The role of condition assessment in Performance contracts at Rijkswaterstaat

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Content of the presentation

- Performance based contracts at Rijkswaterstaat
- Role of the NEN2767 in Performace Based Contracts

Large scale performance contracts at Rijkswaterstaat (since 2010)

Baseline:

- **Integral approach = higher level of abstraction in functional rather than technical specifications:**
- **More responsibility and more freedom for contract partner;**
- **Less interaction between different contracts by RWS;**
- **Focus on output / outcome (in close relation to the infrastructure users and environment)**

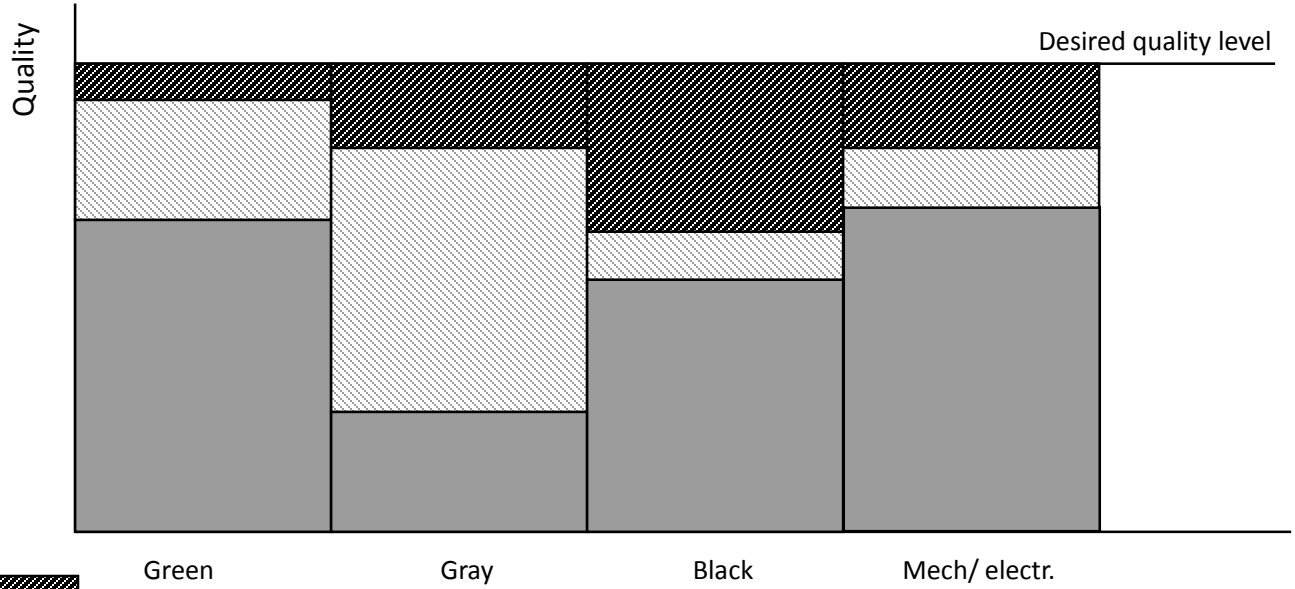
Basic principes Performance contract

- Cooperation model with clear division of responsibilities
- “Partnership”
- Contractor relieves the client and is proactive
- Freedom for the contractor within process boundaries
- Self-regulating contractor: internal quality management, both risk based and system based
- Clearly divided risks
- incentives for desired behavior

Main ingredients of performance contracts

- Modern E&C-type of contract
- Functional specifications with a focus on Risk management
- All disciplines; work divided in:
  - Tasks (Regular/routine maintenance)
  - Activities (planned maintenance) based on risk inventory and related to the desired performance
  - Services (Information gathering, General Inspections, etc.)
- Use of System Based Contract Management and EMAT procedures
- The use of Pins and Incentives on the proces quality

Required result: maintain the desired quality level

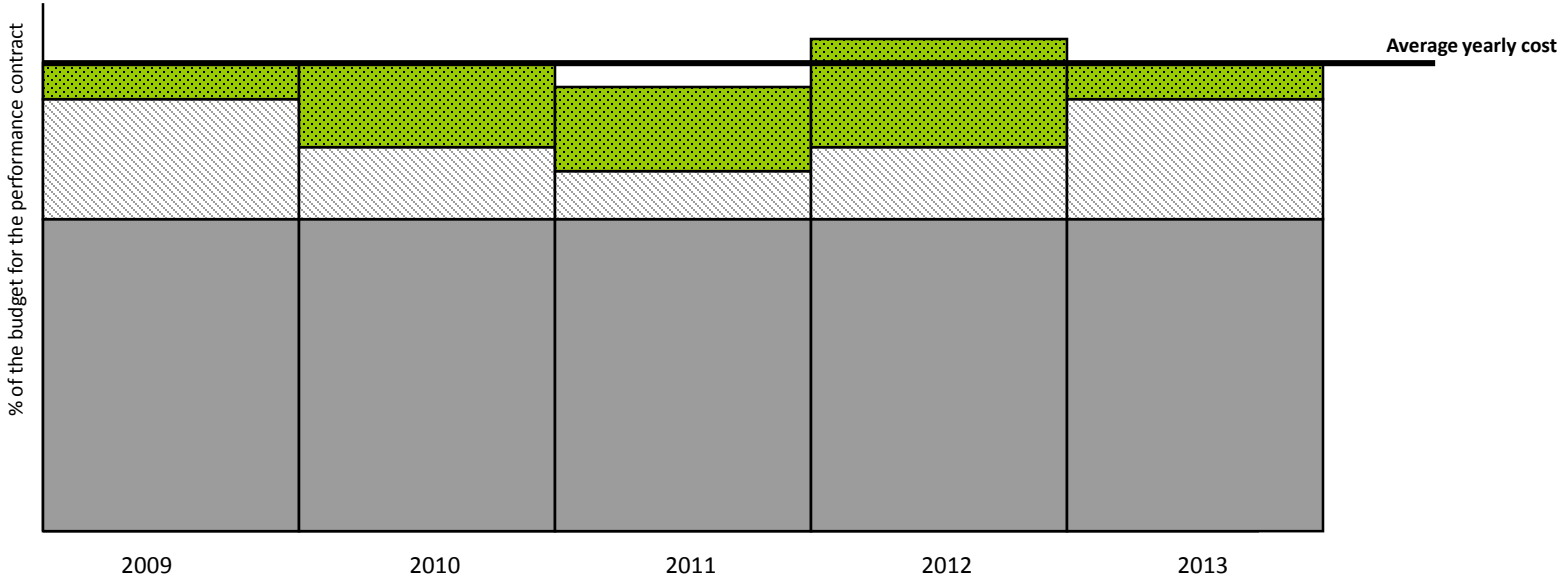


= Risk remains with RWS: not a part of the contract

= Activities: Pre-defined large scale maintenance work. (fixed price of price per unit or “Intended” activities”)

=Tasks and services; all the needed work and services to mainain the desired quality level other than activities and those risks that remain with RWS

Payments over time in the contract



= “Intended” Activities and activities based op investment proposals by the contractor

= Pre-defined activities and activities based on unit price

= Tasks (payment based on fixed periodic sums)

Functional demands and objects aspects

Functional demands
(Example: bridge)

Function:
Provide grade-separated crossroads for traffic

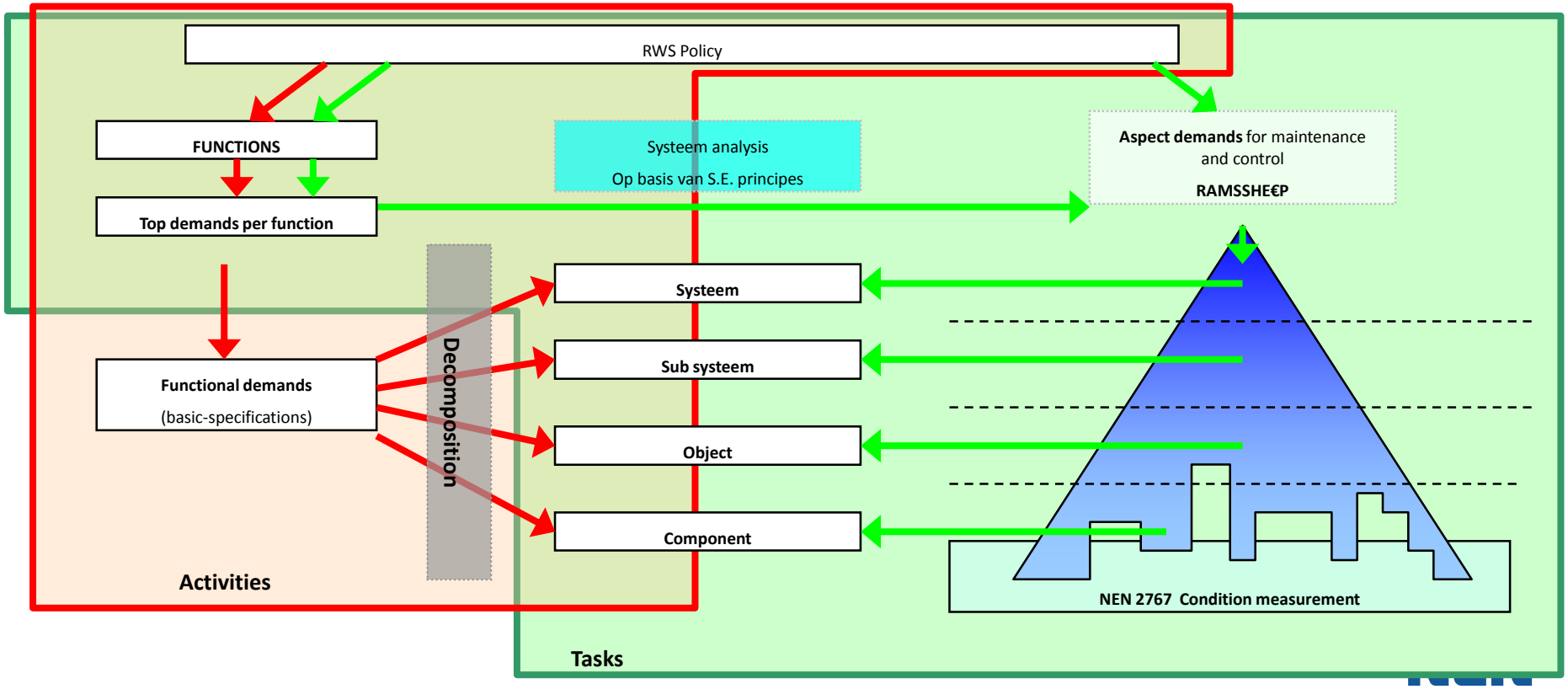
Functional demands:
Capacity: …. vehicles per year
Load bearing capacity: class …

Aspect demands: RAMS SHE€P
(Example: bridge)

Aspect demands
Defined capacity has to be available ..% of the time
Structural reliability shall fulfill building codes
Passage must be safe for road users
Must be maintainable within availability requirements
Must be cost effective
Has to comply to envirtonmental regulations

Both functional demands and aspect demands play a major role in the definition of activities (aiming at improvement).
Aspect demands play a leading role in maintenance tasks.

Structure
Technical Specifications



Role of the contractor in risk management:

- The contractor will behave as a partner to Rijkswaterstaat on the management of risks in the network;
- The contractor shall prove, based on his a risk-management plan, that the risks levels, related to the RAMSSHE€P aspects, of the maintained infrastructure will not rise during the contract period. His inspection and maintenance strategy will be in the risk management plan. The contractor will be monitored on the effectiveness of his risk management plan;
- The contractor will, as part of his services, timely detect and communicate risks, even if these are not part of his tasks and activities in the contract scope;
- For electrical and mechanical components the contractor will follow the maintenance instructions for the first half year of his contract. After this period he can propose improvements to the client; In first contracts: The contractor shall maintain a specific condition level

Incentive for effective partnership

Client and contractor should behave as partners. Behavior will be evaluated:

- The client will do present performance measurements. The quality of the work, and behavior of both the contractor and the client will be evaluated.
- If the present performance measurements are repeatingly positive, than the partnership is regarded as effective, and the contractor can earn an extra 2 year period to remain on the contract;

Role of NEN2767 decompositions

All network is decomposed according to the NEN2767. This is the backbone of the communication between the maintenance management systems of both the contractor and the client

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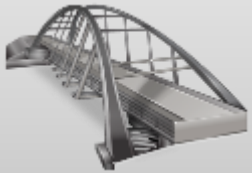
Decomposition

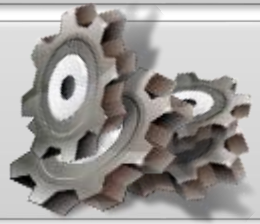
Level1

Asset



Level 2

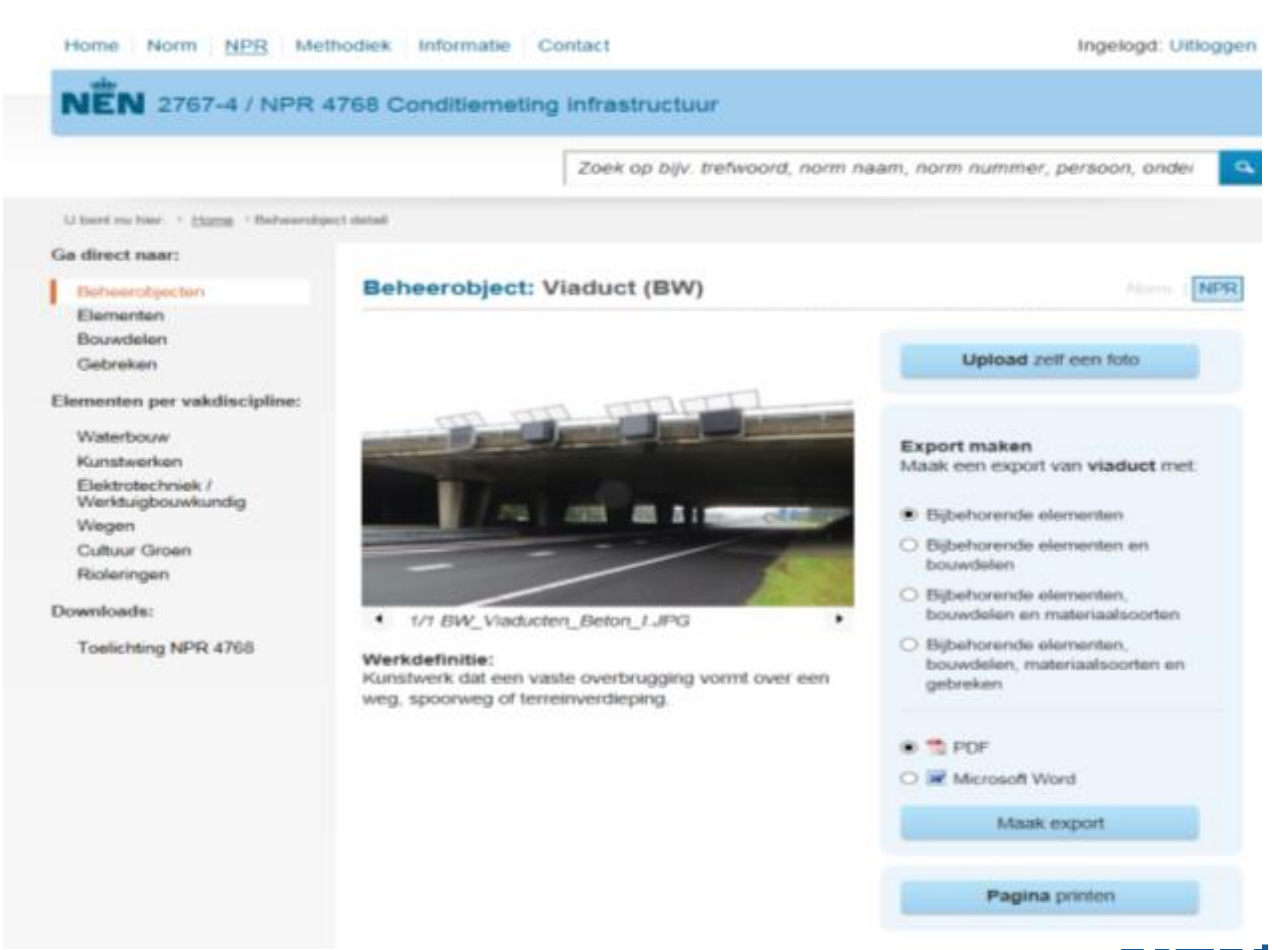
Element



Level 3:

Building component

NPR 4768: Understanding each other



Role of NEN2767 in Performance Contract

- Initial inspection: NEN2767 is used for objective registration of the state in which the contractor receives the infrastructure
- During the contract period:
  - The condition is used as performance indicator for electrical and mechanical components (not any more!)
  - NEN2767 Condition assessment are used to communicate in yearly condition reports for the assets
- At the end of the project: Condition measurement is used to quantify the condition the structure is delivered back to the client.

NEN2767 appendix risk priorization

(1) Very minor effect; (2) Minor effect; (3) Major effect

Tabel D.2 — Voorbeeld prioriteitsstelling met RAMSSHEEP-matrix (toegepast bij bruggen)

Prioriteit / Risico	Laag 11	10	9	8	7	6	5	4	3	2	Hoog 1
Reliability (Betrouwbaarheid)							(1)	(2)	(3)		
Availability (Beschikbaarheid)								(1)	(2)	(3)	
Maintainability (Onderhoudbaarheid)			(1)	(2)	(3)						
Safety (Veiligheid)						(1)	(2)	(3)			
Security (Beveiliging)		(1)	(2)	(3)							
Health (Gezondheid)				(1)	(2)	(3)					
Environment (Omgeving en Milieu)					(1)	(2)	(3)				
Economics (Kosten/Baten)	(1)	(2)	(3)								
Political (Politiek/Imago)									(1)	(2)	(3)

Good and bad experience with the NEN2767

- Good
  - Object decompositions as core for asset management systems
  - Initial condition assessment: Uniform registration
  - During the contract period: Condition monitoring combined with risk priority matrix

- Bad
  - Using condition levels as a contractual performance parameter
  - Using condition scores without the risk priority matrix does not fit well in a risk / performance based contract
  - Using a NEN2767 condition assessment for all elements of the network tends to become cost ineffective (better: determine in advance where to monitor condition and why)

Questions