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Strategic Environmental Assessment in long-term structural design planning

Strategic Environmental Assessment (SEA) for plans has existed in the Netherlands since as far back as 1987, but most of the Environmental Assessment (EA) procedures related to projects. Changes to the EA legislation since 2005¹ and the new act on spatial planning of 2008 resulted in the emphasis in EA practice shifting from project EIA (Environmental Impact Assessment) to SEA. This article focuses on experiences with SEA in long-term structural design planning.

Since 1 July 2008, all tiers of government in the Netherlands (central, provincial and local) have had to prepare long-term structural design plans for their area containing the main points of the spatial policy. When such plans contain framework decisions for developments or activities for which EIA is mandatory, SEA is mandatory.

Different approaches are possible

From the little practical experience available on SEA of long-term structural design plans it appears that SEA can deliver added value in different ways. This is illustrated by the following cases.

Comparison of alternative future scenarios for the plan area: the Randstad case²

In this case, central government wanted to make all sorts of decisions for the short to medium term about the extent

and location of house building, activities and infrastructure in the Randstad (the west of the Netherlands, including the four biggest cities). The administrators wanted to position these decisions in the perspective of a long-term view of a sustainable future for the Randstad. Several fundamentally different alternatives for that future scenario were conceivable.

The SEA report for the Randstad presented three different future visions of the area in 2040 side by side and compared them, using a reviewing framework. In this SEA report an integrated framework for assessing the sustainability of development was used. It considered more than just the environment (see box 1). The reviewing framework focused on people, profit, planet – now and later. On the basis of this comparison a preferred model was developed. This was administratively specified in the Randstad 2040 long-term

Model World City



Source: SEA report for the structural design plan Randstad 2040. By Oranjewoud and CE Delft, commissioned by the Ministry of Housing, Spatial Planning and the Environment, 2008.

structural design plan which now forms the reference framework for future decisions on concrete projects.

Testing the proposed policy in terms of sustainability targets: the Overijssel case

In Overijssel (one of the Dutch provinces) there was a general idea of what a sustainable province should look like in 2040, but the administrators were unsure whether this was achievable with current policy. They wondered whether sufficient measures were available for guiding development towards the desired future scenario.

The SEA report went into whether the provincial policy as proposed in the long-term structural design plan would be more sustainable than continuing current policy (see box 2). The SEA report revealed that the proposed policy was indeed an improvement, but that problems of traffic nuisance, acidification and desiccation of nature reserves, and of climate change (CO₂ reduction targets) were not sufficiently addressed. Possible supplementary measures are now being sought.

Box 1

Government: Central

Area: Randstad, the area in the west of the Netherlands where four major cities lie around the rim of an area with nature conservation, recreation and agricultural functions.

Long-term structural design plan: Future vision for 2040

SEA report:

The alternatives in the SEA report were developed in design workshops. First, the themes 'green and water', 'networks' and 'urbanisation' were explored and the outcomes were discussed. On the basis of this, three integral models were constructed according to the principles 'creating space' (Coastal City), 'enlarging space' (World City) and 'going to where space is' (Outer City).

The same indicative specification of the land use for 2040 was incorporated in all three models. Each model contained its own particular vision of the structure of the networks (spider, ladder, archipelago).

- World City is primarily to do with the location of the urbanisation and with how concentrated it could and should be.
- Outer City investigates the pros and cons of urbanisation spreading out from the rim of the Randstad.
- Coastal City investigates the role of the coast as a catchment area to relieve the pressure of urbanisation.

The models were compared using a sustainability matrix (people, planet, profit/here and now, elsewhere and

later), in which assessment criteria were filled in per cell more specifically for the SEA report.

	people	planet	profit
Here and now			
Later			
Elsewhere			

The assessment was mostly expressed in qualitative terms, in the form of a motivated expert opinion. It was attempted to combine the best of the models in a 'Cabinet's Vision', which is the basis of the Randstad 2040 long-term structural design plan.

Main message

The main conclusions from the SEA report are that the best alternative to emerge from the comparison is the World City model (concentrating the urbanisation, e.g. by transforming the urban area), with the Cabinet's Vision taking second place. However, the Cabinet's Vision is more adaptable to possible future unexpected developments and fits in better with Dutch people's housing wishes, because it entails less high-rise.

Time and effort

The SEA procedure began in March and the draft EA report was ready in August. It was 80 pages long, plus 40 pages of annexes.

Assessment table 'Here and now': Randstad 2040

		World city	Coastal city	Outer city	Cabinet's vision R2040
Subsurface/water	Flooding & safety; water storage	1	3	1	3
	Extent to which functions fit in with the properties of the subsurface	1	4	2	2
	Probability X as a result of calamity (flooding)	3	4	1	2
Energy & raw materials	Potential to approx. halve CO ₂ vis-à-vis 1990	1	4	2	2
Mobility	Accessibility of other people & facilities (shops, schools, sport, etc.)	1	4	2	2
	Accessibility of businesses (for people and goods)	1	2	3	3
	Quality and linkage of networks (public transport, cars, bikes)	1	3	3	2
Nature	Conservation of the quality of Natura 2000/ National Ecological Network	2	4	1	2
	Space for new nature in the Randstad	1	4	1	1
Landscape quality	Opportunities for improving spatial quality, restructuring	1	2	4	2
	Opportunities for improving spatial quality, fragmentation	1	4	1	1
	Recognisability of historical landscapes	1	4	3	2
Quality of residential environment	Noise nuisance	4	2	1	3
	External safety (controlling the risks to the environment from the use, storage, and transport of dangerous substances)	2	1	4	3
	Social cohesion/engagement of people in their residential environment	4	3	1	2
	Safe residential environment	4	1	1	3

Source: SEA report for the structural design plan Randstad 2040. By Oranjewoud and CE Delft, commissioned by the Ministry of Housing, Spatial Planning and the Environment, 2008.

Location and routing considerations: the Woerden case

The more traditional approach still remains usable alongside these newer approaches (see box 3). The SEA report then focuses on large new construction schemes in the plan area, goes into their usefulness and necessity, and evaluates alternative locations. That was the main thrust of the SEA report produced by Woerden municipality to accompany the new long-term structural design plan for an industrial area and two large recreational facilities.

The approach works well if there are several relatively straightforward construction schemes planned in the short term (next few years)³ and otherwise few actual sticking points requiring a drastic change in policy.

New approach to civic participation: the Amsterdam case

The advent of SEA for long-term structural design planning also led to experimentation with new forms of involvement and civic participation. More than previously, stakeholders and the general public are consulted at the start of the process by means of meetings and by actively seeking out people. Their comments and wishes are used as building blocks. On the basis of this information the administrators in Amsterdam defined their ambitions and stakes at the start of the SEA and planning process (see box 4). This made it possible to test alternatives against them in the SEA report (target attainment).

Consulting many parties at an early stage of the planning process proved a success. It led to more support for the final decision.

Box 2

Government: Overijssel province

Area: Overijssel province

Long-term structural design plan: Vision of developments to 2020 with a look ahead to 2040

SEA report:

In the run-up phase all the stakeholders were consulted and the provincial interests were formulated. The key ambition was: 'future-assured growth of welfare and wellbeing with wise use of the available natural resources'. This was worked out as:

Wellbeing	Welfare	Natural resources
<ul style="list-style-type: none">• Attractive and varied residential environments that satisfy residential demand.• Conservation and reinforcement of urban quality and the landscapes on the outskirts of towns.• Safe, healthy and clean living, working, leisure and travelling.	<ul style="list-style-type: none">• A vital regional economy with sufficient new opportunities for businesses to establish.• Fast and safe journeys by road, water, rail and bike to the urban networks and local centres.• A reliable and safe energy supply with limited emission of greenhouse gasses.	<ul style="list-style-type: none">• Conservation and strengthening of biodiversity.• Water systems of good ecological and chemical quality that are climate-resilient and safe in the long term.• Balance between the use and protection of the subsurface.

In the SEA report the autonomous development (continuation of present policy) was compared with the impacts of new policy. It appeared that various new measures would make it easier to achieve the objectives. The new policy contributes to the quality of the landscape, the diversity in residential environments, the availability of industrial areas, and accessibility.

Certain persistent problems remain:

- Noise nuisance from traffic remains too high.
- The environmental conditions in the nature reserves do not improve sufficiently (nitrogen deposition, desiccation).
- The increase in the proportion of sustainable energy is not enough.

Main message

The message for the administrators is that supplementary policy on these points is necessary

Time and effort

The SEA procedure began in February 2008; the writing of the SEA report began in April. The report was completed in November 2008. It consists of 90 pages, including annexes.

Box 3

The more traditional way of assessing locations entails mutually comparing locations or routes for infrastructure, using scores on a series of environmental criteria. In addition a simple or more detailed multicriteria analysis (MCA) is used. For a simple MCA it is sufficient to have a score table of pluses and minuses. The more detailed versions entail using a computer and applying weighting factors, standardisation of scores and sensitivity analyses, etc.

Popular environmental aspects for which criteria are filled in are: soil, water, nature, landscape, cultural history, residential and experiential environment (noise nuisance, air quality, safety), automobility, land use and energy.

When this simple method is used, the consequences of the total plan are not revealed. Instead, the focus is on the components of the plan for which EA is mandatory: the major construction schemes.

Advantages of SEA

Implementing an SEA has advantages: When an SEA report on a long-term structural design plan contains evidence on the usefulness of and need for new developments and also evaluates the locations, there is no need for this to be included in a subsequent EIA report - especially if a certain volume of support has been created by extensive civic participation. At the same time, an SEA at strategic level need not take so much time. As long-term structural design plans present the main thrusts of policy, the environmental impact report can also contain the main thrusts and can be more qualitative. As a result, such reports are quicker to prepare. The assessment of the alternatives comprises an expert and motivated judgement on the basis of good cartographic material, but without extensive calculations. However, this puts great demands on the process. Quality assurance must be good; this is achieved by, among other things, consulting other disciplines (designers, experts in public administration) and stakeholders (administrators, lobbyists).

Box 4

The ambitions Amsterdam's administrators formulated for the long-term structural design plan 2020-2030 after consulting with those involved.

Amsterdam's mainstays:

1. The city's metropolitan core must be extended further by transformation along ribbons of buildings and the demolition of barriers.
2. Amsterdam must offer a broad package of residential environments with an accent on metropolitan (high densities).
3. A regional public transport system must be the carrier of the spatial developments (missing connections must be filled in).
4. In Amsterdam there must be a clear connection between the structure of the green areas and water, and public space.
5. Amsterdam must offer space for varied entrepreneurial activities, with an accent on the knowledge economy.
6. The airport and a smart harbour for sea-going vessels are components of Amsterdam.
7. Amsterdam must be sustainable, climate resilient and waterproof.
8. Amsterdam must be socially sustainable and unsegregated.
9. Amsterdam's opportunities for tourism must be good and could be increased.
10. Amsterdam must be able to provide space for facilities for the 2028 Olympic Games.

A welcome spinoff is that the more 'map-oriented/main thrusts' approach brings the discussions of the environmental experts, designers and administrators more into one line than used to be the case.

Conclusion

Various approaches are possible in SEA for long-term structural design plans, depending on the questions at issue. The most important task is to ensure that the research, design, civic participation and administrative processes converge in an intelligent and creative way. SEA can be given the catalysing and structuring role in this, deployed not as a post-hoc motive but as an instrument playing a role in the entire process of creating a plan: it brings groups together and is attuned to the substance and level of detail of the formulation of the problem.

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- *Author: Marja van Eck, technical secretary at the NCEA.*
 - (1) *Under the influence of the European Guideline on SEA.*
 - (2) *Randstad 2040: Summary of the Structural vision (in English), 2009, 78 p. Free download: <http://doemee.vrom.nl/randstad2040/publicaties/structuurvisie-randstad-2040/randstad-2040-summary-of-the-structural-vision>.*
 - (3) *When the intended interventions and changes are more intrusive and more intermeshed, it is better to look at the entire plan. A more distant time horizon makes it necessary to apply a 9-cell 'sustainability' matrix instead of a simple environmental assessment.*

More information

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