Regional Association VI, Forum Hydrology, Koblenz, May 8 – 10, 2012

Statements of the national hydrological service of The Netherlands

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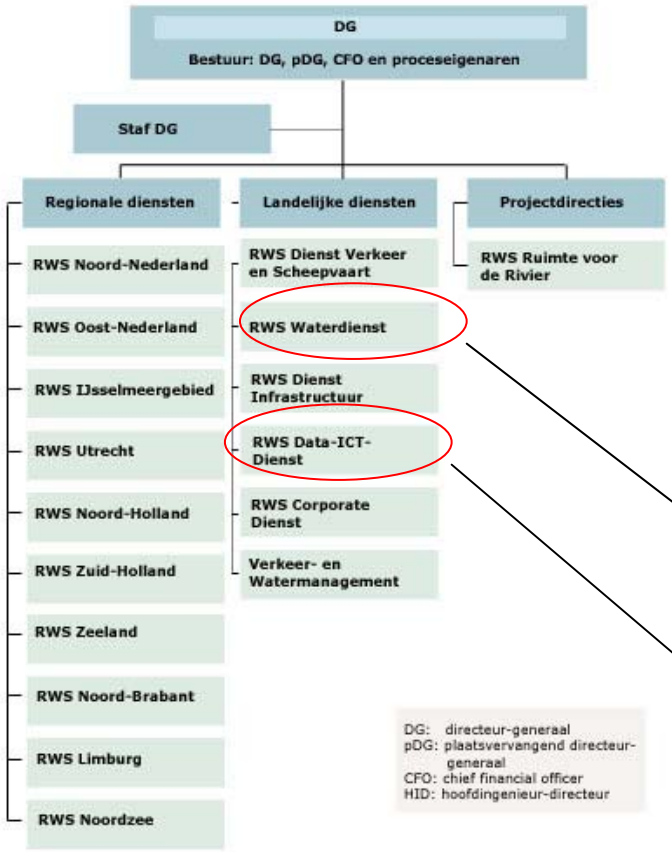
Rijkswaterstaat

Centre for Water Management

Rijkswaterstaat



- Part of the Ministry of Infrastructure and Environment
- Big organisation (9000 fte)
- Main tasks
  - Protection against flooding
  - Enough and clean water
  - Congestion and safety of transport

- 10 regional services: implementation of the traffic- and watermanagement
- 6 national services, 2 responsible for provision of information for the main tasks of watermanagement (national waters)
  - Centre for Watermanagement
    - Demand, budget
    - What kind of information is needed and what are the requirements
  - Centre for Data and ICT
    - Supply
    - Management of the hydrological monitoring network

Biggest success

- Implementation of Information management
  - Demand and supply seperated
  - Information needs and requirements are known
  - Information strategy
    - Measurements
    - Measurements from external organisation
    - Modelling
- Integration of regional monitoring networks to a national network (national waters)
- Integration of monitoring programs in the salt coastal and fresh inland waters

Biggest failure/worried about

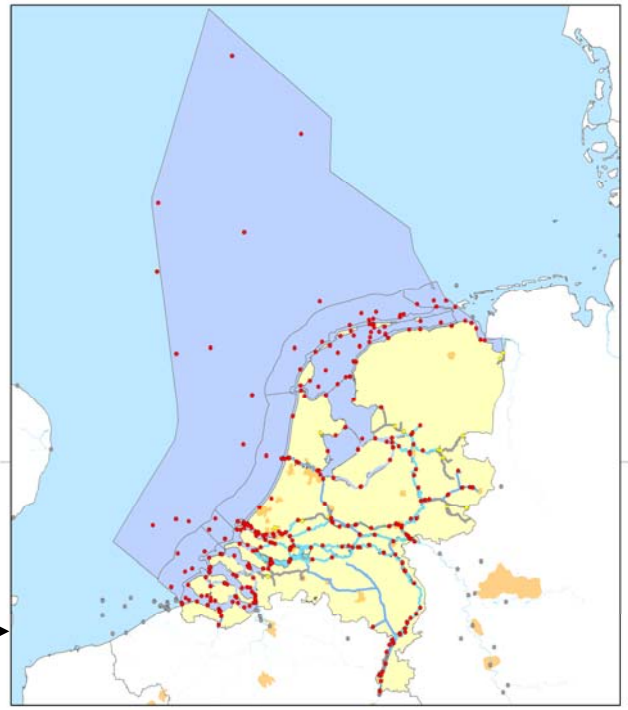
- Less experience and knowledge in the organisation
- Investments are necessary for changes
- Implementation of innovation (takes a long time)
- Outstanding maintenance

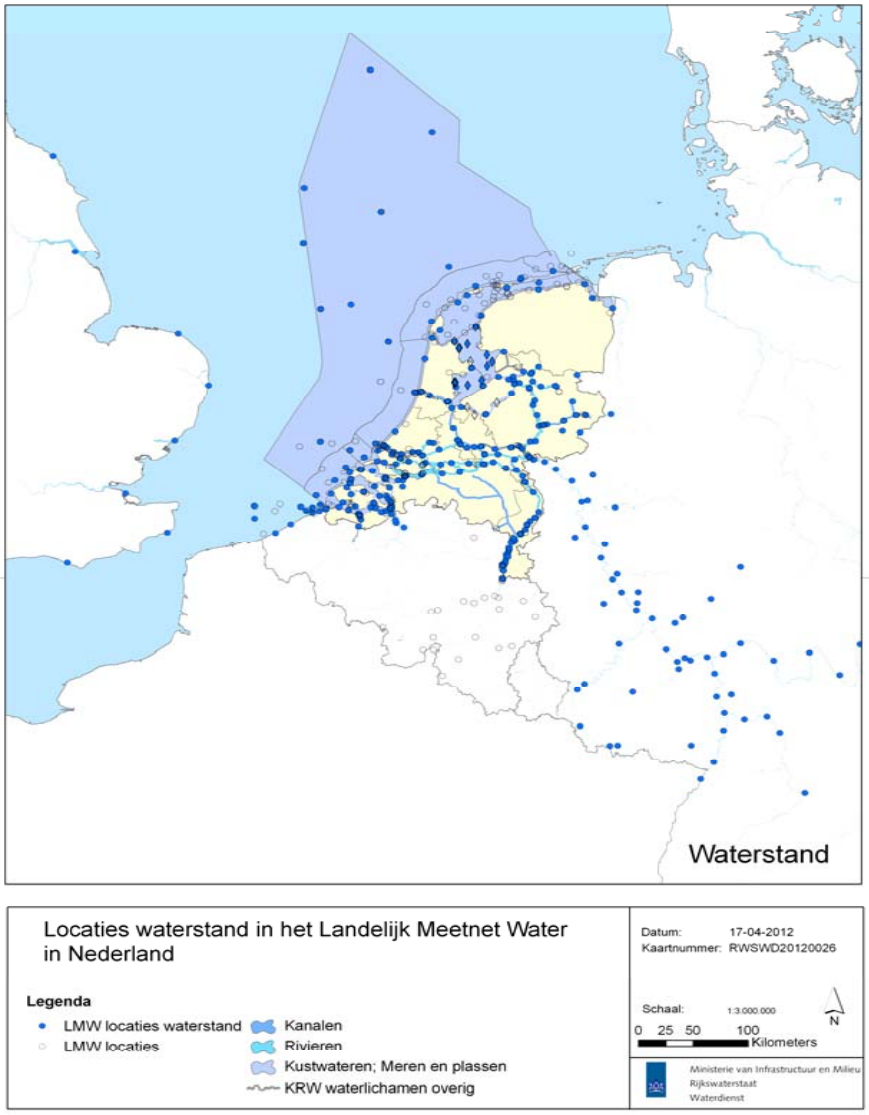
Expectations

- Optimise cross-border exchange of hydrological information
  - For Hydrological Forecast (flood warning) we need and get data from abroad
- Working together at the borders
  - Example: discharge measurements

General features of the hydrological monitoring network in the Netherlands

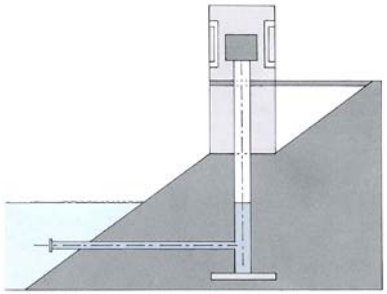
- Objectives of hydrological monitoring
  - Knowledge of the watersystem for policy preparation en evaluation
    - Long term changes (sea level rise, climate change)
    - Statistics (bank design)
  - International coöperaton and legal requirements
  - Operational watermanagement
    - Reporting (flood warning)
    - Level regulation and water distribution
    - Navigation (seaports and inland)
- Parameters
  - Waterlevels
  - Discharge
  - Water temperature
  - Waves
  - Current
  - Meteorological parameters at the Northsea
- Measurements at 400 locations

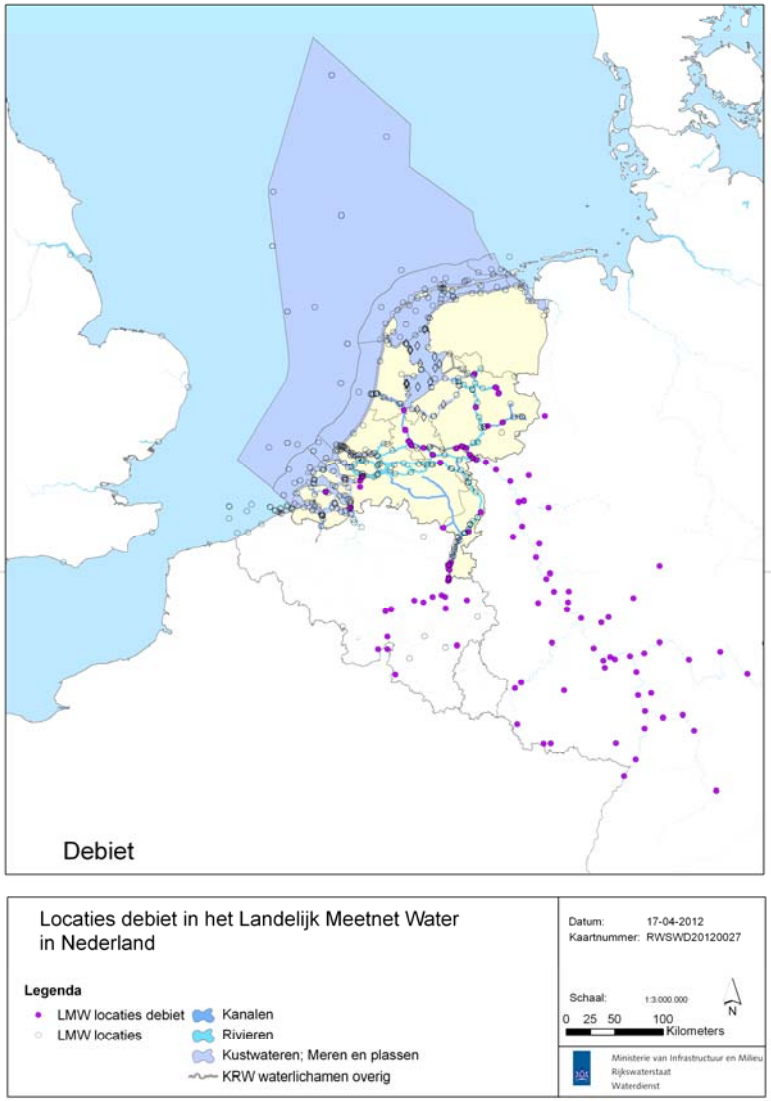




Water Level monitoring network

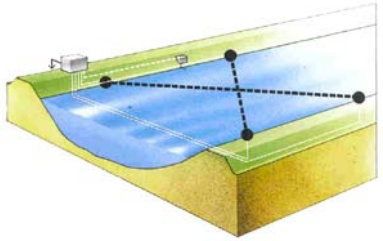
- DNM (driver/float system)
- Radar
- Statistical models (MLR)
- Hydrological models
- Data from Germany, Belgium, France and the UK

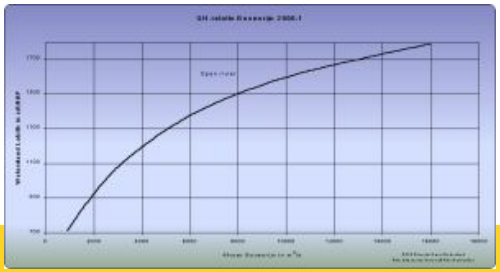




Discharge monitoring network

- ADM (Acoustic Discharge Gauge)
- H-ADCP
- Discharge-waterlevel relation
- Information from discharge sluices
- Hydrological models
- Data from Germany, Belgium and France





Examples of measurement constructions

Tube at sea

Tube along the coast

Platforms at the North Sea

Measurement building

Discharge and waterlevel at Lobith

Tube along a river (Waterlevel)

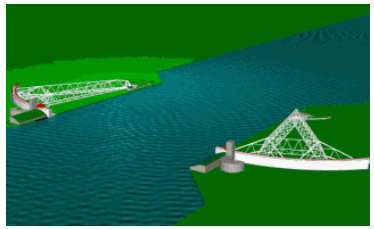
Wave buoy

Distribution of the data to the users

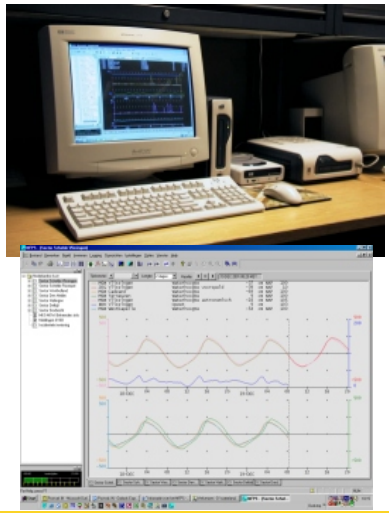
- Users:
  - work process of Rijkswaterstaat
  - professionel users
  - public
- Development: uniform and standard

Historical database

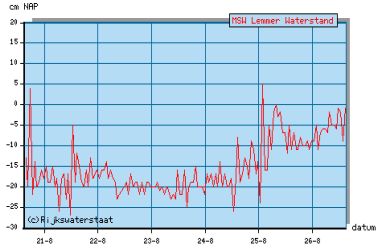
Direct lines to important objects such as the storm surge barrier



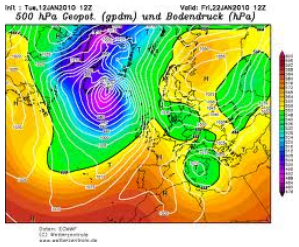
MFPS



Internet



Input for hydrological models



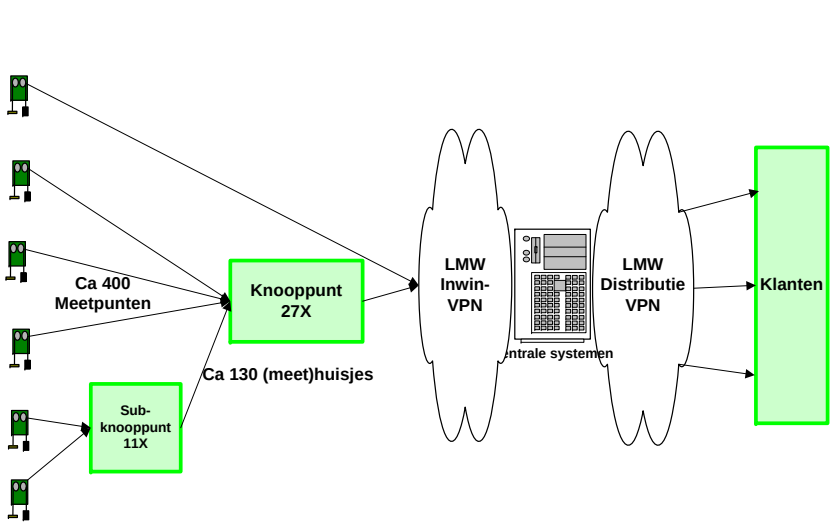
Teletekst

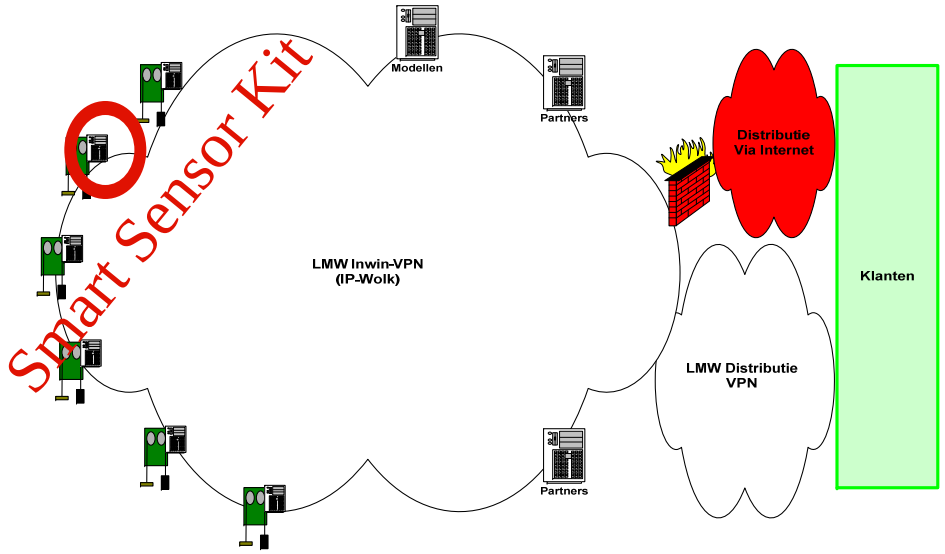
Main challenges and developments

- Working together within the Ministry
  - National Meteorological institute
  - Monitoring network of air quality
- Working together with the Water Boards (regional waters)
  - National Monitoring Network
- Differentiation in users and requirements
  - Most important users priority and guaranteed data conform agreed requirements
- Optimisation of the monitoring network using hydrological models
- New design and structure of the technical network

New design and structure of the technical network

- Cheaper
- No longer 1 point of failure
- SWE and smart sensors, plug-in, flexible
- Easier to work together with other organisations





Thank you for your attention