

# Overcoming Lock-in?

## Sustainability Check: a new tool for sustainability assessment early in the planning process

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### 1. Introduction

Transport infrastructure plays a vital role in the socio-economic development of regions as it facilitates accessibility between spatial functions, within and between regions (Van Wee et al., 2013; Wegener & Fürst, 2004). However, the development of (new) infrastructure proves to be difficult because of conflicting interests, scarce space, complex environmental issues, dynamics in economy and land-use, changing roles of (national) government and (local) public resistance (Arts 2007). Because of the considerable impacts the infrastructure development may have, it is traditionally subject to extensive evaluation of environmental, social and economic impacts by such instruments as Environmental Impact Assessment (EIA) and Cost-Benefit Analysis (CBA). These Impact Assessment (IA) tools play an important role in delivering sustainable outcomes in infrastructure planning. In practice, however, there is often much criticism on assessments for infrastructure development being too lengthy, too costly and their quality being often poor (Arts & Niekerk, 2010; Arts et al., 2012; Runhaar et al. 2013). For instance, in a country as the Netherlands, transport infrastructure and spatial development are usually planned in different silos, by different authorities in different institutional settings. Government agencies are usually responsible for only a certain infrastructure mode – road, water, rail, etc. – therefore they usually develop also projects with a limited, locked-in scope. However, development of transport infrastructure is usually done in situations with strongly interrelated land use functions and fragmented, but with interdependent parties, which calls for more integrated planning. As in many countries, sustainability is an important ambition of governmental policies in the Netherlands. However, in project development it proves difficult to implement these ambitions. Time, money and scope are dominant drivers in project management. Overcoming lock-in and achieving a more inclusive integrated scope in project development is crucial for more resilient and sustainable planning outcomes. To help to integrate sustainability in projects, Rijkswaterstaat – the executive agency of the Dutch Ministry of Infrastructure & Environment – has developed the “Omgevingswijzer” (Sustainability Check). This paper is partly build on a more extensive discussion about this instrument by Heeres et al. (forthcoming) and discusses the characteristics of the Sustainability Check; its specific nature in comparison to other instruments and assessments. We also evaluate some recent experiences gained with the Sustainability Check, which we illustrate by three cases. Subsequently we provide a SWOT analysis and how the instrument fits in current discussions about sustainability policies in the Netherlands.

### 2. Sustainability Check

The Sustainability Check is an assessment tool that aims to map in a very early planning stage how sustainable the scope of a project is and what the potential for sustainable area development is. The Sustainability Check is a digital tool, which consists out of twelve sustainability indicators (based on People-Planet-Profit) and is intended to stimulate awareness and debate around sustainability, and to do this in a structured way with the stakeholders involved. The tool has been received surprisingly well by Dutch practitioners; both by national, regional and local government as well as private parties (RHDHV, 2015). The Ministry wants to make it a standard element in its Planning Programming Budgeting system for national infrastructure and spatial development (“MIRT”; I&M, 2011).

The purpose of the Sustainability Check is to gain concrete insight into the potential for sustainable area development around transport infrastructure planning initiatives. Therefore the instrument explicitly considers: (a) what potential for infrastructure-land use integration exists and may lead to the creation of additional value; (b) which actors would be involved in these processes of integration; and, (c) what the role of the developer would be to allow for such integration (Heeres et al, 2012, forthcoming; RWS, 2012; Burger, 2014).

The main purpose of the instrument is not to provide quantitative insights, but rather to start a discussion on the potential for infrastructure-land use integration. Therefore, the indicators represent a broad perspective on sustainable development and can be linked to the People-Planet-Profit (PPP) pillars of the triple bottom line (Elkington, 1997). To this end the instrument contains a checklist to assess whether all sustainability aspects are addressed and to what extent. In addition, the instrument can be used to compare alternatives options in a project or alternative projects. Furthermore, by comparing early strategic principles and aims with concrete development proposals the instruments also allows for a consistency check on projects as they progress towards establishment of final proposals (see Figure 1).

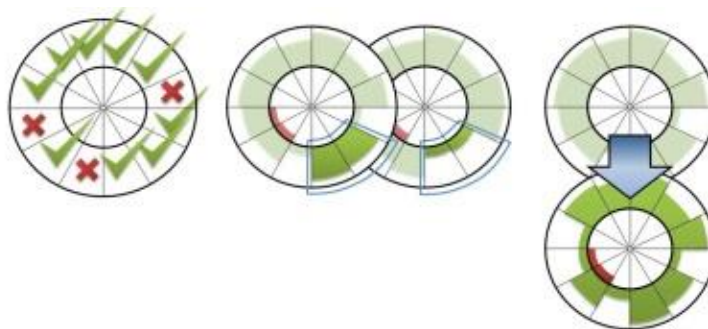


Figure 1: Three different purposes of the Sustainability Check: a) checklist, b) comparing alternatives, c) consistency between stages (based on: RWS, 2013).

The instrument works by exploring a project alternative or comparing different alternatives on 12 different indicators of sustainability. These indicators, linking in to either the people, planet or profit dimension of sustainability, are operationalized for infrastructure and area development through the formulation of principles (see Table 1). Project alternatives are rated on sustainability characteristics by means of available policy and project documentation and by using standardized interviews questions. The outcomes of this examination are visualized in a 'synergy wheel', in which the twelve sustainability indicators are included. Green shading above the zero-line indicates a positive effect on a specific theme, red shading below zero indicates negative effects to be expected for an alternative. The scoring mechanism also allows for both positive and negative effects to be shown for the same theme. This way a nuanced insight into the expected effects of an alternative is presented. The use of this wheel to visualize the sustainability of proposals seems to resemble other recent initiatives regarding the assessment of sustainability effects (see for a more extensive discussion Heeres et al., forthcoming). The use of a wheel allows for an accessible and comprehensive overview of sustainability effects and provides insight into the relative positive and negative effects of different alternatives.

Table 1: The 12 Indicators of sustainability and relevant principles (source: RWS, 2013; Heeres et al. forthcoming).

Sustainability theme	Indicator	Relevant principles relate to ... (e.g.)
Ecology/planet	Water	Water safety/water flooding/water quality/water shortage/climate proofing
	Underground/soil	Soil quality/diversity soil types/soil biodiversity/archaeology/soil subsidence
	Energy and materials	Reduction of energy consumption/use of renewable energy/use of fossil fuels/consequences of extraction of resources/exchange of energy/robustness of energy networks
	Ecology and biodiversity	Room for flora and fauna/biodiversity/ecological structures
Social/people	Use of space	Linkage with existing (regional) construction needs/restructuring/expansion/multiple land-use
	Public space and functions	Spatial quality values: experience, use and future/integrated design
	Social relevance	Social well-being/demographical composition and trends/public support/local expertise
	Well-being	Health: positive contribution and limitation risks/physical and social safety/prevention of nuisance
Economy/Profit	Mobility and accessibility	Robustness of transport system (within/between modalities)/efficient infrastructure use/accessibility, connectivity/adaptiveness for mobility policies
	Investments	Cost benefit ratio/area potential/value capturing
	Economic benefits for companies	Business climate/economic policy/capacity for innovation and adaptation
	Economic benefits for citizens	Employment/accessibility of job market/development of labour force/available services

If applied in practice, Sustainability Check can take any of three particular roles in the planning process. First of all, the instrument can serve to measure the sustainability potential of a specific plan or proposal as a light IA tool. Secondly, the Sustainability Check can serve as a tool for comparison of alternative options in a project on the overall sustainability picture and on twelve specific sustainability facets. Thirdly, the Sustainability Check can indicate the consistency of the planning progress by comparing consecutive proposals (see Figure 1). We briefly compare the Sustainability Check with other instruments to give more insight in the nature of this instrument and more in general in the instruments used in Dutch infrastructure planning. We focus on Cost-Benefit analysis, EIA and BREEAM – as these instruments are also widely applied in other countries (Arts & Faith-Ell, 2012). Table 2 provides a comparison of the four instruments. More in-depth discussion about CBA, EIA and BREEAM can be found in extensive literature (Beukers et al. 2012; Sijtsma et al. 2012; Runhaar & Driessen, 2012; Runhaar et al. 2013; Arts & Faith-Ell, 2012).

Table 2: Different tools compared (based on Heeres et al., forthcoming)

	Sustainability Check	Cost Benefit Analysis	Environmental Impact Assessment	BREEAM (infra or area)
<b>Functional scope (content of assessment)</b>	Broad, 12 themes clustered around economic, social and environmental issues	Primarily economic benefits and costs. To certain extent also issues such as energy and materials used, ecology, wellbeing	Primarily environmental themes, although often also social and sometimes economic issues included	Broad range of environmental and social themes, minor attention to project finances
<b>Quantitative or qualitative measures</b>	Qualitative indication	Quantitative	Usually primarily quantitative, sometimes also qualitative	Quantitative
<b>Testing and/or generating alternatives</b>	Testing and generation of alternatives	Primarily testing alternatives	Primarily testing alternatives	Primarily testing, more specifically rating. Applicable in early stages for comparing alternatives
<b>Attention to process in assessment</b>	Explicitly developed as a tool for facilitating discussion and collective decision-making	Until now very little (process influence is currently being researched, see Beukers)	Originally mostly content, but last decade much attention for process	The instrument is a means for discussing sustainability in a common language

On basis of the comparison in Table 2 some conclusions can be drawn (see also Heeres et al, forthcoming):

- Some instruments have a broad scope (SC, BREEAM) or dedicated functional scope (CBA, EIA);
- There are both quantitative (CBA, BREEAM) and qualitative (SC, EIA) instruments available.
- Only the Sustainability Check pays explicit attention to the planning process, apart from some general attention for creating public support in the other instruments
- Most instruments are equipped for testing alternatives, however, the generation of viable alternatives seems to be far less present.

A wide range of instruments is available for infrastructure planners. However, specific attention to processes of interaction and collective design – relevant for overcoming lock-in – is only included in a few instruments. The next section discusses some recent experiences gained with the Sustainability Check in order to illustrate the potential of this instrument for broadening of the scope – and thereby preventing lock-in – of infrastructure projects (see also RHDHV, 2015; RWS, 2012; ARUP, 2012 and Figure 3).

### 3. Cases

#### Gerrit Krol bridges, Groningen

Rijkswaterstaat is collaborating with the provinces of Friesland and Groningen on improvements to the Lemmer – Delfzijl waterway. One of the related projects is the replacement of the Gerrit Krol bridges consisting of a pontoon bridge for vehicles and two fixed bicycle bridges.

Figure 2: two different scenarios compared (scope vs ambitions).

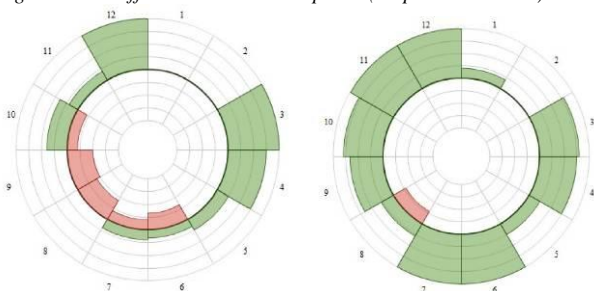


Figure 3: Projects in the Netherlands that applied the Sustainability Check.

A session with the Sustainability Check was organized with the involved parties (see Figure 2). The Business and Community Liaison Officer explains: “The bridge is the town of Groningen’s biggest traffic bottleneck. Accessibility is therefore an important issue for consideration in the development of solutions. It will require administrative commitment, for example in the sharing of costs.” The Sustainability Check became a means of communication in this project. “It highlighted the different issues making them easier to discuss. This increased our understanding of the project. It also meant that all the parties involved now look at the project with that same understanding. This may result in solutions that go beyond purely the waterway itself, but extend to the spatial quality of the area.”

### N309 't Harde

It is anticipated that the traffic on the N309 in the town of 't Harde will grow in the future (see Figure 4). This would have a major impact on the quality of life and traffic flow of the village. In this pre-design phase several alternatives are compared: a route through the city centre and some bypasses around the city. Where traffic through the town-centre can cause problems for the quality of life, traffic around the town can have negative socioeconomic consequences. This conflict has offered opportunities for the Sustainability Check to clarify this.



Figure 4: N309 't Harde: current situation and proposed bypass

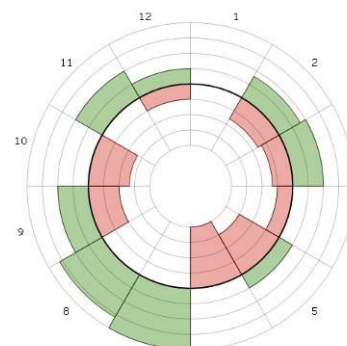


Figure 5: analysis of bypass proposal

At first it seemed that redirecting the traffic out of the town-centre would be the best solution. This would improve the environmental quality and the regional traffic flow can be kept intact. However, during the use of the Sustainability Check it has become clear that there are other arguments to let the road go through the centre (see Figures 4 and 5). These reasons are mainly socio-economic in nature: as is the traffic that currently goes through the centre is the largest source of income for small and medium businesses. Moreover the town of 't Harde will have to deal with demographic decline. A bypass of the N309 out of the town would therefore drain the liveliness and activity out of 't Harde. In addition, the improvement of the traffic flow would attract more traffic to surrounding cities. It also became clear that the noise in the city does not disappear, but simply will be moved to the outskirts. Although it seemed at first sight that a bypass was the best solution for 't Harde, further study showed that there are also strong arguments to maintain the road in the centre. This project showed that the Sustainability Check can be used to monitor projects on completeness, get people to think and provoke the discussion about what the is most sustainable solution for a problem.

### Strategic Regional Development Agenda Zeeland (“Gebiedsagenda Zeeland”)

In the province of Zeeland there are important topics concerning the spatial development, including: national water safety, proximity to two European ports, tourism and demographic decline. The strategic Regional Development Agenda (“Gebiedsagenda”) describes what these themes imply for spatial development in the Zeeland. Applying the Sustainability Check to this strategic level was an interesting case regarding the different topics that can have conflicting interests when translated into regional spatial development proposals (see Figures 6 and 7). The outcome was that this strategic agenda has a lot of potential on different topics but that the challenge lies in connecting these topics into an integrated regional spatial plan for development. The political agendas of the various parties involved also plays an important role, since these are not described in the strategic agenda but have formed it. This may become visible when applying the Sustainability Check for a certain project if there is budget for that project. Application of the Sustainability Check made clear that the tool can help to show the relationships between different spatial problems or initiatives and between strategic and operational decision-making about project proposals, something that is often still missing in strategic discussions about planning programming and budgeting development (“MIRT”).



Figure 6: Regional development agenda Zeeland

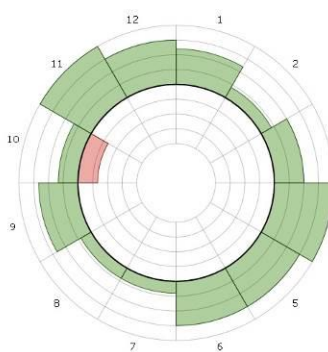


Figure 7: analysis of Zeeland regional development agenda

#### 4. Analysis and results

On basis of these cases discussed and the results of a recent study of 20 cases at all levels of government and various types of initiatives for which the Sustainability Check (RHDHV, 2015) has been applied, we distilled a SWOT analysis (see Table 3).

Table 3: SWOT Analysis on the experiences with the Sustainability Check

<b>Strength</b>	<ul style="list-style-type: none"> <li>◦ Instrument is simple to use</li> <li>◦ Broadly accepted within NL</li> <li>◦ Applicable in multiple phases of a project, best applicable at the scoping phase</li> <li>◦ Shows which stakeholder(s) should be involved</li> <li>◦ Outcome can be used well for communication</li> </ul>	<b>Weakness</b>	<ul style="list-style-type: none"> <li>◦ Only a first impression on how sustainable a project can be</li> <li>◦ Outcome based on expertise of participants (selectiveness); lacks quantitative insights</li> <li>◦ There has to be a development proposal in the area as a starting point</li> <li>◦ Proves to be difficult to assure the outcome for sustainability in following steps and phases</li> </ul>
<b>Opportunity</b>	<ul style="list-style-type: none"> <li>◦ Goes beyond silo's; an integrated approach</li> <li>◦ Much experience has gained with different types of projects and stakeholders</li> <li>◦ Broadly applied at different scales and projects</li> <li>◦ Becoming a standard in the Planning Programming Budgeting system for infra ("MIRT")</li> </ul>	<b>Threat</b>	<ul style="list-style-type: none"> <li>◦ Only one of many other instruments</li> <li>◦ It is used for almost every purpose; also for processes that don't fit the tool</li> <li>◦ Discussion on sustainability proves to be a stand-alone goal in discussions about project relevance</li> </ul>

This SWOT analysis reveals that the Sustainability Check has a lot of strong points and opportunities but there are some aspects to keep in mind when using it. Its unique advantage is the usefulness during the scoping phase and its broad aim at a problem in an area instead of a specific problem. The tool also may help to address conflicting interests or connect common goals in an area. By checking the original scope with sustainability themes and in usefulness to involve other stakeholders it might help overcome lock-in. However, the tool only provides a first, qualitative insight and it proves difficult to assure the outcome in following planning stages. Careful joint application of other instruments such as EIA, CBA and BREEAM may help here.

#### 5. Conclusion and discussion

The application of the Sustainability Check assumes intrinsically that there is an ambition present in the project that goes beyond just meeting legal requirements. This requires that the project teams have an open mind for enlarging the scope – and therefore the politicians who commission the project – in order to prevent lock-in and to achieve an integrated approach. In practice however, such open attitude proves to be scarce, especially in the later stages of area development. On basis of the evaluation it becomes clear that sustainability is very differently interpreted; broad ("spatial quality enlarge") to narrow ("energy", "CO<sub>2</sub> emissions"); from precondition to add-on; but also from content creation to process instrument. On basis of the experiences gained we conclude that sustainability can only be made together with different parties in an area; this is a message that pops up in many projects. Important lessons are: start together at the core of a problem (scoping) and work together to find a sustainable solution. A solid basis for sustainability is not always available: sustainability often has no solid base in the original scope. For instance, focusing on the long-term interest. Where there is defined a broad scope, however, it proves that that scope is often insufficiently secured in the subsequent stages of the planning process. To actually create more sustainable projects it is clear that managing such a goal is still insufficient. This is expressed in ambiguous assignments, changing messages of (administrative) clients, too much focus on short-term results (time and budget) and little attention to the fact that sustainable investment in infrastructure is not yet a routine and thus demands flexibility and experimental space. A major issue lies in the difference between policy guidance and project management; of a "control of ambition" to "control on time, budget and risks". The daily reality of project management leaves little room for translating, concretization, assurance and accountability of sustainability goals. These issues are now intensively discussed within national government and steps are taken to provide the Sustainability check a more structural position within the "MIRT" planning-programming-budgeting system for infrastructure and spatial development (RWS 2014b, RHDHV 2015). On basis of the recent evaluation study discussed in this paper, it can be concluded that the Sustainability Check has been received remarkably well by practitioners as a useful addition in the planner's toolbox by addressing the requirements of early, integrated plan-making that strives to overcome lock-in situations. However, tools such as the Sustainability Check, as useful as it might be are a necessary but not sufficient tool for overcoming lock-in situations in planning – and for achieving sustainable outcomes. It is a good first step in making spatial initiatives more integrated, but definitely not the last step. This instrument seems especially useful in early plan stages of strategic exploration, to support collective design and choice, however, more detailed and specific instruments remain needed for detailed elaboration and assessment, especially in subsequent stages. Smart combinations of the instruments available for evaluation and assessment (such as the Sustainability Check, CBA, EIA, BREEAM etc.) should support the complete cycle of intelligence collection about the problem, collective design of multiple alternatives, choice for an alternative and careful implementation.

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