

Young Researchers Seminar 2009

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Exploring ways to secure nautical safety

Victor van Oudheusden



Introduction

- Who am I?
- Directorate-General for Public Works and Water Management
- Applied Safety and Security studies, The Hague University

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Definition of the problem

- At this moment, we presume that the consequent and consistent assessment of safety is not optimally secured in the process of development and management of waterways within the primary process of Directorate-General for Public Works and Water Management.



Goal

- Exploring a methodology for securing the assessment of safety for shipping within the primary process of Directorate-General for Public Works and Water Management



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Method

- Optimum situation
 - Based on the assessment, auditing and inspection system that is being developed for road safety on:
 - Safety Impact Assessment
 - Safety Audit
 - Network safety Analysis
 - Safety Inspection
- Current situation
 - Beatrixlock
 - “West Rijn”
 - Nautical Safety Monitor

Optimum situation

Tools

- Safety Impact Assessment;
 - A strategic comparative analysis of the impact of a new waterway or a substantial modification to the existing network on the safety performance of the waterway network.
- Safety Audit;
 - An independent detailed systematic and technical safety check relating to the design characteristics of a waterway infrastructure project and covering all stages from planning to early operation.
- Network Safety Analysis;
 - A method for identifying, analysing and classifying parts of the existing waterway network according to their potential for safety development and accident cost savings
- Safety Inspection.
- An ordinary periodical verification of the characteristics and defects that require maintenance work for reasons of safety.

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Safety Impact Assessment

- A strategic comparative analysis of the impact of a new waterway or a substantial modification to the existing network on the safety performance of the waterway network.
 - Elements of a safety impact assessment:
 - Problem definition;
 - Current situation and “do nothing” scenario;
 - Waterway safety objectives;
 - Analysis of impacts on waterway safety of the proposed alternatives;
 - Comparison of the alternatives, including cost-benefit analysis;
 - Presentation of the range of possible solutions.

Safety Audit

- An independent detailed systematic and technical safety check relating to the design characteristics of a waterway infrastructure project and covering all stages from planning to early operation.
 - draft design;
 - Geographical location, seasonal and climatic conditions;
 - Determination of the largest indicative vessel;
 - detailed design;
 - Layout;
 - Lighting at locks and bridges;
 - Remaining waterway users.
 - pre-opening;
 - Readability of road signs and markings;
 - Condition of the waterway
 - early operation.
 - Assessment of safety in the light of actual behaviour of users.

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Network Safety Analysis

- A method for identifying, analysing and classifying parts of the existing waterway network according to their potential for safety development and accident cost savings.
 - Identification of waterway sections with a high accident concentration;
 - Identification of sections for analysis in network safety ranking;
 - Elements of evaluation for expert teams' site visits:
 - A description of the waterway section;
 - A reference to possible previous reports on the same waterway section;
 - The analysis of possible accident reports;
 - The number of accidents, and their effects, in the three previous years

Safety Inspection

- An ordinary periodical verification of the characteristics and defects that require maintenance work for reasons of safety.
 - The safety inspection produces a paper with safety features of the waterways

Current Situation



Beatrixlock



“West Rijn”



- Nautical safety monitor

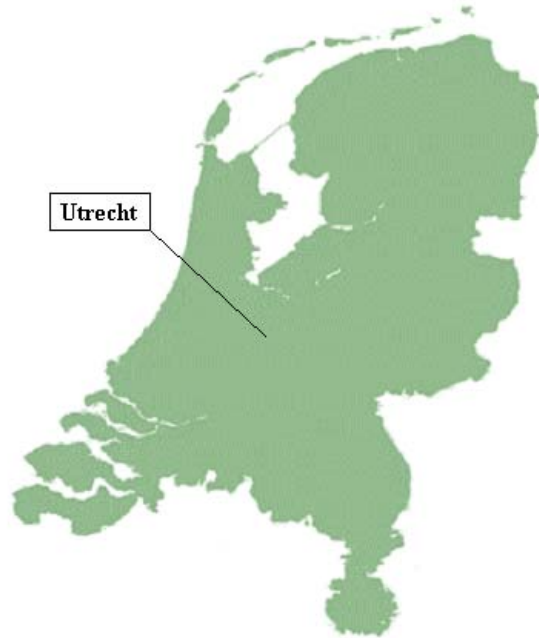
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Beatrixlock

- Location



The Netherlands



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Beatrixlock

Conclusions and recommendations

- Safety is not mentioned explicit in the problem definition. Safety should be mentioned explicitly.
- The current situation and a “do nothing” scenario are described. Safety should be mentioned more in the description of the alternatives.



Beatrixlock Conclusions

Conclusions and recommendations

- Every alternative should be judged on the aspect of seasonal and climatic conditions.
- Safety should be more explicit in relation to the interaction between waterway users.
- The overview of the route should be described in relation to safety.



“West Rijn”

- Windmill farm located in the North Sea



The Netherlands

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“West Rijn”

Conclusions and recommendations

- Safety should be mentioned explicitly in the problem definition.
- Establish safety objectives and have safety be an explicit part of them.
- Judge safety on the aspect of seasonal and climatic conditions.



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Nautical Safety Monitor

- Registration of accidents with ships, since 2002.
- Network safety analysis.
- No ranking based on accident numbers.

Consequence: It is not clear where the most unsafe situations occur. Therefore it is difficult to improve the network in the most effective way.

Recommendations:

- Rank the waterways per waterwaykilometere;
- Estimate intensities based on categories;
- Make a ranking within the categories.

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Conclusions

- Intention: Safety is important and included.
- Practice: Safety is implicit.

- For instance: safety is not mentioned explicitly in the definition of the problem.

Recommendations

- Directorate-General for Public Works and Water Management should develop procedures for safety impact assessments and for safety audits.
- The regional departments should carry out those assessments and audits.
- In addition the Directorate-General should develop ways for carrying out network safety analysis and safety inspections.
- This whole proces should take some years to achieve quality in the main proces of the Directorate-General.

Title of the slide



Questions?

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