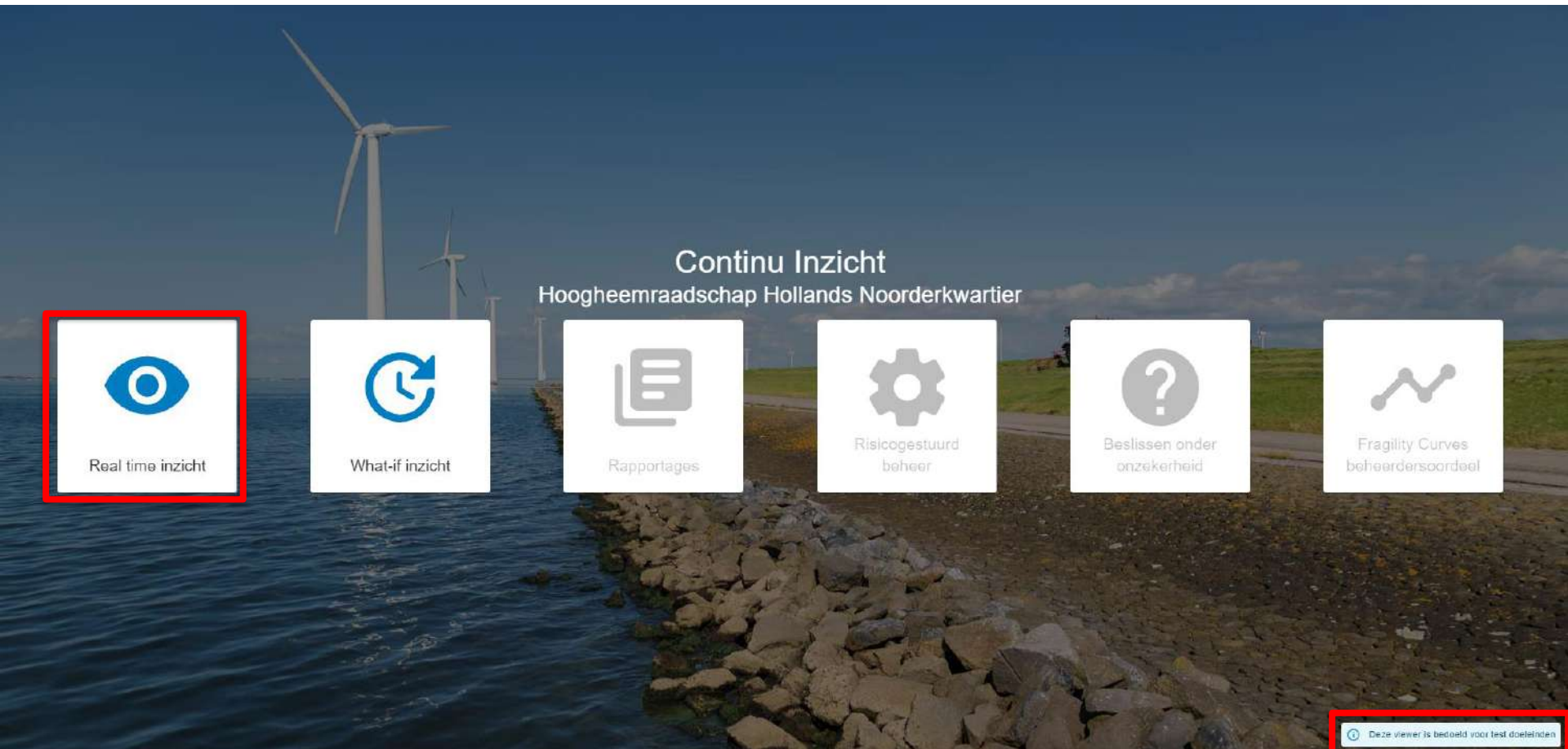
Multiple pilots:

- Field measurements
- **Continuous insight**
- Remaining lifespan
- **DAM Live**
- Digital Twin
- Crack detection
- LiDAR iPhone
- Visualisation of results



Symposium 2<sup>nd</sup> half 2023: <https://www.linkedin.com/in/hannesversteegh>

# Demo




## Continu Inzicht Hoogheemraadschap Hollands Noorderkwartier



Real time inzicht



What-if inzicht




Rapportages



Risicogestuurd  
beheer



Beslissen onder  
onzekerheid



Fragility Curves  
beheerdersoordeel

Deze viewer is bedoeld voor test doeleinden