The integration of Strategic Environmental Assessment into planning for flood prevention - NL

1. Policy Objective & Theme

- ADAPTATION TO RISK: Preventing and managing natural hazards and technological (human-made) hazards
- ADAPTATION TO RISK: Integrating coherent strategies covering the risk-dimension (prevention to response) into planning and investment

2. Key Approaches

- Integration
- Participation
- Knowledge-based
- Ecosystems based approach
- Socio-economic
- Technical

3. Experiences that can be exchanged

This case shows that it is possible to incorporate an open and participative, integrated Strategic Environmental Assessment (SEA) into the planning process and even to successfully develop a highly controversial plan provided that environmental issues are taken fully into consideration at the start of the initiative.

4. Overview of the case

In the Netherlands, a plan was drawn up to prevent the risk of flooding along the Rhine river, and its tributaries, to the year 2100 taking climate change factors into consideration. In order to maintain safety, yet create environmental and social benefits, an SEA was integrated into the planning pocess.

5. Context and Objectives

a) Context

The plan ‘Room for Rivers’ defines the measures to protect The Netherlands against flooding of the river Rhine and its tributaries, the IJssel, Neder-Rijn/Lek and the Waal. The starting point was an earlier decision by the government that new measures for flood prevention should, as much as possible, be based on creating more space in the river foreland, rather than dyke strengthening or heightening. Improving the storage and drainage capacity of rivers was considered a more sustainable, safer and flexible option for the future. A side-benefit is that it opens possibilities for combining safety and enhancing spatial quality e.g. by creating new nature or improving landscapes. The plan, therefore, includes a combination of traditional dyke improvement or heightening with a new approach of creating more space for water discharge or retention in the river foreland or river-bed e.g. through deepening of the river-bed, creation of retention ponds, the re-location of dykes. The Strategic Environmental Assessment (SEA) was integrated into this process because the measures may be more expensive or locally less safe. The SEA was meant to enable planners and decision makers to find the best possible compromise of safety, environmental benefits and costs. Also, the SEA would take an integral view of the entire river system because upstream and downstream measures may affect each other.

The plan has been controversial, since, although everybody agrees on the safety issue, the potential measures may have

significant negative impacts on different groups of stakeholders e.g. farmers may lose land, landscape and nature may be affected, large budgets are needed, storage facilities for polluted sludge have to be created. On the other hand, when designed thoughtfully, the necessary measures may also mean high potential for creating new recreational facilities.

b) Objectives

To incorporate an SEA into the development of an overall plan to prevent flooding of the river Rhine and its tributaries.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

Aiming to improve the integration of the plan and SEA, a dedicated project agency was set up, responsible for both. The SEA was written by the agency itself, although private consultancies were contracted to compile background documents or sections of the assessment.

b) ICZM tools

In a first approach it was decided to start with formulating a number of overarching ‘strategies’ for improving flood security, such as a focus on measures within the dykes versus a focus on measures outside the dykes. In a second step, alternatives for the whole river branch would be developed, trying to implement as much as possible the chosen focus. However, this approach proved not to be constructive. In practice, each segment of a river branch turned out to have its own characteristics and limitations, e.g. because of preferences of local population or local physical parameters. For this reason, it was decided to split each river branch in a number of homogenous sections, and then look at alternatives for each of these sections: the ‘building blocks’. An alternative for a whole river branch was then created by a logical combination of building blocks. A number of pre-conditions were set for each of the alternatives e.g. each alternative should fulfill safety and other legal requirements, the current distribution of water between the three branches should not change and there should be no effect on the current maritime functions of the river. In addition, a number of starting points were defined e.g. sufficient support by local government and other stakeholders; in line with current government policy, in line with international agreements of flood prevention, in line with existing or already planned projects in the river basins, production of polluted soil to be stored should be minimized and highest possible cost effectiveness of measures. This process led to the final development of 4 alternatives.

The impacts of the four alternatives were assessed within an SEA that took into consideration safety (management & maintenance), spatial quality, relation with long term vision, (polluted) soil, nature, landscape, cultural history, functions, ground- & surface water, perception (i.e. of people). The assessment looked at expected high water levels to 2020 taking into account expected developments in Germany and to high water levels in 2100 based on climate change impacts of a rise of 2oC and a sea level rise of 60 cm. For this plan, a cost benefit analysis was also done.

In the SEA the alternatives were compared, using a number of methods:

- Per indicator: for each segment of the river, the SEA compared per indicator the scores of the alternatives, using a 5 point scale.
- Overall, qualitatively: each alternative was qualitatively described as to its main strong and weak points, compared to the reference and the other alternatives.
- Overall, quantitatively: for each alternative the main quantitative figures, as to measures realized and resulting impacts, were given in separate boxes.

In order to decide which of the alternatives was best from an environmental viewpoint, the alternatives were compared to each other in a separate table. Scores on a 5 point scale were used, on the issues that were regarded as most important from an environmental perspective viz. contribution to improving spatial quality (qualitative); nature: impacts on protected areas and increase in ha. of nature area; landscape improvement (qualitative); impact on cultural history (qualitative); soil: necessary excavation, improvement of soil quality (qualitatively), number of necessary new deposits; and in/not in line with the long term vision of the government.

A sensitivity analysis was performed for each of the alternatives i.e. which measures would be possible to further improve the

environmental performance of alternatives and whether these could change the ranking of alternatives on environmental aspects

Public participation took place during both the early stage of planning and at a later stage. A first round focused on the information the SEA should contain, e.g. what alternatives to examine and what impacts to assess. A second round took place after the SEA and the draft plan were ready and focused on the quality of the SEA and the proposals in the draft plan.

Finally, a legally mandatory quality review of the SEA was conducted by the Netherlands Commission for Environmental Assessment, a private foundation funded by the government. This Commission acts as an independent expert committee and has mandatory involvement in all environmental impact assessments for projects (EIA) and a substantial amount of strategic environmental assessments for plans (SEA).

7. Cost and resources

The cost of the SEA process is not available. The alternative chosen, a combination of traditional flood prevention and improvement of spatial quality would be expected to cost ca. €2.2 billion.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The decision was accepted by all parties, without much controversy. This was with the exception of the siting of some deposits for contaminated soil which raised much resistance, especially where these were not combined with nature and landscape improvement.

9. Success and Fail factors

The SEA influenced significantly the finally adopted plan. One of the main reasons for this was the fact that SEA and plan were developed interactively and in parallel with the negotiations between stakeholders. Another reason was the creation of a so-called ‘project- directorate’ within the ministries, responsible for both SEA and plan development, and in which the main, responsible ministries worked together. The responsible ministries also took a very open, transparent and participative approach to the development of the plan from the start. Overall, the SEA was based on existing information tools, although for the design of alternatives and assessment of impact a dedicated computer model was developed.

10. Unforeseen outcomes

None as yet.

11. Prepared by

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13. Sources

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- PKB Ruimte voor de Rivier Investeren in veiligheid en vitaliteit van het rivierengebied (2006) Ministerie van Landbouw, Natuur en Voedselkwaliteit
- www.ruimtevoorderivier.nl

PKB Ruimte voor de rivier (1.32 MB)

Views and experiences from the NCEA (1.49 MB)