Dutch Water Board Tasks

Dry feet, **clean** water

INDUSTRIAL CYBER SECURITY

Water Board Rijnland
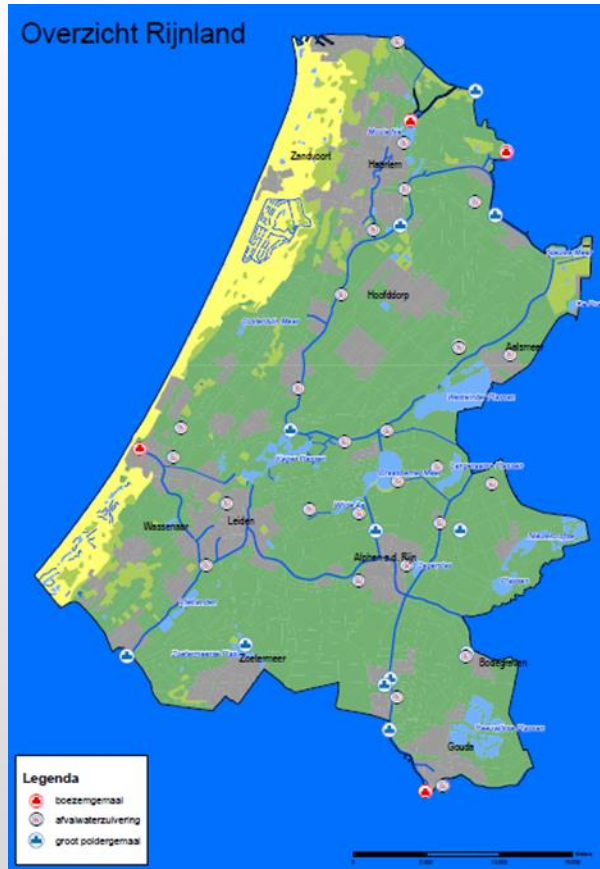
- 90% below sea level
- 1079 km2
- 2 provinces
- 31 municipalities
- 1,3 million inhabitants
- 204 polders
- 696 water levels
- 1293,6 km dykes /levies
- 446 pumping stations
- **18 sewage treatment plants**
- **82 sewage pumping installations**

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Water Board Tasks

Dry feet

- Flood defense
- Water management (quantity)

Clean water

- Waste water treatment (quality)

Movie about Rijnland

- https://www.youtube.com/watch?v=HnDbjhkjdpw&feature=youtu.be
- https://youtu.be/HnDbjhkjdpw

Standardization and Architecture

- 2014/2015: plans to renew OT for sewage pumping installation & treatment plants

- Move from local steering to central steering.
  - Old situation: one XP desktop with local SCADA (24 plants)
  - New situation : Central steering with local back-up

- March 2020: IEC62443 audit on pumping and plant installations

- 120 controls to check …….
  - did we do all the work according to the IEC62443 standard?

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Standardization and Architecture

- 2014/2015: appropriate IEC structure was chosen
- A new team was build (currently 28 FTE)
- The standard was maintained during the building period
- All drawing ware a part of the standard
- Installations ware fully tested before hand over to production
- Improvement on installations must be updated to the new standard
- The standard is worth fighting for!

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Standardization and Architecture

Architecture diagram is omitted.

Document Management & Structure

Indeling PA beheerdocumenten (transportkastje)

(BEHOEFTE LIJST)

1. **Engineeringdocumenten & berekeningen**
2. **Tekeningen**
3. **Bedienings- en onderhoudsvoorschriften**
4. **Software**
5. **Beproevingen Keuringen**
6. **Contracten & garantiebepalingen**
7. **Vergunningen**
8. **Veiligheid**

				aanwezig bij oplevering
	PA1.10	Programma van Eisen		X
	PA1.20	Procesdecompositie		X
	PA1.30	Procesvoeringbeschrijving		
	PA1.40	Functioneel Ontwerp: Besturing		X
	PA1.50	Functioneel Ontwerp: Trending / Historisatie / alarmafhandeling		
	PA1.60	Functioneel ontwerp: KPI (CPK metingen en berekeningen)		X
	PA1.70	Technisch Ontwerp Hardware		
	PA1.80	Technisch Ontwerp Software		ETC.
eeringdocumenten & berekeningen	PA1.90	Technisch ontwerp Projecttypicals		....
	PA1.100	Technisch ontwerp: Trending / Historisatie / alarmafhandeling		...
	PA1.110	Technisch ontwerp: KPI		...
	PA1.120	Versiebeheer Software typicals		
	PA1.130	Besturingsbladen		
	PA1.140	IO-lijst PLC		
	PA1.150	IP adresseringstabellen		
	PA1.160	Koppelvlak (interfacelijst)		
	PA1.170	Instellingen Metingen (Objecten en meetbereiken)		
	PA1.180	Instellingen PA netwerkcomponenten (router / switch etc.)		
	PA1.190	Instellingen alarmmelder		

Road to Certification

- TÜV makes a quotation based on object description
- The Water Board issues the order
- The audit is carried out by TÜV Nord in cooperation with experts from Hudson Cybertec
- The Water Board supplies documentation
- The auditor conducts document review, examines object and gather attestations (5 to 10 days)
- TÜV does site visit
- The auditor creates audit report
- TÜV Nord (DE) is reviewing
- TÜV Nord provides reporting to IEC
- TÜV issues certificate if approved by IEC

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Why would we Certify?

- Comply with Industrial Standard to improve security

- Cyber Security Council:
  - *Cyber resilience IACS in the Netherlands insufficiently in order*
  - *IACS is crucial for the safety and continuity of the critical infrastructure*
  - *Connected IACS combined with legacy systems makes the critical infrastructure vulnerable to outages and malicious actors.*
  - *General Intelligence and Security Service (AIVD) that state actors try to gain access to our vital processes.*

- ZD NET
  - *Industrial control networks are coming under attack from a range of ransomware attacks*

*Sources in comment field