

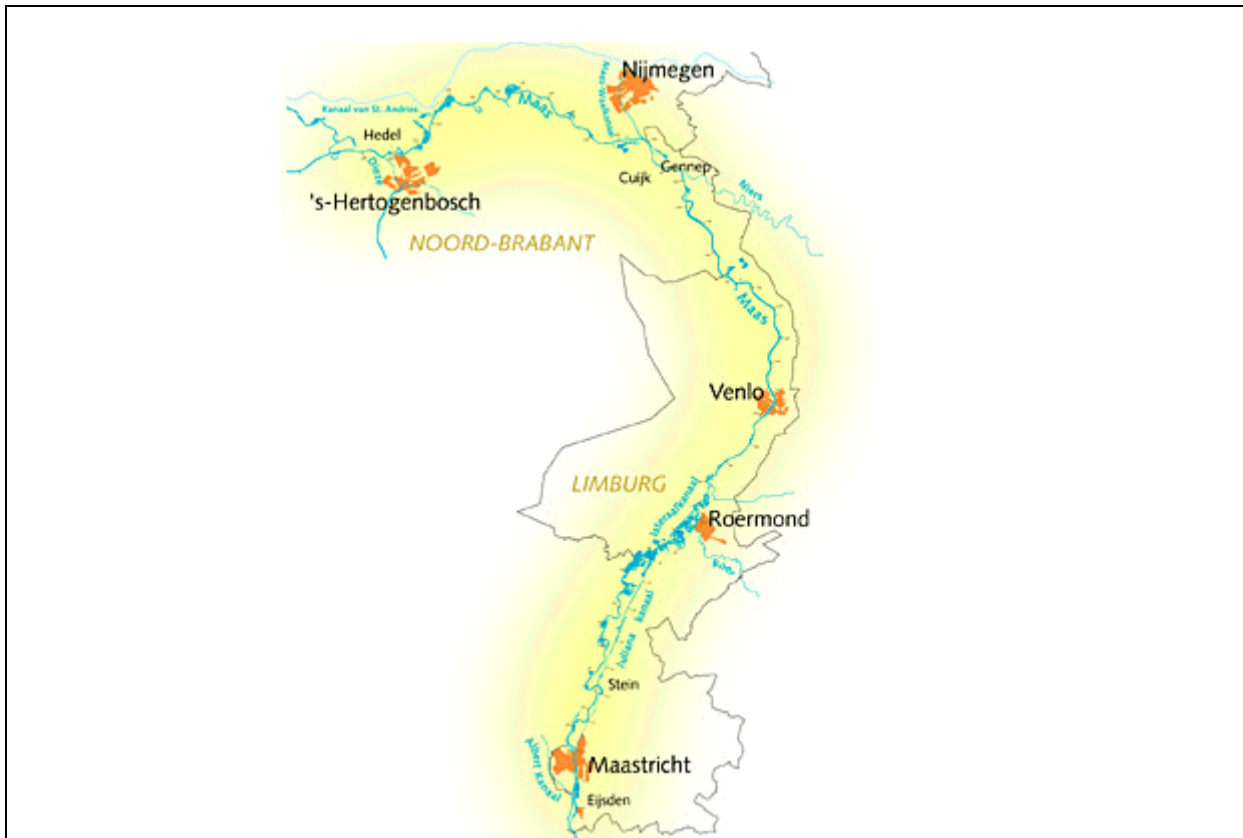
Netherlands, the: SEA on the routing the River Meuse (Zandmaas / Maasroute)

Case study compiled for the drafting of CBD guidelines on Biodiversity in SEA.

Case summarized by: Marlies van Schooten, SevS consultants

1. Introduction

The Zandmaas is the river Maas between the villages Linne and Hedel; the Maasroute is the river Maas between the villages Eijsden and Hedel, including the Julianakanaal, the Lateraal kanaal and the Maas – Waal kanaal, but excluding the Grensmaas.



Source: www.maaswerken.esrinl.com

In the SEA on Zandmaas / Maasroute strategic measures are being studied that lead to

- a decrease in high discharge levels during peak flows; and
- more safety, fluency and capacity for shipping, and
- limited nature development.

Reducing peak flows (to prevent flooding) is the main objective. Other objectives are subordinate.

Measures can be:

- a) deepening the summer course in combination with measures in the winter course such as lateral gullies or (partly) excavation (Zandmaas).
- b) enlargement of benches, adapting sluices, broadening and deepening of the Julianakanaal and an increase in the water level during summer (Maasroute).

A separate study will be done on the locations for dumping sludge.

2. Links to other policies, plans and programmes

Tiered hierarchy in decision making proposed by the initiator: first the policy concerning the go/no go question and the directions of the solutions (alternatives) will be agreed upon. In a second phase, the preferred solution (alternative) will be further elaborated, that is optimizing

the plan, and more specialised information on planning and construction of the dumpsites and retention areas.

The area of the Zandmaas / Maasroute is subjected to other policies and plans, such as the Nature Policy Plan and a plan to safeguard green space. These plans will have influence on the Zandmaas/Maasroute.

Other decisions depends on the decision on the exact routing: Regional plans, under responsibility of the Provinces, have to be revised.

3. Biodiversity, the general meaning of biodiversity in the SEA

As is quit normal in the Dutch situation, the term biodiversity is not used: also in this SEA the term "original natural values" or "nature" is used. Related to the objectives mentioned under heading 1, three conditions are formulated to protect the existing natural values:

- negative effects of shipping must be mitigated;
- river-widening measures should not lead to desiccation (not exactly indicated where, but in areas with either a function for nature or for agriculture);
- no stand-still, but development of nature.

The last condition is translated into the goal of "restricted nature development" that is elaborated as:

- the realisation of nature friendly shores;
- to realise a decrease in peak flows, measures in the winter course are planned. These kind of measures can bring back the original dynamic of river floods and creates opportunities for wet, river bound ecotype restoration.

Thus, the development of nature is one of the objectives of the plan and should be integrated with the objective of decreasing high peak flows and improvement of the transport functions.

In the SEA different levels of ambition (restricted versus less restricted nature development) concerning new nature are formulated. These need further elaboration in more detailed plans.

4. Transparency and Stakeholder involvement; Involvement of the relevant (related to biodiversity) stakeholders

Participation took place via legally obliged methods:

- a) after publication of the notification of intent. Based on stakeholder participation the "notitie Maasvarianten" was published.
- b) the draft SEA was discussed with stakeholders (governmental bodies and special interest groups). A long term vision on the Maas valley was formulated based on these discussions, though this vision is not included in the official SEA. It serves as benchmark for the SEA.

5. Biodiversity in the different stages of the SEA process

5.1 Screening

-

5.2 Scoping

Since 1995 the independent commission on EIA advised three times: The first advice focused on the early identification of the " most environmental friendly alternative" and the most desirable direction of nature development. The other advices concerned the potential dumping location for sludge.

5.3 The assessment

In the assessment a comprehensive analysis is made of the (history of) the natural characteristics (landscape, river, nature) of the area. Besides various societal functions of the

area are described: living, working, shipping, recreation, agriculture, mining, extraction of drinking water, spatial developments.

Four alternatives were developed, based on the choice between river deepening versus river widening and restricted versus less restricted nature development:

1. deepening and restricted nature development
2. widening and restricted nature development
3. deepening and less restricted nature development
4. widening and less restricted nature development (most environmental friendly alternative)

Biodiversity = Nature

To give an indication of the relative contribution of the "river-widening measures" to nature development, five criteria were formulated. (nature development can be measured with these 5 criteria).

- **Areas with nature-function** (in ha.): the surface of areas that are extracted for broadening the river or nature development. Indicated loss of existing nature values.
- **Nature vulnerable to desiccation** (ha): indicates the relative drying out of the existing vegetation in reaction to a decrease in the water level.
- **River ecotypes**: amount of new ecotypes that will appear as a result of the measures to decrease high water levels and nature development. (quantitative)
- **River species living areas**: (qualitative) development of species that are characteristic for river ecotypes
- **Target species in policy**: increase or decrease of species that are marked as "target" species in nature policy.

Most important conclusions concerning the objective of nature development are:

1. a quantitative growth in surface of river bound ecotypes: more hectares where the nature function is the dominant function;
2. a qualitative improvement of the natural values because of the growth of habitats for river bound flora and fauna.

Compensation to enhance natural values:

- Desiccation will be mitigated by so-called "peilopzet" that can be translated as increasing the groundwater level by adapted weir management. This may lead to higher groundwater levels in some areas. Also for shipping "peilopzet" can be favourable because it realises a draught of 3,5m. Higher groundwater level has negative effects for agriculture, especially in areas near the river. Some of the agricultural land will be bought and given a nature function, other agriculture businesses will be compensated and in some cases a modernised drainage system will be applied.
- Deepening and widening has negative effects on the natural river dynamics and therefore on the river ecosystem. Parallel streams, situated near the weirs, can restore a part of the dynamic character of the river.
- The shores will not be protected anymore against the turbulence and waves of the river water caused by shipping. This will first lead to erosion but soon the process of erosion and sedimentation will lead to a dynamic, natural looking shore.

Because in all alternatives new ecotypes will be created, extra compensation that is legally required under de Compensation Principle now is not necessary

Groundwater, to be considered as a biodiversity related issue, appears as a separate issue in the SEA. Because of the already mentioned "peilopzet" no significant effects are expected.

Aspects studied under the umbrella of "the living environment" can also be considered as biodiversity issues: disturbance by dust, noise and vibrations. However, disturbance is interpreted from a human perspective only (days of disturbance) and not for biodiversity processes, structures and components.

Biodiversity related to land use

The proposed measures need space and therefore have effects on other activities that need space. In this case agriculture is the most important other function, followed by recreation and residential areas. In all alternatives agriculture loses space to the proposed measures for river-enlargement and nature development.

Biodiversity related to sustainability

spatial potential:

- do the measures fit into the desirable long term vision for the area (vision Maas valley)?
- Measures should not impede the extraction of minerals (sustainable use: mining activities)

Future robustness:

- Flexibility of the measures by a change in context
- Extra capacity of measures

compensation and mitigation needs

- To what extent do the measures depend on mitigation or compensation to ease the negative effects? Mitigation and compensation measures should be sustainable in themselves.

processes of natural materials

- Amount of material removed
- Percentage of marketable minerals

5.4 Decision making

-

5.5 Monitoring

The following effects will be evaluated:

- Effects on groundwater levels
- Water levels in de river Maas
- The development in shipping
- Use of space alongside the river Maas
- Hindrance (not indicated what kind of hindrance)

These effects are further elaborated in a draft evaluation programme that is included in the SEA. Concerning biodiversity the following aspects are mentioned:

- Erosion of shores; are natural shores developing?
- Development of ecotypes; depends largely on the degree of sedimentation
- Habitat development: degree in which a habitat is restoring
- Effects on navigability of the Maas
- Desiccation: effect on vulnerable natural areas, damage to agriculture, controlling mitigation
- Groundwater quality and ground water level.

For each aspect it is indicated what type of research method will be used, in what period the study will take place and what kind of measures can be taken.

5.6 Information

To predict the effects on nature, several models have been used (MONVEG, MORRES). These models contain information about the needs of certain species (water depth, groundwater level) or environmental needs of certain ecotypes (duration of the flood, ground water levels). This information has not been tested in the field and therefore is not very detailed on the local level. However, the information is used to compare the alternatives and for that purpose the general information was sufficient.

Lesson: data derived from computerized models are reliable for an indication of effects on the strategic level; for each individual location the results should be tested on reliability. This is

also concluded from the case study on the Policy Plan for the Supply of Drinking Water and Industrial Water.

Effects on groundwater levels were predicted with the help of a model called TRIWACO and the so-called ZWENDL calculations. This model has a regional character (Maas and ca. 10 kilometres on both sites). Local effects can not be measured: when details of a local situation is desired, the model needs to be adapted for that special situation. (calibration, consistency is measured by comparing some local measurements with the outcomes of the model).

It is concluded that the existing knowledge and models provide a sound basis for decision making. Data that are relevant or necessary for issuing permits will be studied for that special situation.

However, a few gaps in knowledge do exist, among others:

- general spatial arrangements of retention areas (concerning safety objective) such as the size, compensation measures, structure and spatial effects, etc.;
- erosion and sedimentation processes on shores; yearly amount of sediments brought by the Maas (concerning nature development objective);
- no knowledge about the velocity of sedimentation processes and quality of sediment that is important for macro fauna communities. Monitoring is required (see under 5.5.)
- what are the effects of dredging on nature (in casu macro fauna and fish)? A monitoring programme is installed.
- (concerning groundwater) Relatively little data are available about the groundwater quality in seepage areas with an important natural value/function. In general there is little detailed knowledge on the processes concerning the quality of groundwater (denitrification, binding of small parts etc.)
- lack of geohydrological information

6. General observations

This case indicates that the function of nature development (biodiversity) can coincide with activities aimed at seemingly completely different objectives, such as peak flow protection and navigation (safety and transport functions). The case illustrates that communication between the stakeholders with a focus on different functions can lead to a trade-off that is favourable for all. Interesting in this SEA is that it is tried to operationalise the concept of sustainability.

The SEA is based on regional focussed general information (computer modelling) that has to be verified in local situation in the field. However, this general information is sufficient for comparing the effects of alternatives on a strategic level.

*References

For this restricted case study only the Trajectnota/MER has been used. The SEA is a very comprehensive one with many links to other relevant policy areas. Documents can be found at the Netherlands Commission for Environmental Impact Assessment (www.eia.nl).