Climate OptiOns for the Long Term – Final Report

Volume E

Evaluating the COOL Dialogues

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Abstract

The COOL (=Climate OptiOns for the Long term) project has a twofold objective:

- To develop strategic notions as to how drastic reductions of GHG emissions in The Netherlands can be achieved in the long term, both in a European and global context, using a method of participatory integrated assessment.
- To make recommendations for improving the methodology of participatory integrated assessment, in particular regarding (1) stakeholder participation, (2) utilisation of knowledge by stakeholder participants, and (3) facilitation of the linking by stakeholders of the three geographic and political levels (NL, EU, global).

This report focuses on the second objective of the COOL project.

The COOL project consists of three sub-projects: a national, a European and a global dialogue. The three projects all have starting points in common, but have developed into different directions. All three projects have been evaluated with respect to their dialogue structure, the utilisation of knowledge by participants in the participatory integrated assessment and with respect to the interactions between the three projects. Important lessons have been learned from these evaluations for future participatory integrated assessment projects.

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1. INTRODUCTION: TOWARDS A FRAMEWORK FOR EVALUATING COOL

Matthijs Hisschemöller, Bert Metz, Arthur Mol, Marcel Berk, Marleen van de Kerkhof, Marcel Kok, Marijke Spanjersberg, Willemijn Tuinstra

1.1 Introduction, background and outline

The COOL project is a research project financed by the Dutch National Research Programme on Global Air Pollution and Climate Change (NRP) and has a twofold objective (COOL project proposal, 1998):

- To develop strategic notions as to how drastic reductions of GHG emissions in The Netherlands can be achieved in the long term, in both a European and global context, using a method of participatory integrated assessment
- To make recommendations for improving the methodology of participatory integrated assessment, in particular regarding (1) stakeholder participation, (2) utilisation of knowledge by stakeholder participants, and (3) facilitation of the linking by stakeholders of the three geographic and political levels (NL, EU, global).

This report focuses on the second objective of the COOL project.[1]

The COOL project consists of three subprojects, a national, a European and a global dialogue. They are linked in the following ways:

- A common goal: strategic assessment of options for long-term climate change policy,
- A common problem definition: How can GHG emission reductions, in the order of 50-80% as compared to 1990 levels, be realised by 2050?
- A common approach and methodology, i.e. the involvement of heterogeneous stakeholder groups, the construction of future images and the use of a backcasting method.

[1] Other COOL project reports focus more specifically on the first objective.

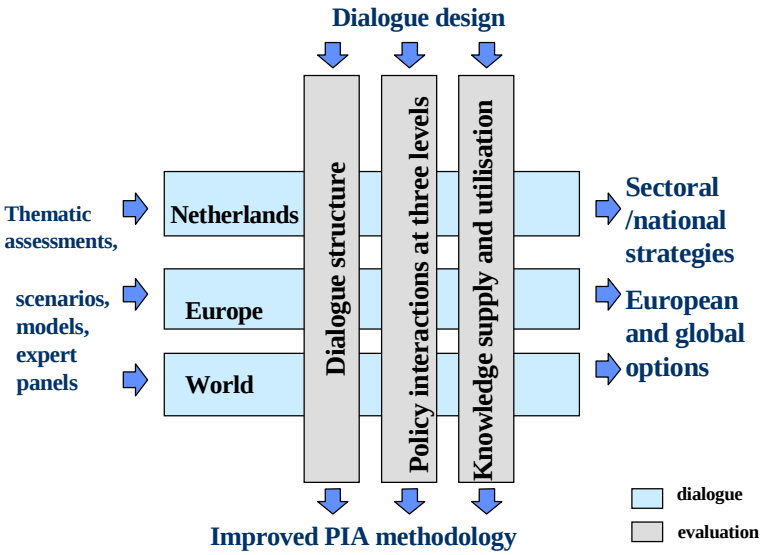

Figure 1.1 Schematic representation of main objectives of COOL project

The COOL Interim Phase Report (Berk, et al., 1999) describes the methodological foundations of participatory integrated assessment and formed the basis for the design of the three parallel dialogue processes of the COOL project. The Phase II Workplan (COOL, 2000: 36-78) presents the approach taken by the three separate sub-projects in more detail (National, European and Global Dialogues).

This report is structured along the lines of these three sub-projects. The core of the report consists of the chapters 2, 3 and 4. These chapters present respectively the methodological evaluations of the COOL National Dialogue (chapter 2), the COOL European Dialogue (chapter 3) and the COOL Global Dialogue (chapter 4). The last chapter, chapter 5, integrates the methodological findings and conclusions of the three separate COOL projects and draws overall conclusions from the COOL project as an exercise in participatory integrated assessment, or participatory policy analysis.

This first chapter describes the main elements of the evaluation framework of the Climate OptiOns for the Long term (COOL) project. As such this chapter has formed the basis of the evaluation activities in the several sub-projects, the outcomes of which are described in the subsequent chapters.[2] The chapter has the following the structure. In section 1.2 the purpose and the scope of the evaluation framework is discussed. Subsequently, we focus on the vari-

[2] This evaluation framework, as is presented in this introductory chapter, has been commented upon by the advisory board of the COOL project and three external reviewers: Igor Mayer from Delft University (The Nether-

ous elements of the evaluation framework (1.3). Finally, in section 1.4 we present the actual framework, particularly in the form of two appendices (1.1 and 1.2).

1.2 The purpose and scope of evaluating the COOL project

The evaluation framework, as presented in this chapter, served the following objectives:

- To enable an ongoing quality control of the project and its respective sub-projects,
- To facilitate timely intervention for assisting the dialogue groups where needed,
- To gather data and information for evaluating the realisation of the substantive goals of the (sub)projects (new insights for long-term climate change policies),
- To gather information and data related to the major methodological research questions (in general: how can a dialogue facilitate learning?).

These objectives fall into two categories:

1. Monitoring progress: if evaluation accompanies the execution of a programme (monitoring), it can be used either to ensure implementation of the research design or to modify a programme as it is being implemented. This is covered by objectives 1 and 2.
2. Evaluating results and assumptions: evaluation relates to the question as to whether a plan or programme has been realised and at what cost. It implies the collection of relevant data as well as the interpretation of the obtained information and often the testing of hypotheses or, as in the case of COOL, evaluation of assumptions. In chapters 2 to 5 of this report, these elements will receive due attention, as is specified by objectives 3 and 4.

There is also a link between the two categories of objectives: when evaluating methodological assumptions – as particularly referred to under objective 4 – it is important to make clear whether circumstances during the dialogues were in conformity with the plan or, if not, what exact changes were made during the project's execution. This means that in principle all 4 objectives can be met through one integrated data collection activity. Evidently, in this report the emphasis will be on the second set of objectives.

It is important to note that in the light of the pioneering nature of the project, it is preferable to speak of "evaluating assumptions" rather than "testing hypotheses". One of the goals of the

lands), John Grinn from Amsterdam University (The Netherlands) and Carlo Jaeger from Darmstadt University

COOL project was to look for ways of improving the design of participatory processes. Both the design of the participatory process in COOL, as well as the evaluation methodology as presented in this chapter, was based partly on lessons from literature and from the past. By way of a concise evaluation of the COOL project, this report will contribute to methodology development by sharing what has been learned from the experiences in the COOL process and project.

The aspect of monitoring project execution is particularly relevant since COOL consists of three sub-projects, a national, a European and a global dialogue. These sub-projects have been carried out quite independently from one another in order not to overload the project with internal co-ordination tasks. As mentioned in section 1.1 they are linked through a common goal, a common problem definition and a common approach.

In addition, the dialogues were supposed to interact and participants have met a few times in order to exchange information, to identify linkages and to identify (common) information needs. Therefore, also for project management reasons, it was necessary to compare the dialogue approaches at the three levels on a regular basis.

The collection of data has a very broad scope. It covers data on the main design parameters of the project, the experiences of stakeholder participants, the substantive results of the project and possible "external" factors and circumstances that were not part of the research design, but that could have had an important influence on the process and its outcome. Translating all these relevant aspects into pre-designed questionnaires could easily overload the stakeholder participants and the project team. External factors, however, need to be taken into account. Obviously, the success of a project such as COOL is to a high degree dependant on factors that the project itself is unable to control. The evaluation therefore includes several overlapping activities, including: (1) a short questionnaire that the participants at each dialogue meeting are invited to complete; (2) a process evaluation report by team-members after each meeting; (3) following each meeting the dialogue group chair is contacted to report his or her impressions, (4) extensive discussion in each project team meeting.

The methodological research questions focus on three related aspects:

(Germany). Their input has been extremely helpful in constructing a valuable evaluation methodology.

- Stakeholder participation in integrated assessment: stakeholders' willingness to participate, their actual contribution to the dialogue and their commitment to the results;
- Stakeholder utilisation of knowledge in integrated assessment: stakeholders' evaluation of the usefulness of scientific knowledge presented to them and their actual use in the assessment;
- Interactions between the three levels of climate policy (global, European and national): how are stakeholders dealing with this three level complexity when discussing issues in one of the dialogue processes? is the dialogue setting facilitating this three level reflection?; does interaction between dialogue sub-projects and national dialogue groups help to cover this three level complexity?

In designing the dialogue processes, assumptions were formulated on the basis of relevant literature as well as from lessons learned (Berk et al., 1999, pp. 23-64). The chosen design (see COOL Project plan and Workplan Phase II) and the assumptions with regard to stakeholder participation, knowledge utilisation and three-level interaction will be evaluated. See also Appendix 1.2 for a list of assumptions.

1.3 Elements of the evaluation framework

There is a huge amount of literature available on the subject of programme evaluation. Most of this literature focuses on the evaluation of policy programmes by policy analysts. The term 'evaluation' rings many different bells and raises a variety of expectations among experts in the field of policy analysis. Although the evaluation of participatory policy analysis has received considerable attention in recent publications, this kind of evaluative activity is still in its pioneering stage. The COOL Interim Phase Report (Berk et al., 1999) discusses some key approaches to the methodology used for participatory integrated assessment. Although basic approaches to stakeholder methodology prove to be rooted in conflicting assumptions about the values of participation, i.e. learning as a cognitive, fact-based activity vs. learning as an argumentative, values related process, the methodology used in COOL reflects elements of both. The following gives an overview of the literature that is most relevant when evaluating methods for participatory integrated assessment.

1.3.1 Conceptual Structure of the Evaluation Framework

Thissen and Twaalfhoven (2000) provide a conceptual structure for the evaluation of policy analytic activities that has been visualised in Figure 1.2 (with some modification in order to identify the role of other factors).

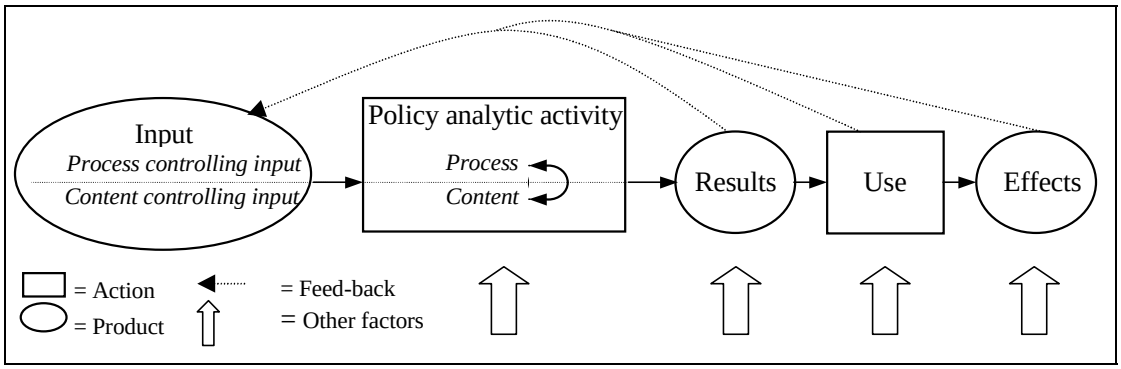

Figure 1.2: Conceptual structure for evaluating policy analytic activities (based on Thissen and Twaalfhoven, 2000)

This conceptual structure is appealing because it highlights, in a simple form, three basic assumptions about the quality of participatory policy analyses. These assumptions can be summarised as follows:

A1) The quality of the input is vital for the quality of the policy analytic activity

A2) The quality of the policy analytic activity is vital for the quality of results

A3) The quality of results is vital in terms of their usefulness.

These assumptions are crucial because they point to variables that can – to a large extent – be influenced by project management. It is this type of variables that the COOL evaluation must certainly take into account. The conceptual structure is also attractive for the COOL evaluation, since it can be used to evaluate separate dialogue meetings as well as an entire dialogue process.

The arrows in Figure 1.2 represent the impact of one set of variables on others within a sequential process. This means that the quality of input variables is necessary for the quality of the output – but it does not mean that they are the only determinants for the quality of the output. Thus, we need to avoid the naïve assumption that the policy analytic activity (such as the

discussions taking place in a dialogue meeting) will be okay provided the inputs were okay. There are always possible external factors or other factors that were not foreseen, such as developments in group dynamics. This is the reason why the figure is slightly modified from Thissen and Twaalfhoven – in order to reflect the role of other factors.

Thissen and Twaalfhoven point out that each of the elements in Figure 1.2 has different requirements in terms of quality or success. This is precisely what makes distinctions, as for those drawn in Figure 1.2, valuable.

This concept may thus serve as a basis for the COOL evaluation framework. In order to make it operational for use in COOL, however, key characteristics of the COOL project have to be fed into this general conceptual structure. Four key aspects of the COOL project design are discussed below.

1.3.2 Actors and their roles

Evaluation of the dialogue process will have to take account of the various actors and their roles. The following can be distinguished in the COOL project:

- Participants
- Project team
- External experts
- Stakeholder groups to which dialogue participants belong, including government(s), business and other NGOs
- Others, including funding organisations (the NRP) and the Advisory Board.

In the project design for COOL, a deliberate choice was made to let dialogue participants play their "own" role, representing the values and interests they normally represent, and not to ask them to play other roles. The setting of the COOL project is, however, quite different from participants day-to-day jobs. There may be developments in the stakeholder groups that participants belong to, for instance that might influence the behaviour of participants. Project team members and external experts are expected to act "in a neutral and objective manner", but personal values and convictions are present and may influence their input to the dialogue process. Those funding the project or members of the Advisory Board may also influence the

process in a significant way. Special attention should therefore be given to the role or roles that relevant actors play.

Participants in the COOL dialogues are invited to act as policy analysts (see also Mayer, 1997, p. 233). The implication of this is that they are not preliminarily invited to receive information but to actively discuss information so as to create a vision. They are supposed to carry out the long-term assessment using the project team and the scientific support as vehicles to do the job. There may be differences between the three sub-projects with regard to the autonomy of the dialogue groups. In the National Dialogue, group autonomy is strongest and only limited by participants' agreement to act in conformity with rules of the game for both participants and the project team. Ultimately, however, in the three projects the participants have a decisive say in their dialogue's agenda, in their appreciation and use of scientific information and in the actual dialogue process. The underlying assumption is that this participant autonomy will enhance the commitment to the process and therefore the results. Thus – this aspect needs to be evaluated carefully.

The project teams' general role is to facilitate the dialogue process. Following the wishes and requests from the participants they prepare the meetings' agendas and help with structuring the discussion. This involves both process and content. From case to case, decisions are made as to what interventions are likely to prove successful, i.e. helping the dialogue group to perform its task. As such, project teams may actually perform multiple roles, varying from a lightly supporting role to a heavily supporting one. This particular role of the project team has to therefore be evaluated carefully in terms of its influence on the process as well as on the outcomes.

External experts, invited to provide specific input, may also play different roles. They provide information and they may help the group to structure a debate, but the dialogue groups also evaluate their information. In order not to provide a bias, external experts should take into account the heterogeneity of the scientific views and present a balanced picture of available knowledge. Uncertainties should be made explicit during the whole process.

Obviously, participants, project teams of the three dialogues and external experts have an immediate impact on what happens in the dialogues. There are also others who have an indirect, though at times important, impact. Stakeholder groups to which participants belong may come

in as “external events” such as political actions and decisions that may influence either the course of the debate or the atmosphere within the groups. Many participants are also involved in parallel policy processes that have a more short-term outlook. The evaluation should provide a clear idea of possible external influences from interactions within or between stakeholder groups.

1.3.3 Approaches to Learning: Content and Process

The main distinction to be made between methodologies for participatory Integrated Assessment in the Interim-phase report is between *cognitive* and *argumentative approaches* to learning through participation.

The *cognitive approach* creates a distance between actor and issue. The underlying assumption is that this enhances learning because it increases a sense of safety (“*It’s just a game”*). It also ensures that people are open to evaluating information that would otherwise be ignored. Scientific analyses and model calculations – provided as input to the project – are examples of cognitive elements.

The *argumentative approach* focuses on dialectic reasoning through argument and counter-argument. The assumption is that this raises awareness among both the participants and the project team of the relationship between stakeholder assumptions and their implications for policy. Learning is considered more than a cognitive process; it involves facts and values as well. Enhancing argumentation (by addressing “why?” questions in the dialogues) may improve the quality and durability of the outcomes.

COOL aims at combining elements of the cognitive and argumentative approaches in order to get the best out of both. The construction of future images and a backcasting methodology are addressed in the dialogues using a careful step-by-step design and by suggesting specific working methods in the sessions aimed at encouraging participants to disassociate themselves from the present situation and to focus on the long-term future. Argumentation is encouraged by the substantive input in the dialogue (content) and by the process. The evaluation framework must take into account both content and process as interdependent aspects of policy analysis, particularly with regard to argumentation.

Evaluating the quality of an argument: Content

The framework uses various notions developed in the policy science literature in order to evaluate discussions on strategic visions for long-term climate change policy in the COOL dialogues. Firstly, we use Hoogerwerf's (1990) five criteria that he originally developed for evaluating the quality of a policy theory, e.g. the assumptions underlying a policy:

- *precision of formulation:* precision of terminology, articulation and if possible quantification of causal relationships, specification of the factor time,
- *differentiation:* the variety of aspects taken into account,
- *integration*: the creation of (a) consistent and coherent vision(s), which includes priority setting of options and long-term policy criteria as well as the identification of variables that can be influenced by policy,
- *use of knowledge* (in Hoogerwerf's terminology empirical quality): the extent to which argument refers to scientific findings,
- *legitimacy:* the degree to which the basic assumptions and goals are in accordance with commonly accepted principles and rules (also referred to by Thissen and Twaalfhoven, 2000).

To these criteria we then add the notion that policy debate relates to different discursive levels (Fischer, 1995; Grin, Van de Graaf and Hoppe, 1997; Hoppe and Peterse, 1998).

On the one hand, there is discussion about facts and expectations (first order discourse). On the other hand values, principles and emotions also play a role (second order discourse). Second order discourse is especially important in situations characterised by high scientific uncertainty. Therefore, *differentiation* into various aspects is taken to include the interplay of facts, values and principles. *Integration* relates to the articulation of (different) policy frames and *the use of knowledge* relates to the question as to how the dialogue groups deal with scientific uncertainty, thereby taking into account scientific as well as lay-knowledge. Lastly, *legitimacy* addresses the question as to whether or not commonly accepted principles and rules that appear to be relevant for long-term climate policy may change over time (such as those related to the role of government).

Evaluating the quality of an argument: Process

In addition the evaluation framework can make use of the process-related criteria proposed by Webler (1995).

- *Fairness:* participants' ability to act meaningfully in the dialogue. This includes four fundamental needs: *attend* (be a participant in the discourse), *initiate debate/discourse* (contribute), *discuss* (challenge and defend claims) and *decide* (influence the collective outcomes).
- *Competence:* the construction of the best possible understandings and agreements, given what is reasonably knowable to the participants. This includes two basic needs: access to information and its interpretations, as well as access to information about procedures for knowledge selection.

1.3.4 Knowledge utilisation

The interaction between scientists and participants/policy analysts needs special attention. Van de Vall (1988) asks the question as to how the usability of research could be measured. He identifies three parameters that determine the usability and actual use of scientific knowledge:

- the *epistemological parameter* refers to the *scientific quality of the work* (i.e. validity, reliability);
- the *strategic parameter* relates to *matching demand and supply* in terms of problem definition (i.e. does the research problem match with the definition of the policy problem?);
- the *implementation parameter* focuses on the question as to whether or not research addresses *variables that can be influenced* (i.e. does the research point to feasible policy instruments and factors that can be changed by policy).

These parameters were taken into account in the evaluation of the COOL dialogues.

1.3.5 Intended and unintended results and effects

Following Mayer (1997) an evaluation must distinguish between intended and unintended results and effects. The former category relates to the results of the project, which were scheduled or aimed for by the project team. Unintended results may be desirable or undesirable, important or not important. They have in common the fact that they were not anticipated by project design. Examples of unintended results or effects are initiatives taken by groups or individuals that are inspired by but not planned as part of the project, positive or negative side

effects of other policy processes, participants' personal disappointments, etc. The evaluation of COOL needs to identify such unintended results.

1.4 The evaluation framework: putting it all together

The evaluation framework should contain all relevant elements as identified above. It is meant to serve as the basis for preparing specific questionnaires to be completed by participants and others involved or for preparing checklists for process observers. It does not include such specific documents. The framework enables the COOL project team to adjust the dialogue process as it is implemented (first two objectives). It also ensures that all relevant data is collected to allow conclusions to be drawn regarding the three methodological issues that the project is focussing on (last two objectives).

The evaluation framework is constructed in the form of a table (appendix 1.1), that follows the policy analysis evaluation steps as identified by Thissen en Twaalfhoven (2000). It separates the issues according to the main groups or individuals involved as identified in the previous chapter, allowing for the special role of participants in line with Mayer (1997). It uses the criteria for the quality of a dialogue with regard to content as identified by Hoogerwerf (1990) and with regard to process as identified by Webler (1995) as well as the three elements for the quality of scientific input as identified by van de Vall (1988).

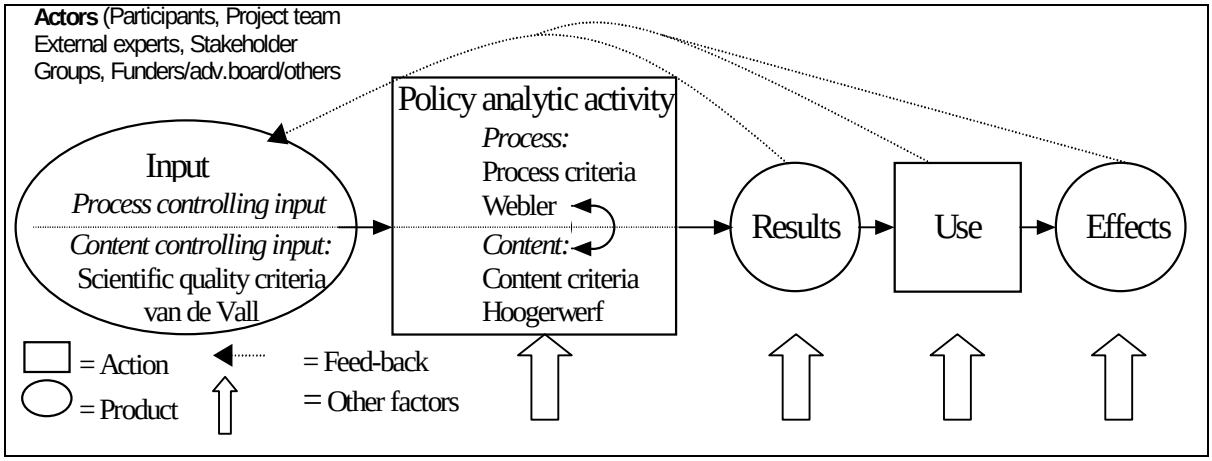

Figure 1.3 The conceptual structure of Thissen and Twaalfhoven (2000) applied to the different elements of the COOL Evaluation Framework

The framework for evaluating COOL is limited with respect to evaluating the use of the project results, since most of this usage will take place after the project has been finalised. This aspect might be taken up in future research.

On the basis of this evaluation framework, each of the three sub-projects has developed its own questionnaires and checklists for collecting the relevant data in a tailor-made way. In the subsequent three chapters, the results of the evaluation of the three COOL sub-projects are presented, in a more or less uniform format.

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2. EVALUATION OF THE NATIONAL DIALOGUE

Marleen van de Kerkhof, Marijke Spanjersberg and Matthijs Hisschemöller[3]

2.1 Introduction

The Evaluation Framework – COOL (Hisschemöller et al., 2000; chapter 1 of this report) – forms the context for this evaluation. This chapter has the following structure. Section 2.2 presents the initial dialogue process design and makes some comparative observations with respect to the process in the dialogues respective phases. Section 2.3 sketches the profile of the four groups in the National Dialogue and makes some comparative observations related to the actual dialogue within these groups. Sections 2.4 to 2.7 present the evaluation results with respect to the assumptions (chapter 1 of this report). For the evaluation of the National Dialogue, the assumptions are grouped in the following way:

- the character of dialogue results (Section 2.4),
- the selection of participants (section 2.5),
- the actual dialogue process (section 2.6) and
- the utilisation of scientific knowledge (section 2.7).

Section 2.8 presents the conclusions in terms of the effective process ingredients in the National Dialogue and suggestions for improvement.

This chapter does not include a separate section on three-level interaction (National, European and Global). This issue is dealt with under group interaction and is looked at in section 4.1. This chapter omits the effects and use of the COOL results, since it is too early to analyse these at this stage. For information on journal publications and follow-up projects related to COOL, please look in http://www.vu.nl/ivm.

The following sources have been used for this evaluation:

- the minutes of the project team meetings,
- the reports of the dialogue group meetings (both content and process reports),
- the evaluation forms completed by the participants after each meeting and
- the observations by the project team members during the group meetings.

[3] With contributions from Marcel Kok, Rob Folkert, André Faaij, Harm Jeeninga , Joop Oude Lohuis, Ad Seebregts, Jan Spakman, and Dirk-Jan Treffers.

2.2 Design of the National Dialogue

The major challenge faced by the COOL dialogues, as described in Chapter 1 of this report, relates to conflicting assumptions as to what might be expected to be the added value of a dialogue as opposed to a scientific analysis of options. In this respect, two approaches were distinguished in the literature: the cognitive approach and the argumentative approach. Both approaches have far-reaching process implications. The cognitive approach is based on the assumption that keeping some distance from everyday interests and issues helps people to see implications and new opportunities for action that they could not have seen from a narrow day-to-day perspective. The argumentative approach aims to structure the problem, i.e. to articulate conflicting policy assumptions. Therefore, the several steps in the COOL dialogue should enable discussion and argumentation on issues that the participants can relate to. This implies involvement rather than distance.

The National Dialogue design has addressed this challenge by using methods and tools that reflect both approaches. The note 'Fasering en Tijdpad van de Nationale Dialoog' (Appendix 2.1) structures the dialogue into three phases:

1) construction of two future images for the sector,
2) backcasting and
3) formulating strategic visions.

Each phase consists of two steps of divergence and convergence respectively. *Divergence* is understood to be a process in which the diversity of opinions within a dialogue group, as well as the uncertainties and information needs, are optimally brought out into the open. *Convergence* is considered to be a process in which a dialogue group makes a selection of key issues and then explores to what extent and under which conditions consensus exists, or can be realised on these issues. Note that convergence is not at all considered equivalent to consensus building. The process of diverging and converging is referred to as 'wyberen'.

At the start of the dialogue it was expected that there would be more divergence in the first than in the second phase and more in the second than in the third. Thus, as well as 'wyberen' the dialogue process can also be characterised as 'trechteren' (funnelling). Figure 2.1 shows the dialogue steps (meetings) according to project design in the context of 'wyberen' and 'trechteren'.

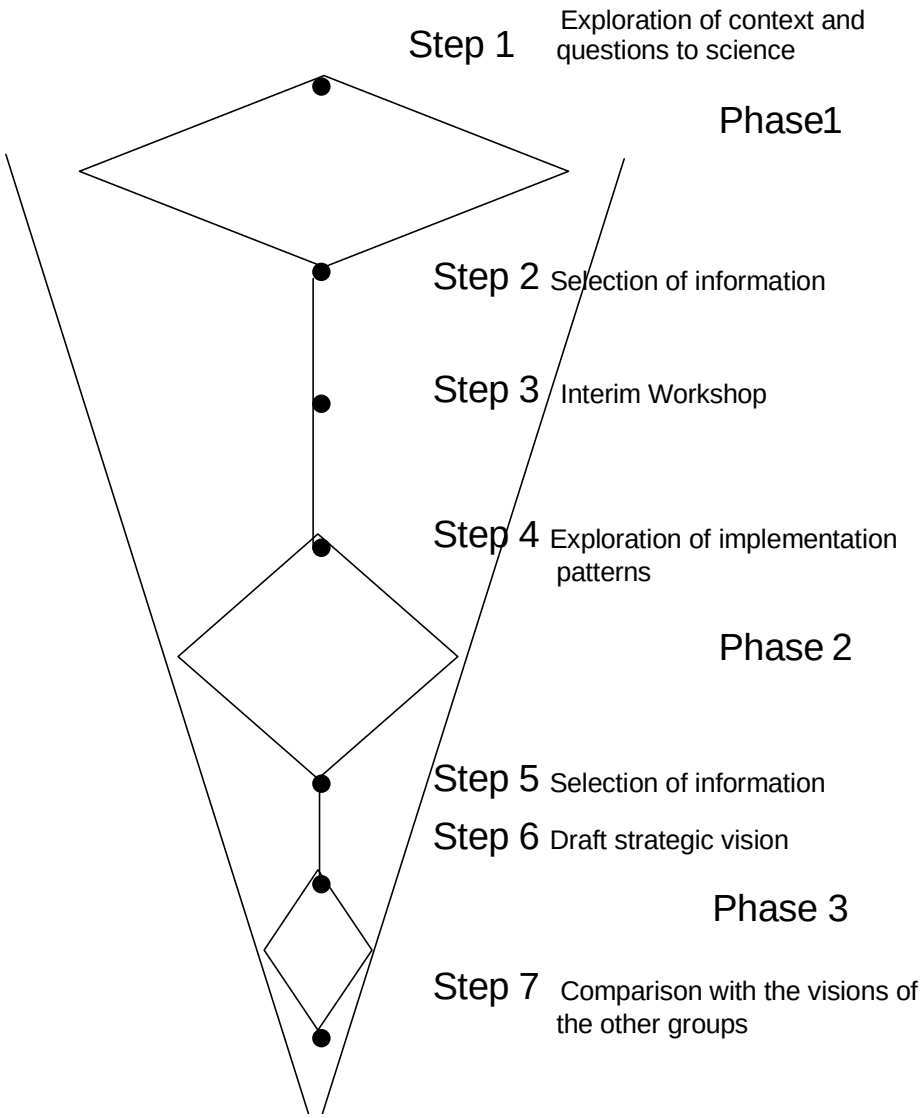

Figure 2.1 The National Dialogue designed as a process of divergence and convergence

The dialogue design was based on the expectation that there would be sufficient opportunities for learning from a distance – as proposed in the cognitive approach – particularly by identifying long-term variables relevant for emission reductions in the respective sector images (Phase 1) and by identifying and exploring the implementation trajectories for policy options by backcasting (Phase 2). It was also expected that there would be sufficient opportunities for argumentation throughout the dialogue, owing to the structure referred to as wyberen (divergence – convergence). Involvement was expected to occur in the backcasting process due to the definitive nature of the issues involved, as well as the fact that backcasting might provide specific recommendations for long-term policy asking for immediate action. Argumentation

was also expected to take place in the interim workshop where groups could exchange information on their progress.

Anticipating the more detailed evaluation in the sections 2.4 to 2.7, the following observations can be made with respect to the overall dialogue process:

1) The groups needed more time to complete their work than was anticipated in the initial design. As compared to Figure 2.1, each group needed 6 instead of the anticipated 5 meetings. One group (Agriculture) used the additional meeting to complete future images and to identify the options for backcasting. The other three groups used the additional meeting to complete the discussion on their strategic vision.
2) The process was completed at a so-called integration workshop (March 2001), meant to discuss sector group conclusions and controversial issues.
3) Generally speaking, all groups appeared to have difficulties with completing phase 1, the identification of future images relevant for the selection of policy options. Meeting 2 was evaluated lowest – of least value compared to the other meetings in all groups except Industry.
4) The backcasting exercises were evaluated (very) highly in all four groups.
5) Too little time was available for argumentation in spite of design expectations. In terms of the process design this might be due to the fact that the specific relationship between divergence-convergence and dissension-consensus was not explicitly accounted for in the process design.

2.3 Profile description of the four groups

The National Dialogue consisted of four stakeholder groups: Industry & Energy, Housing, Traffic & Transport and Agriculture & Nutrition. Different criteria were adopted at the start of the project in order to compose the groups in a balanced way (for an extended description of the criteria, see Appendix 2.2). Participants were invited to take part in the dialogue as interested persons and not as representatives of a business or social organisation.

The Industry & Energy group

The Industry & Energy group included 15 stakeholders both from the energy sector and the industrial production sector, as well as NGOs and two Ministries. The group showed commitment from the start until the end of the process. The six meetings were attended by an av-

erage of 9-12 participants. The group rated its heterogeneous composition with a 7 on a scale of 1 to 10.

The Housing & Construction group

This group consisted of 15 stakeholders from different echelons of the housing and construction sector, such as architects, construction companies, municipalities and housing associations, NGOs and one Ministry. The average commitment to attend was high to moderate. After the second meeting the participation fell. Between 5 – 14 participants attended the meetings. The participants rated the heterogeneous composition of their group with an 8 on a scale of 1 to 10.

The Traffic & Transport group

The Traffic and Transport group of the National Dialogue included 13 participants. They were affiliated with different modes of transportation, NGOs, a Ministry and the government's Advisory Board. The commitment to attend was high to moderate The meetings were attended by 7 – 12 participants. The participation went down slightly in the second phase (backcasting exercises), but improved in the third phase (formulation of the strategic vision). The participants of the group judged the heterogeneity of the group with 6.5 on a scale of 1 to 10.

The Agriculture & Nutrition group

The Agriculture & Nutrition group included 13 participants from farmers unions, NGOs, the food industry, forestry, one Ministry and a Parliamentary Research Organisation. The commitment to attend was moderate to low. 7 – 10 participants attended the meetings, with one exception when only a few participants showed up. The participants rated the heterogeneity of their group with a 7 on a scale of 1 to 10.

Comparison of the four groups

The following comparative observations can be made – anticipating the analysis in the sections below:

1) All four groups completed the assessment with the formulation of recommendations for long-term climate change policy in 6 meetings. For 3 groups, the meetings took 4 hours each. One group (Traffic and Transport) decided along the way to extend its meetings to 5 hours.

2) Some groups had more difficulties entering into a debate on the long term than others. These groups also faced a decrease in participation in the course of the process. The Agriculture group was especially reluctant to discuss 80% reduction of GHG emissions by 2050. Participants justified their reluctance by indicating other major issues related to their sector, in The Netherlands (environmental policies other than climate) and on a global scale (food security). After a difficult start, however, the group succeeded in exploring the opportunities for realising 80% greenhouse gas emission reductions.

2.4 Evaluating the assumptions related to the character of the Dialogue results

2.4.1 COOL as a process of problem structuring

Climate change is an unstructured problem that different stakeholders perceive differently. In order to realise the expected results (i.e. strategic visions for long-term climate change policy) the climate change problem needs to be structured. Problem structuring is defined as a process of interaction that brings about the identification, confrontation and if possible integration of as many conflicting views on an issue as possible.

In the COOL National dialogue the climate change problem has been structured to a certain extent. Many different views and perspectives on the problem came out of the dialogue. Some stakeholders used climate change to promote the need for a change of consumer behaviour, while other stakeholders claimed the scarcity of fossil fuels as a reason to switch to renewable (CO_2-neutral) energy sources. Furthermore, it was decided that the climate change problem should be considered in collaboration with other issues (e.g. congestion in the transport sector). This appeared to have a big impact on the preferred solution strategy (e.g. the introduction of clean fuels solves the problem of CO_2-emissions by cars, but does not solve the congestion problem, whereas modal shifts and a decrease of transport demand do).

An interesting example is the Agriculture group, which at the start of the dialogue had problems with identifying the sector with the climate change issue. The focus on long-term solutions in particular did not make much sense to the group, since by 2050 the agricultural sector might not even exist any longer. After discussing different aspects of the problem and after placing the climate change issue in the broader perspective of sustainability, the group was then in fact able to identify the agricultural sector with the climate change problem. Moreover

the group considered itself in the long run to be merely a problem solver instead of a problem owner, because the sector will be able to supply other sectors with energy.

Most participants stated that they had gained new insights at every meeting. In some groups (e.g. Housing and Agriculture) these new insights were very often technological, especially in relation to the backcasting exercises. In the Transport group, the backcasting exercises gained new insights mainly on societal aspects. Many participants in the Industry group mentioned that they did not gain many new insights from the dialogue's third phase (the phase in which the groups developed a strategic vision).

A striking fact was that in some groups (e.g. Industry), after spending the whole time_discussing solutions, they began to reflect on the problem at the end of the process. Some participants said that they took the climate change problem more seriously at the end than they did at the beginning of the process.

The two meetings held for the four dialogue groups together received a mainly positive evaluation from participants. They have contributed to broaden the scope on conflicts, synergies and differences related to options (e.g. CO_2 removal and storage, biomass, the potential for sustainable options, the role of people and organisations in long-term climate change policy, especially consumers) and strategies. The Integration workshop in particular has been a major step towards highlighting the questions and dilemmas that long-term climate policy seems to face. However, they have not led to innovations in the sense of new solution strategies. Attempts to include participants and results from the European and Global_dialogues were only partially successful.

Problem structuring addresses vested interests by articulating the assumptions underlying stakeholders' different positions. The National Dialogue clearly revealed the vested interests of the participants. In the discussions it became clear what was at stake for the different participants. Many participants wanted to make their point, particularly at the start of the dialogue. This meant that the first phase of the dialogue was rather exploratory, covering different opinions and viewpoints, and less argumentative. In some groups (e.g. Transport), interests at stake were less prominent than in other groups (e.g. Industry).

The groups each formulated a strategic vision for their own sector, in which they formulated criteria for long-term climate change policy, technological routes for reducing drastic emission reductions, suggestions for policy instruments in order to realise these reductions and a description of the involved actors and their roles.

The dialogue has resulted in the identification of important themes for long-term climate change policy such as policy instruments, knowledge and knowledge infrastructure, market development, spatial infrastructure and the role of consumers.

The dialogue, however, did to a lesser extent touch upon paradigmatic assumptions related to policy instruments and institutions. The process design probably did not sufficiently encourage this and many participants may not have been that familiar with this subject matter. Furthermore, limited time was available at this final stage in the process.

2.4.2 The quality of argument

The National Dialogue did not aim at reaching consensus, but at building the strongest argument possible in favour of different positions and, hence, enhancing political choice. The dialogue resulted in different patterns of argumentation concerning solution strategies. Often, these patterns were not a direct outcome of the discussions but the result of an analysis by the project team. In principle, this is not in accordance with the ideal of the Participatory Integrated Assessment, in which the participants themselves develop argumentation structures.

In some groups the absence of the need to reach consensus sometimes contributed to sloppiness in the identification of arguments ("We don't have to agree on this, so we can finish the discussion here"). It should therefore be noted that the aim to deepen argumentation is not necessarily brought any closer if consensus is not required. It seems that this aim cannot be pursued without careful facilitation.

Following the evaluation framework COOL (see Chapter 1), the quality of an argument can be evaluated on five aspects of argumentation: precision, differentiation, integration, use of knowledge, and legitimacy.

Precision

The groups defined new topics for discussion at every phase of the project, both technological and societal / economical. The formulations were, however, not always very precise. One example is the concept 'level playing field'. This concept has been used many times, in different groups, but how it exactly should be understood, and how it could be realised, remained rather vague.

An example of a high precision level was seen in the construction of future images in the Housing group. Here the participants defined one variable that distinguished the two future images, which was the demolition rate. They also formulated clear hypotheses on this variable and made quantifications.

Differentiation

The groups took a variety of aspects into account. The profundity of argumentation on these aspects increased as the dialogue progressed. The first phase, which concerned the construction of future images, did not have many in-depth argumentations due to its exploratory character. In the backcasting exercises (the second phase), the profundity of argumentation increased. In the construction of the strategic vision (the third phase) the level of argumentation was again high.

Contrary to the criterion of precision, the Housing group scored low on the criterion of differentiation. Right from the start, the group chose a limited number of issues (mainly sustainable supply options for individual dwellings) and excluded others (such as reductions on the demand side, building materials, shortage of space).

Integration

All the groups were able to draw conclusions that are relevant for their own sector. Additionally, at the Integration Workshop in the third phase of the dialogue, the four groups together identified main issues for the long term. However, at the end of the dialogue it seemed that the process of integration had not yet finished – particularly the discussion on policy instruments and institutional aspects.

It was assumed that opportunities for integration (during the Interim Workshop between the first and the second phase of the dialogue and during the Integration Workshop) would

deepen the argumentations and conclusions of the groups. In fact, these moments seemed to be more helpful in terms of widening the scope of the groups rather than to strengthen their own results.

Use of knowledge

An analysis of knowledge utilisation in the National dialogue shows that many participants only use the information they are offered, after they have had an opportunity to express their own opinions and viewpoints. For an elaboration on the knowledge issue, knowledge_utilisation is referred to in Chapter 7.

Legitimacy

All four groups looked at the degree of societal support for different options as well as to the role of government.

2.4.3 The backcasting methodology

One participant stated on the evaluation form: "Backcasting often goes together with forecasting". This is indeed the case. Participants were often tempted to discuss the short-term and to use the current situation as a point of reference. An illustration of this is the fact that all the selected options for the backcasting process are existing options, which are either already implemented or are still developing. From a climate change perspective, however, it is promising to observe that no miracles are necessary in order to reach the reduction target of -80%.

Backcasting has proved to be an adequate method of identifying the most important issues ('the big hits') and the most crucial problems in the implementation of certain options. Participants evaluated the method as an attractive and creative way of discussing options for the long term.

Backcasting has provided productive discussions containing a diversity of views. One omission in the design was that the backcasting exercises have not been discussed in relation to each other. They stood apart from each other and were accepted as 'different'. A confrontation of the different backcasting outcomes between the groups probably would have stimulated argumentation. The backcasting exercises have been used as case studies and as a basis

for developing criteria and strategic visions (with the application of the repertory grid method).

2.5 Evaluating the assumptions related to the composition of the groups

Although the groups have been composed in a heterogeneous way, some important people were still missing. In general, women, junior staff and political representatives were either absent or not sufficiently represented.

According to the participants, the Industry group lacked representatives from the new industries (ICT companies) and from the electricity production sector. In the Transport group the producers of transportation means and the 'users' of transport (for instance retailers) were absent; and in the Agricultural group representatives from the arable farming sector and the nutrition sector (retail) were not present in sufficient numbers.

2.5.1 Homogeneity versus heterogeneity

The involvement of stakeholders who are not involved in the existing dominant science-policy network has been a fruitful component of the dialogue. The 'snowball technique', which has been applied in the preparatory phase of the project, has proved to be an adequate method of surpassing the existing climate change network. Additionally the participants appreciated that they did not yet know each other very well.

The groups included experts from all sectors. This implied that most of them did not deal with climate change as such in their daily work, which initially caused some difficulties for participants in the Dialogue. It was difficult for them to 'translate' their specialised knowledge into the frame of the climate change issue. In addition, some participants were not acquainted with the existing (scientific) ideas and beliefs on the climate change issue. For instance, some participants considered the scarcity of fossil fuels to be a reason for switching to sustainable energy sources, whereas most scientists acknowledge that the supply is still sufficient for many years to come.

The composition of the group largely influenced the choice of options for backcasting. This is for example visible in the Housing group, which from the start restricted the exercise to the

exploration of sustainable options per building and excluded other topics, such as spatial planning, building materials and reduction options on the demand side. The issues selected on the agenda were for most participants their main topics of interest.

In the National Dialogue, efforts were made to compose sufficiently heterogeneous groups in order to obtain a broad perspective on the existing opinions and interests. To a certain extent this has been successful, although some viewpoints were underrepresented in the dialogue, one reason being that some important representatives were absent. Furthermore, other factors such as the absence of participants during the meetings and certain characteristics of participants (talkative, silent, shy etcetera) also had an impact on the results.

2.5.2 The role of the participants

In the National dialogue it was decided that the representatives of ministries should have a dual role: they participated in the dialogue like every one else, but they also performed the role of informant, which means that they could inform other participants about recent policy plans and discussions.

With one exception, the representatives of the ministerial departments lacked commitment to the project. They were often either absent or else contributed very little – if anything – to the discussions. In this sense, the role of informant was not performed very effectively.

The role of policy analyst meant that the participants were invited not only to receive information but also to actively discuss information so as to create a strategic vision. The groups carried out a long-term assessment supported by both the project team and the scientific support team.

2.6 Evaluating the assumptions related to dialogue process

2.6.1 Process of divergence and convergence

When designing the National Dialogue, the group's discussions were predicted to follow a pattern of diverging, subsequently converging. The degree of divergence and convergence would decrease during the course of the dialogue process.

In the course of the dialogue, however, the degree of divergence and convergence did not in fact decrease but increased instead. It showed that the more concrete the discussions became (i.e. closer to status, interests and preferences), the more the opinions diverged. Furthermore it showed that in order to allow divergence to take place, the starting point of the discussion has to be clear and definitive. In the National Dialogue this was not the case. The two future images caused a lot of confusion and resistance among the participants at the start of the process and for this reason the discussions began to converge instead of diverge.

2.6.2 Fairness and competence

Fairness

In order to have a fair dialogue, (in the sense that all participants are able to attend, initiate and contribute to a debate as well as to discuss and decide about collective outcomes), then the design of the dialogue needs to be transparent, to take into account the participants' objectives, and has to be adequately communicated to the participants. Furthermore, the "rules of the game" should be formulated at the start of the dialogue, as well as a clear description of the dialogue process.

The National Dialogue was very well planned with a clear description of the input and the expected output of each meeting and there have repeatedly been (positive) comments about the design. Nevertheless, participants sometimes experienced a lack of transparency. This mainly occurred in the transition from one phase to the other.

The lack of transparency was probably caused by the complexity of the assignment as a whole, information overload and/or rather long intervals between two meetings. It is very important to repeat during the whole process what the initial aim of the exercise is and to indicate at which stage of the process the group is and what will be the next step. However, even this may not be enough.

An illustration of this point is provided by the confusion that arose with respect to the outcomes of telephone interviews using the repertory grid method. This method (see Appendix 2.3) involved having to link phase 2 (the backcasting exercises) and phase 3 (the development of the strategic vision). The method was explained in a letter and at the start of the telephone calls to prepare the fifth meeting. The method served two purposes: firstly to help the groups

to develop criteria by comparing options, and secondly, to rank the options using these criteria as a starting point for developing strategic visions. This was too much to_ask of the groups and too complex, causing a lot of confusion in the fifth meeting. Despite this, in the end, once the confusion was resolved the results of the repertory grid proved to be very satisfactory. It should be stressed that the criteria developed in the dialogue groups were for the most part based on the outcomes and analysis of these telephone interviews using the repertory grid method.

In order to stimulate equal participation, during the meetings the groups often worked in sub-groups (see also Appendix 2.3). In general the participants were enthusiastic about this: it meant a deepening of the discussion and everybody had the opportunity to participate.

Competence

An overall picture of the four groups shows that from the beginning to the end of the dialogue, the participants listened carefully to one another and asked each other questions throughout the process. In so doing, they behaved in line with the rules of the game as presented and discussed at the start of the dialogue (see Note 'Uitgangspunten en Spelregels Nationale Dialoog', Appendix 2.4).

The process is considered to be competent provided that all participants have equal access to information. At the start of the dialogue, all the participants should have the same minimum knowledge base. The National Dialogue has shown that just 'access to information' is not enough for a competent discussion process, especially when participants have a certain lack of relevant knowledge. Information has to be tailor-made and presented orally (e.g. in the form of a presentation or a 'question-and-answer-session') in order to be effective.

In the backcasting exercises in the Agricultural group for example, a presentation of an external expert on sinks, biomass and the carbon cycle provided the group with many new insights. In fact, during this presentation it became clear why the COOL project began with the realisation of -80%.

A set of 'general' fact sheets seemed to be less effective in terms of enhancing the competence of the dialogue process, particularly when this kind of information was introduced at the beginning of a dialogue process. Additionally, simply offering participants the opportunity to

‘order’ recent relevant reports proved not to be very effective in this respect. Retrospectively, a report containing the opinions, questions and expectations of all the participants would have been a more effective way to inform them about the dialogue’s relevant issues. This information was available from the interviews held with the participants before the start of the dialogue. The aspects of providing information, (content, manner of presentation and the moment of offering) have proven to be of vital importance. These were not elaborated sufficiently in the design of the dialogue.

2.6.3 Distance and involvement

The long-term perspective of the project (2050) creates distance. A scope on 2050 prevents interference with short-term policy making and avoids disturbance of the process by short-term political implications.

The long-term perspective of the project has been useful in terms of creating a certain distance from short-term discussions, although the short-term orientation never went away. Thinking within a fifty year period was difficult, especially at the beginning of the project. The future ‘qualitative images’ were meant to help participants to ‘think fifty years ahead’. This was only partially successful. At the same time they contained quantitative information that stimulated a lot of discussion.

The backcasting technique has indeed created a certain distance from short-term discussions, but – as already mentioned – backcasting went together with forecasting. Backcasting proved to be an effective method of creating an overview, in this case an overview of the main changes and obstacles over time as well as the options and the steps towards implementation in the near and more distant future.

The National Dialogue showed that backcasting creates involvement since at the end of the process the long term is connected with the short term, which forces the participants to address in concrete terms the short term implications as well as the short term actions. Most backcasting exercises resulted in rather rapid images of the first twenty years in relation to the final thirty years. The backcasting method facilitates thinking about the long term as well as the short term. However, experiences in the National Dialogue showed the difficulty of long-term thinking compared with short-term thinking despite using the backcasting method.

Involvement is also created by making the participants owners of the dialogue and by caring for the participants as they are, with their specific views, interests and concerns. The design of the project provided many opportunities to give the participants ownership:

- All groups had a chair recruited from the sector, who was not a member of the project team (see below).
- They had to decide on their own agenda, so there was a chance that a group would reject the agenda suggested by the project team. In fact this happened once, when the Agriculture & Nutrition group decided to explore short-term problems first before going on to look at sector images for the long term.
- Before each meeting participants were called by the group secretary to discuss the agenda items for the following meeting. The results of these phone calls were used as input for the next meeting.
- The participants decided on which issues and questions they wanted scientific input.
- Furthermore, involvement was also created by the accessibility of the project team for suggestions and remarks by the participants. In this way, the participants felt the owner of the dialogue and as such responsible for the end product.

In general, dialogue processes are known to show ‘a battle for structure’ (goals and method of the dialogue, rules of the game, etc.) linked to and often competing with ‘a battle for content’ (topics to be discussed, interests and perspectives to be stressed, etcetera). With one exception, the National Dialogue did not face any battles for structure, which indicates that there was scope for ‘a battle for content’.

Most people think that creativity needs room and space to expand. But in fact – especially in the case of groups – creativity is more likely to arise when there are strong limitations. The backcasting method is a good example of a tight structure that stimulates creativity. Some issues in the National Dialogue lacked such structure, for example the discussion about the role of actors in the implementation process.

In each group the chair had an important role in terms of creating commitment and increasing the status of the dialogue. It was a complex job, among other things because of the many topics that had to be discussed at each meeting. Some chairs behaved more like facilitators with the opportunity for the participants to stress their own points of view; others were more consensus-oriented in their way of leading the discussions.

The character of the dialogue was informal and exploratory, according to the participants' evaluation. Despite the fact that individual participants rode their hobbyhorses at times and might have had hidden agendas, this did not frustrate the dialogue.

Although it is not evaluated in a systematic way, some external factors seemed to have influenced the dialogue. This took place most obviously within the Agriculture & Nutrition group. The development of a long-term orientation proved to be difficult, because of the serious actual problems occurring in the sector. Another external factor may have been the lack of results of COP 6. This fact has raised the question about the ability of governments to attribute to a solution of the climate change problem. A third perceptible external factor that influenced the dialogue was the publication of the new IPCC Report on climate change. The presented facts convinced participants, especially those who were sceptical about climate change, of the seriousness of the problem.
Thus external factors stimulated as well as inhibited involvement with the long-term orientation and the need for long term strategies.

2.6.4 Functioning of the project team

Apart from the project team, which had the ultimate responsibility for the organisation, facilitation and reporting of the National Dialogue with respect to both content and process, a scientific support team, (Theme III Assessment Team) which for most part joined the project team, also supported the dialogue. This section focuses on the functioning of the support by and on the interdisciplinary nature of the project team. The scientific support is addressed in Section 2.7.

The project team supported the dialogue groups with a secretary who prepared every meeting (both organisational and on substance) together with the chair and often with the responsible person from the scientific support team. The other project team members took turns in attending the meetings, in order to support the secretary as well as to observe the process in the group.

In order to fulfil its task, the project team worked according to a long-term plan, which included dates of meetings and assigned products to be delivered to members. Team meetings were scheduled on a monthly basis and normally took one day. Invitations for team meetings

including the agenda and minutes from the last meeting were sent out timely by the project team's secretary. This careful planning of activities prevented the project team from working in an ad-hoc fashion. There were few surprises, although all had to work very hard in order to complete their tasks. One important aspect to be added is that the project was adequately budgeted and that financial problems were resolved before the start of the actual dialogue.

In general, the participants appreciated the efforts by the project team. The project team tried to provide the participants with clear information on the dialogue structure and on the different steps in the process, but still they were confused at times and occasionally lost track of the dialogue process (see above under 6.3: Fairness and Competence).

The interdisciplinary composition of the project team caused some difficulties. The two aspects (content and process) did not easily match, so that the project team was at times rather more multidisciplinary than interdisciplinary.

There were, in fact, two different projects – a scientific support project (the Theme III Assessment team) and a COOL National Dialogue project (the COOL National team). Each project had its own structure, project leader and budget. One integrated project, however, would have been a better way of realising a truly interdisciplinary project and a shared responsibility for content as well as process.

2.7 Evaluating the assumptions related to the utilisation of knowledge

2.7.1 The future images

The future images were meant to serve different goals: 1) to contribute to the long term perspective of the groups 2) to serve as a point of reference for the selection of options 3) to act as a point of reference for the exploration of the implementation patterns of the options 4) to act as a point of reference in order to judge the strength of the options concerned and 5) to serve as a way to include different perspectives on the problem. The future images fulfilled the five functions. The function: 'to contribute to the long term perspective of the groups' was the most difficult to realise (see above). The other four functions were more easily to realise and required less time and received less attention in the dialogue process. Particularly the judging of the strength of the options passed off (perhaps too) quickly.

In many groups, the two different images made it possible to deal with different perspectives and paradigms. It concerned the discussion on clean fossil versus sustainable (Industry), a high or low demolition rate of buildings (Housing), to facilitate transport or to increase the resistance against transport (Transport) and the future scale of agricultural activities (Agriculture).

The images were neither compared to one another nor were they integrated to a certain level. Each group worked with its own images as their own point of reference. This was a difficult starting point for the scientific support team and caused complications when the scientific support team had to give integrated feedback on the results from the dialogue groups.

2.7.2 The scientific support team (Theme III Assessment team)

In a sense, the COOL dialogue has served as an extended peer review since the participants reviewed the value and usability of the scientific knowledge. The participants performed the role of extended peers in that they critically evaluated the scientific input and in that sense reviewed the quality of scientific knowledge from a stakeholder point of view.

The groups stressed tailor-made input from the scientific support team (e.g. definite answers on questions from the group). They made critical remarks when this was not the case. During the National Dialogue there was often a gap between the needs as expressed by the groups (i.e. small amounts of factual, tailor-made scientific input) and the input delivered by the scientific support team.

The COOL dialogue has shown that scientific knowledge can have a steering role in the discussions. For this, it is important not to overload the dialogue with information, but to reduce written scientific input to such extent as to balance the complexity of the issue with that of the participants' ability to get the relevant pieces of the picture. This proved to be a problem for scientists who are engaged in high level research on climate change solutions on a day to day basis. The scientific support team had to adapt to the COOL schedule. Although most team members, being part of the COOL project team, were well informed about deadlines after being consulted several times, the team was not always able to meet the schedule. This could probably have been overcome if the scientific support had taken a similar planning approach as the COOL project team (see above).

The adaptation to the COOL schedule was even more difficult for the scientific support team since this team was confronted with a role-switching expectation during the dialogue. Their role was intended as a rather passive support for the dialogue groups; they had to deliver information at the request of the groups. During the dialogue it became clear that the use of scientific knowledge was improved by the active participation of the members of the scientific support team (see below). The budget, however, was not calculated to include this active participation.

2.7.3 Communication of scientific knowledge

The dialogue proved that a healthy balance between verbal scientific input (e.g. presentations) and written scientific input is crucial. In the National Dialogue, the groups in general received too much written input and less oral input. The scientific presentations by the scientific support team and external experts were judged positively by the participants.

In the COOL dialogue, various external experts were asked to write a paper on a specific topic (technology, ICT, consumers, et cetera). These papers were not actively brought to the participants' attention in the sense that they were not put on the agenda and therefore not discussed during the meetings. It showed that the impact of such input is rather low.

2.7.4 Dealing with uncertainties and divergent scientific opinions

The dialogue showed that the stakeholders were often more capable of dealing with scientific uncertainties than were the scientists. The stakeholders rely on expert opinion and as long as the different assumptions behind the numbers are made explicit, they generally do not have problems with scientific uncertainty. The scientists, however, are very often reluctant both to give estimations and to make assumptions. This was for example the case in the Housing group, which asked the scientific support team to estimate the reduction potential of different options. For two meetings the group and the scientists played the cat-and-mouse game as to who was going to provide the estimations on this. It was also the case at the end of the dialogue, when the groups asked the scientists to estimate the emission reduction potential of the technological routes that the groups had composed. The scientists were very reluctant to do this, since it required too many assumptions, while the groups specifically asked for a rough estimation only.

Few scientific controversies were brought into the dialogue. Not only the composition of the dialogue groups, but also the personal interests of the members of the scientific support team and the project team have – to a certain extent – influenced the content of the dialogue.

2.8 Conclusions: the effective ingredients of the National Dialogue and suggestions for improvement

2.8.1 Some general conclusions

Stimulating the formulation of argumentation patterns

The National Dialogue has resulted in insights into the major issues for long-term climate change policy. It also gives a vision of the expectations from the different sectors on the role of government, technological development and effectiveness of different policy instruments.

The use of future images and the backcasting methodology might not be the best way to stimulate the participants to develop patterns of argumentation. Backcasting has a brain-storming nature and does not encourage the participants to argue their point of view. However, after analysing the discussions on the options, different patterns of argumentation became visible.

Thus: future images and backcasting might be an adequate method in order to have a fruitful dialogue from which, after analysis, different patterns of argumentation become visible. The method however might not be sufficient in itself to facilitate the formulation of argumentation patterns by dialogue participants.

The pattern of divergence and convergence

The model of divergence and convergence, which was developed at the start of the COOL process, proved not to be applicable in the dialogue. Firstly, the model assumed that the groups would complete three phases and that each phase would consist of two steps of divergence and convergence respectively. However, as early as the first meeting, most groups tended towards some sort of consensus. This was probably due to the confusion that arose in the discussion about the future images. The lesson learned is that divergence is only possible if the starting point for the discussion is clear for all the participants.

Secondly, the model assumed that the divergence and convergence would decrease at every phase. However, in the third phase of the project, the divergence became much more visible than in the first phase. The lesson learned here is that the more concrete the discussion (closer to status, interests and preferences), the more visible divergence becomes and the more convergence under a situation of dissension becomes possible.

Stakeholder autonomy and responsibility

Within the structure provided by the project team, the groups were relatively autonomous. This autonomy stimulated commitment and accountability. Interaction and feedback took place and not only did the groups ask questions to the scientists, but the scientists also asked questions to the groups. One illustration of this was in the project's third phase, when the project team confronted the Housing group with the fact that, without any clear argumentation, they had categorically excluded the option CO_2-storage from their long-term strategy. The project team confronted the group with this omission and this resulted in a pattern of argumentation on the different circumstances in which CO_2-storage could be a viable option.

A stakeholder dialogue as a way to support the policy process

The challenge faced by the COOL dialogues was to realise learning both on a fact-based (cognitive) level and on an (argumentative) level of fact-value relations. The added value of a stakeholder dialogue as opposed to a desk-based piece of research is learning on an argumentative level. There are indications from the National Dialogue that learning took place at both levels. Most participants stated that they learned a great deal. The National Dialogue gained new insights for policy in the sense that it shows which are the most important themes for long-term policy, the main obstacles and opportunities in realising drastic reductions and what different individuals and organisations in society expect from government.

2.8.2 The effective ingredients of the COOL methodology

- The right balance between homogeneity and heterogeneity in group composition and entrance of partly new networks.
- Commitment on the goals of the project as a condition to participate.
- An informal setting.
- A strong chair, preferably from the sector.

- A tight structure and effective methodologies (especially backcasting).
- Autonomy and ownership for the dialogue groups.
- An active and client-oriented attitude from both the administrative assistants and the project team in order to support the groups (take participants seriously).
- An extensive preparation phase, in which the groups were invited and the project design was elaborated.
- Consultation of the participants by telephone, preceding the meetings, stimulated focus and participants' involvement.
- Working towards a strategic vision.

2.8.3 Points for improvement

- Transparency of project structure (especially when the process goes from one phase to another)
- Not enough synthesis of results during the process, which can be used as a basis to continue work.
- Effective methodologies for *all* aspects of the dialogue.
- Simplify the complex role of the chair (by introducing facilitators).
- Tailor-made scientific input.
- Communication of scientific input (not only written, but also oral).
- Clear expectations about dealing with scientific uncertainties (applied to participants as well as to scientific support team).
- The continuity of participation.
- The teamwork in an interdisciplinary project team.
- Realistic tasks for the groups, given the time available and the complexity of the assignment.
- Linkages between the four dialogue groups.

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3. EVALUATION OF THE EUROPEAN DIALOGUE

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3.1 Introduction

This chapter contains the COOL Europe project's evaluation report. The COOL Europe project ran from spring 1999 till spring 2001. Table 3.1 gives an overview of the COOL process and the major phases in this project.

Table 3.1. The COOL Europe project in phases

Preparatory phase	***Aim:*** • Preparation of the project • Selection of participants	***Input:*** Interim phase report	***Output:*** • Project design • Participants to two dialogue groups
Workshop 1 **Future images**	***Aim:*** Discussing and designing low level GHG 2050 image(s) for the energy and transport sectors in Europe.	***Input:*** • Background material on backcasting • Future images elaborated by the national dialogue • Sectoral long-term scenarios • Technological options	***Output:*** • Draft future images agreed upon by participants • Proposals for workshops (scientific input, questions to be addressed etc.)
• *Interview round I with members of both sector groups* • *Preparations for workshop 2, making input*			
Workshop 2 **Path analysis**	***Aim:*** • Identifying key Options • Scanning the European context	***Input:*** • Future images (elaborated by project team) • Tentative path analysis including scientific assessment of options	***Output:*** • Revised future images • Reports written by subgroups (bioenergy, decentralisation, aviation and general transport strategy) • Strategic elements of sectoral strategies
• *Interview round II with members of both sector groups* • *Preparation for workshop 3, making input materials*			
Workshop 3 **Options and key issues**	***Aim:*** • Discussing the European framework for	***Input:*** • Path analysis for the energy and transport sectors	***Output*** • Format for strategic visions • Elements of strategic vi-

	long-term Climate change policy • Backcasting exercises for key options • Formulating short-term actions, and major policy choices and opportunities	• Framework for future visions • Participants' own input papers • Expert papers on ICT and globalisation	sions
• *Writing first draft of Strategic Vision* • *Commenting on first draft version of strategic vision by participants* • *Writing second draft of Strategic Visions*			
Workshop 4 **Towards strategic visions**	***Aim:*** • Refinement of strategic visions • Feedback from policy panel	***Input:*** Second draft strategic visions	***Output:*** • Revisions of strategic visions for the energy and transport sectors • Agreement on finalisation
Finalisation Phase	Finalisation of strategic visions based on the outcomes of workshop 4		

The findings in this chapter have been reached by making use of multiple sources of information:

- Questionnaires to the participants (one for each workshop and another for the whole project)
- Telephone interactions with the participants
- Observations made by the project team (during and after the workshops)
- Reports from the workshops
- Minutes of the project team's meetings

The numbers in brackets after some paragraphs refer to questions in the evaluation framework (see appendices). In the appendices the detailed information from the questionnaires is put forward, as well as a list of the participants by category of stakeholders, and by participation in each of the four workshops.

The chapter follows the logic of the evaluation framework as introduced in Chapter 1.

3.2 Process

3.2.1 Selection of participants

Both sector groups aimed at including representatives of industry, NGOs, government organisations (national and local) and the European institutions. In addition, the aim was to involve people from all parts of Europe.

COOL Europe successfully involved people from Central and Eastern Europe but failed to involve representatives of the southern European countries. After the first and second workshops several attempts were again made to invite people from southern Europe. It is questionable as to whether investing much more time in getting the right people together would have made a great difference.

The contributions from people not usually linked to the climate network were very useful. This particularly holds true for the representatives from Central and Eastern Europe.

Both sector groups had quite a 'green' profile. There was a 'green' selection of industry and government representatives. In this respect there was a kind of bias, partly caused by the interest of the participants and partly caused by the requirement to agree with an 80% emission reduction objective.

The fact that COOL Europe was located at the European level made it difficult to attract people from municipalities. Is it at all possible to interest policy-makers from the local level in a project like COOL Europe? This may indeed prove very difficult. At the national level people share the same political system, they have direct links to national measures and policies and they have similar norms and values etc. On a European scale this is less the case. Therefore in order to get people involved in the process they need to see the importance of such a process. If people in their daily lives are too far away from European decision-making and European developments it is very difficult to attract their interest. This partly explains why COOL Europe did not manage to involve more people on a local level. Another explanation is of course related to the large number of different stakeholders that are potentially involved, making it more difficult to have them all represented (different levels of government, different geographical locations, private-public, different sectors, etc.) COOL Europe started six

months later than planned. The time constraint was to some extent due to problems in finding the right participants. However, it is far from certain as to whether a longer preparation time would, in fact, have led to another set of people being found.

3.2.2 Attendance

Regarding the attendance of individual participants, we could see a core and a periphery in both sector groups (see Appendix 3.2). The core of each sector group felt a kind of ownership of and responsibility for the process. Others, the periphery, would only attend sporadically and gave the process less priority. This played a role not only with respect to attendance, but also to the way they acted within the group. Both members of the core and the periphery were actively involved in the discussions, but those of the core also tried to formulate outcomes, consensus or conclusions following a discussion.

The attendance in relation to the process time was an important aspect throughout the four workshops. There was less attendance at the second workshop while the other three workshops had a sufficient (workshop 3) or even high (workshops 1 and 4) number of attendants. This might be interpreted in the following way. In the first workshop, which lasted only one day, everybody came because they had agreed to be there. It was held in Brussels making it easy for the Brussels-based people to attend, or at least be there for half a day. Workshop 2 was two days, also held in Brussels. Two days required more commitment. Some participants might also have felt the process to be too vague and not targeted sufficiently towards direct results – (Where is this leading?). Looking at the report from workshop 2 and seeing that the project was becoming more and more defined and that significant decisions were in the making, led to some participants reappearing in workshop 3. This was stimulated by the COOL team locating the workshop outside Brussels (in The Netherlands), asking participants to prepare short documents as input and, in summer of 2000, inviting new participants to replace those who dropped out completely. The last workshop was again one day, but important final conclusions were drawn and decisions were made on the formulation of the Strategic Visions, which they were to sign. It would be interesting to investigate whether this is a process characteristic that is also discernible in the other COOL dialogues.

In COOL Europe the project team spent a significant amount of time keeping people involved in the process. According to our understanding, the National Dialogue did not have this prob-

lem so evidently, however at the global level it was also a problem. The interesting question is of course: what is the cause of this? Was the national dialogue better prepared? Was it the structure of the meetings (three hours with a short distance to travel for the national dialogue, as opposed to two days with a long distance to travel for the other dialogues)? Was the social pressure in the national dialogue higher because all are from the same country? Did a greater feeling of having an impact exist in the national dialogue due to the more 'manageable' level of the national dialogue, with strong involvement and to some extent commitment by the national ministries? Comparison of the three dialogues on this point can give us some answers and provide ideas on the link between the design of the participatory process, the level of the process and the commitment of participants.

The COOL Europe project team had regular telephone contact with the participants, before the first workshop and between workshops, as well as after the last workshop. This was important, for setting the agenda and prioritising the issues as well as for increasing commitment to the process. For the third workshop the participants wrote input papers, which stimulated a feeling of commitment and so inspired them to attend that meeting. The contributions of the papers to the final strategic vision differed: some made an impact, others were not focussed enough, did not resonate in the group[4] or did not add value to what was already in the draft Strategic Visions.

3.2.3 Dialogue process

The COOL Europe project often – but not always – developed in line with the agenda; it sometimes deviated from the agenda. Subjects that were supposed to be addressed at one workshop had to be addressed again at a following workshop. In both groups the main problem was that there was too little time to go into sufficient detail.

At the first two workshops, participants had a major say in compiling the agenda and raising the issues. The two rounds of interviews with the participants, which were made in early 2000 and in the summer 2000, were very useful. The decisions taken by the project team were strongly guided by the preferences expressed by the participants from the sector groups. In retrospect, the COOL project team perhaps did not take enough strong decisions concerning

[4] There were some people in the transport group who thought that the quality of some persons in the group was not sufficiently high.

which direction to take, the limitations in number of topics and issues to be discussed and a strict agenda and work plan.

For the energy group, in comparison with workshops 1 and 4, workshops 2 and 3 generated the most interesting outcomes and were also the most decisive in terms of the final strategic vision. This also holds true for the transport group.

In both sector groups participants actively brought up topics for discussion. In the transport group the second workshop was especially important in this regard. The participants came up with a long list of issues they wanted to look at. Among these were issues such as the new economy, ICT, globalisation, public awareness etc. In the energy group many topics were suggested at the first workshop (decentralisation, carbon taxation etc.). These topics were elaborated on further at the second and third workshops. It may be concluded that the agenda was to a large extent created by the participants, and less so by the COOL team and the scientists.

The groups had a large *homogeneity* in terms of expertise on energy, climate and their own sectors. This might have stood in the way of interesting or surprising results in the first part of the COOL Europe project (workshop 1 and 2), as it seem to have prevented more creative thinking. The degree of homogeneity was limited in terms of stakeholders, levels of governance etc. The degree of homogeneity varied at different workshops, due to different mixes of participants. This was only marginally influential for the outcome. It was more the personal characteristics of the people present that influenced outcomes, not so much the homogeneity in the group in terms of stakeholder backgrounds, or expertise.

Were the groups sufficiently diverse to deal with the various aspects identified in the course of the dialogue? It is clear that the composition of the groups had an impact on what issues were identified. This becomes most clear in concluding that the north-south (European) issues were scarcely addressed – partly as a result of the groups' composition – but also with respect to technical issues and quantification. In the transport group there was little interest in technical issues. This was partly due to the fact that the chair of the transport group did not have a technical background in the transport sector, and that Stockholm University, the source of scientific support for the transport group, was not present at the discussions. However it clearly also had something to do with the types of participants present as well as their backgrounds

and interests. Some important decisions were taken at the second workshop that was important for the transport group – namely to move in a non-technical direction and to focus on certain issues. The participants criticised the future image, arguing that it was too technical. It was concluded that it would be much more interesting to discuss the underlying processes. In the energy group the background of the participants, the strong presence of Ecofys and the background of the chair had an additional impact. The energy group had a stronger emphasis on technical issues than the transport group.

Views relating to participants' backgrounds strongly influenced the discussion on technological options and the choice of policy instruments. For example, in the transport group discussions on aviation it was obvious that one person had a scientific background and another a business background. In the energy group it was clear that participants used COOL Europe to promote their favourite options, which very much reflected their professional background.

The energy group's first and second workshops were characterised by a constructive atmosphere and a strong *desire for consensus*. This desire for consensus had two consequences. Firstly, the participants avoided discussions on details in order to avoid conflict. Thus, the images of the future turned out to be very vague. In addition there was no necessity felt for two future images. Secondly, while there were no internal conflicts – a positive point – there was also a lack of clarifying debate and dialogue. The nuclear issue was dealt with in such a way as to require additional discussions later on in the process. This 'consensus-atmosphere' changed somewhat in the third and fourth workshop, where strong debates and preferences emerged, and two future images were constructed. Value judgements were more specifically recognised in the energy group than in the transport group, and addressed during the second half of the process in particular. In the energy group there was a major debate on decentralisation vs. centralisation. The preference for decentralisation was not based on an entirely scientific line of argument. Participants simply argued that they preferred decentralisation. In the end it was recognised as being a value judgement and not just a technical issue. Issues such as controllability, dealing with climate risks and weather disasters (strongly visualised by the experiences in France), being in control of supply, etc., were involved in these value judgements. Other value judgements related to nuclear power and demand-side management. These were not always put explicitly on the table, but were often dealt with in an implicit give-and-take political negotiation process. (14). Value judgements that can be interpreted as paradigm differences could only be recognised on two occasions during COOL Europe. They occurred

in connection with discussions on aviation (transport group) and in relation to the centralisation-decentralisation issue (energy group).

As a rule, different *arguments* were treated as being equally valid during the discussions in both sector groups. In the transport group the focus was on policy preferences rather than on policy arguments. The discussion focused on choices about what should be addressed. Arguments were not really coming out in the transport discussions. This was partly an expected outcome because the group was not explicitly asked to argue. People were being together trying to find a solution. Arguably, this approach has its pros and cons. Argumentation was stronger in the energy group. For example, the preferences for ecotaxes led to window-of-opportunity kind of arguments and demand side argumentation. Argumentation at the third workshop related to what different technological options can contribute under what kind of time frames. Equally the decentralisation-centralisation debate strongly involved argumentation lines.

The patterns of differences were quite similar in the two sector groups. There were no constant camps or coalitions; in that sense it was an open and fair dialogue. Camps were changing according to the topic and sometimes surprising coalitions could be seen: energy company representatives with NGOs. In the energy group it was clear that there were two camps at workshop 3 (regarding the issue of decentralisation), but at other workshops and topics this demarcation line changed. In so far as there were differences and camps they were handled constructively in both groups. The role of the chairmen was very relevant here. The instructions to the chairmen on this point were not specific, but more in line with the overall idea and design of the COOL process: consensus is not necessary, make differences explicit, try to find conditions and assumptions that can explain the difference.

The two sector groups did not use the same methods for *priority setting*. In the transport group, shopping lists of options were written down on flipcharts. Priority setting took place via hand voting but there was no time for discussions. In the second part of the project the sessions were organised in a different way to give more room for discussion. In the energy group priority setting was usually made by way of sticker voting. At the first workshop options were first ordered in clusters before priorities were set. As seen by the participants, the project teams members and scientists had a substantial influence on the course of the dialogue process (Source: Final questionnaire). On the other hand the COOL project team concluded

that – particularly when compared to the national dialogue – the participants had a strong influence. This included influence on the agenda, the issues debated, the number and kind of future images used, the kind of strategic vision they preferred, etc. The participants were highly satisfied with respect to their opportunities to participate equally in the dialogue and to influence the outcomes. A major problem they experienced was that the time for discussion was too short.

3.2.4 Cross-sectoral aspects

There was a rather frequent exchange of information between the European energy and transport groups as all sessions were held at the same time and at the same location. In addition, at each workshop plenary sessions were organised for the two groups, and presentations to each other of the state-of-the-process were regularly held. However, this frequent interaction and exchange of information did not result in major adaptations of the work of either of the two sector groups. At some points it resulted in a more clear 'division of labour', but the final strategic visions do not reflect the frequent interactions. At workshop 3 there was a session in which participants of the two sector groups had the opportunity to shift the group. However, only a few people made use of this opportunity.

3.2.5 The role of external events

Were there any influences on, or *other inputs* to, the dialogue that played a potential role in process and outcome? Yes, there were – in fact the clearest examples are the discussions in the transport group about the fuel price rise (which emerged in autumn 2000) and the failure of COP-6 (in the FCCC process) in The Hague, November 2000. It appeared that it is not so easy to raise the prices of petrol/oil and that fierce opposition can be expected from specific interest groups in society. The transport group began to look more cautiously at how to deal with prices and internalisation aspects. Despite this, the conclusion in the transport groups remained more or less the same; even if these strong social reactions occur, prices should be increased because transport is too cheap and it is seen as an effective way to change transport behaviour.

To some extent the outcome of COP-6 changed the perceptions about the role of the transport sector itself. The stakeholders become more aware of their own role. One participant con-

cluded that “We cannot wait for climate policy to do something, we have to do things ourselves.” On balance, a representative of the business sector underlined the importance of an international climate agreement for the establishment of a level playing field. In the European dialogue, the COOL project team put the issue of European leadership on the groups’ agenda in good time (September 2000, two months before COP-6). Even after the failure of COP-6, however, this was not taken up as a major issue in the energy and transport groups.

According to the participants, the following external events may have influenced the course of the dialogue: OECD’s Environmentally Sustainable Transport project, COP-6 and the uncertainty over the Kyoto Protocol (the US position), the European Commission’s Green paper on the Security of Energy Supply, and discussions on Poland’s energy policy (Source: Final questionnaire).

3.2.6 The role of the chairs

COOL Europe made use of two chairs that in the beginning were rather loosely related to the COOL project, but during the project played an increasingly important role. Both chairmen can be seen as an integral party of the COOL project team as they were involved in all major decisions and were frequently asked for opinions and road to be taken. Participants also saw the chairs as part of the COOL team. The advantage was that there were hardly any difficulties or different opinions between the chairs of the two groups and the COOL project team. In addition, the chairs increasingly internalised the central objectives and process of the COOL project, which improved the project.

The difference between the chairs in background, but also in familiarity with the subject, was reflected in the orientation of the discussion two sector groups (although other factors such as scientific support and composition of the groups contributed to that as well).

3.2.7 The backcasting process

None of the steps of the backcasting process were completed in sufficient detail and interactive backcasting exercises were done for a limited number of options. Already before workshop 1 there was a clear idea about how to design desk research-based backcasting involving experts as a source of information, especially due to the experiences by Stockholm University.

However, the utilisation of a participatory backcasting methodology was not available until workshop 3 and had to be developed partly in an experimental way. This was probably a little bit too late in the process and partially contributed to less optimal outcomes for some of the backcasting exercises.

In the backcasting process the following issues can be identified:

- One future image or two future images. In the energy group a quick decision was made for one, without any detailed discussion on the rationale. The precise structure, content and role of the image were not addressed. The energy group decided in Workshop 2 that two future images were needed. In the transport group the COOL project team strongly pushed for two future images, but the participants did not see the need for two different future images and combined them into one.
- The role of the future image: in contrast to the National Dialogue, where elaborated future images existed before the start of the working groups, in COOL Europe the future images were developed in the first and second workshops. The nature of the future image and the role it played during the COOL process was distinct from the one in the National Dialogue. The future image in COOL Europe was more of a final image in terms of energy and transport, but less in terms of society in general. No strong links existed between the images of the energy and the transport group.
- The general path analysis and the identification of core options took place in Workshop 2. The discussions were somewhat hampered by the small size of the energy group at the workshop (and sometimes an overrepresentation of both the COOL team and scientists), and the incoming and outgoing people in the transport group. In giving the participants too much freedom in selecting options for path analysis, one of the transport sub-groups ended in a very general discussion, which did not contribute strongly to the COOL process. Stronger COOL team management might have prevented this.
- A general problem in the backcasting exercises was the lack of sufficient time for discussion.
- The backcasting exercises in COOL Europe only marginally involved a confrontation with current trends. Gap analysis was partly done in the transport group by including factors such as boundary conditions, preconditions, obstacles etc. But these exercises, in themselves interesting and much needed, remained rather general and resulted in more of a

kind of shopping list rather than in a limited number of well-investigated conditions or in stimulating options to be fulfilled.

3.2.8 The European dimension

Were aspects clearly related to the relevant geographical level in terms of decision making? Despite the attempts of the COOL team and the chairs to stimulate the groups to pay attention to the European dimension in both the transport and the energy groups, most of the discussions could have taken place at a national level as well. The only exceptions were the issue of aviation, which was discussed from a European and a global perspective, and the issue of biomass that involved the accession countries in CEE. Via two policy panels (workshop 2 and 4), via plenary presentations and via input material from the COOL team, there were attempts made to try and stimulate the discussions towards a more European level. In the first policy panel there were representatives of four DGs of the European Commission (Environment, Research, Energy and Transport and Enterprise) together with a representative of the Dutch ministry of environment.[5] The second policy panel took place at the last workshop, 8 December 2000. This panel consisted of representatives of the European Parliament, DG Energy and Transport, OECD and the Czech Hydro-meteorological Institute. There were also three presentations related to the European dimension: M. Wenning, DG Environment (Kyoto and Beyond: the European Perspective), J. Gupta, Institute for Environmental Studies (European leadership) and G. Bennett, Syzygy (globalisation and institutional change). We can conclude that the input stimulated participants only marginally to talk about the European dimension. The policy panels were perhaps most successful in compensating for the bias towards the national perspectives.

3.2.9 Results

On the whole, the contribution of the participants to the Strategic Visions has not resulted in new, unexpected outcomes. Innovative ideas emerged on a few minor points (e.g. on the window of opportunity regarding eco-taxation during falling energy processes and on the linking of accession to the international trade/WTO regime with climate performance), but most of

[5] The following issues were addressed at the first policy panel at the second workshop (7 April 2000): Decentralisation of the energy system and the need for an energy chapter within the EU treaty; Opportunities for carbon taxes in liberalised energy markets in Europe; EU enlargement; Strategic Environmental Assessment.

the ideas, options, measures etc. were already well-known. The innovation and contribution of the COOL Europe project could be found more in (i) the wide support by a variety of different participants coming from distinct stakeholder groups, and (ii) the lessons learned by the participants during the process (both on contents of climate policy and on distinct stakeholders).

Virtually all participants were in agreement with the final outcome of the European Dialogue. Only on a few minor points did discussion continue to the last minute. There was a great belief that the project team was capable of addressing the unsolved matters and that the comments of the participants would be adequately taken into account. It was the long-term perspective and the general nature of the short-term actions in particular that prevented differences of opinion or minority standpoints in the final Strategic Visions.

3.2.10 Conclusions concerning the dialogue process

The following general conclusions can be drawn with respect to the dialogue process.

(1) The COOL Europe process showed that the ideal number of participants is probably between eight and ten. At the fourth workshop there were more than ten people in each sector group. This appeared to be too many. On the other hand one needs at least 15 people in order to guarantee the attendance of between eight to ten persons at each workshop, given the last minute cancellations (on a European level dialogue).

(2) The COOL Europe experience confirms that a fixed group, without fluctuations over time, has a positive effect on the common memory of its members and on group dynamics. Lack of continuity was sometimes a problem in the COOL Europe project. Only three people attended all the workshops. At workshop 3, there were only two participants from the energy group who had participated in both previous workshops.

(3) The preparatory phase of the project has to be extensive. The preparatory phase was too short in the COOL Europe project. Sufficient insights on how to set up a participatory backcasting process were only gained after the project was started. This also had to do with the current state-of-the-art in participatory backcasting.

(4) Participants need to have access to information. However, very few participants in the COOL Europe project had the time to read the input material for the workshops. This was a barrier for the process. Supply, consumption and use of information should be balanced.

(5) Taking a long-term perspective (2050) did not eliminate the interference of short-term considerations. It did put short-term interests at a distance, however, making discussion and consensus building easier.

(6) The chair of the energy group had a background in the energy sector while the chair of the transport group did not have a background in the transport sector. Our experience shows that this did *not* affect the trust of the participants in the process. It is probably other factors (experience, trust, competence to lead and steer the discussions, ability to motivate the group) that are more relevant in this regard. It can even be an advantage to have a chair that has no formal links to a particular sector.

(7) Encouraging participants to give their own input is assumed to enhance the ownership of the process by the participants. This assumption was confirmed, especially at COOL Europe Workshop 3 at which several participants in both sector groups presented input papers. Participants seemed indeed more committed to the project and process – but that might also be caused by other factors (towards the end, it became more definitive; we actively discussed ownership in terms of putting their name on the front cover).

3.3 Knowledge utilisation

3.3.1 Demand-driven knowledge

Both sector groups generated questions for scientific support at nearly all of the four workshops. In the transport group these questions concerned ICT, globalisation and public awareness.[6] The ICT presentation was highly appreciated and also led to a contribution to the strategic vision. The presentation on globalisation did not meet the expectations (of both the participants and the COOL team) and the issue was not discussed further. Overall, the transport group had a less 'scientific' attitude, and was less worried or interested in figures and data and

[6] Requests were made in the following way: please could you invite somebody to tell us something about ICT and globalisation?

more in discussion and debate, which partly caused a limited interest in (natural) scientific input. The first workshop of the energy group generated a long list of questions to science. These questions partially determined the input for Workshop 2. However, Workshop 2 generated only a limited amount of questions for Workshop 3. Between Workshop 3 and Workshop 4 no new scientific questions were put forward. The overall impression from the energy group is that the generation of scientific questions did not work very well. The questions were overall very general, which made it very difficult for the scientists to answer them and to help the group with new insights to stimulate discussion. This was partly caused by the fact that the formulation of questions to scientists did not usually come from the group itself, but was partly 'forced' upon the group. Very seldom did someone just raise a question. The fact that the energy group had a high level of scientific knowledge, a chairperson that was very well informed in the scientific backgrounds and scientific support by Ecofys almost certainly contributed to limited requests for science information from the group members.

There were more requests for external experts in the transport group than in the energy group. The need for external support was higher in the transport group mainly because there was no ordinary scientific support. Two members of the transport group acted as experts/scientists without having been formally assigned these roles. Some representatives were very well informed and brought their knowledge into the discussions.

The scientific input was well received by the participants. The quality and the clarity of the input to both sector groups were, generally speaking, seen as sufficient/good. The input was useful on several occasions for triggering discussions, and helped in explaining both the choices available and the consequences of these choices. Particularly in the energy group, the input of Ecofys regarding the future images and the path analysis stimulated heated debates among the participants as well as between the participants and the scientists. The scientific nature and background of the participants contributed to these debates, although not all participants contributed equally to these debates.[7] The answers of questions to scientists were often not discussed and rarely triggered debate.[8]

[7] The issue of learning curves became a very important point of discussion. Internalisation of external costs and decentralisation were other important topics. Partly because there were several energy experts in the group, scientific input was not taken for granted. At workshop 2 there was a strong discussion with a representative of Ecofys on whether the assumptions on population growth where correct and what amount of biomass and PV Solar was possible in the future image. Also at workshop 3 there was a rather strong discussion with Ecofys on decentralisation. Several of these points can be found in the reports of the workshops.

[8] The answers also helped Ecofys to formulate the key input material for workshop 2.

The input papers of the European dialogue to the transport group were well received by the participants. The papers always raised questions for clarification and suggestions for improvements. The questions raised by the participants in the transport group led to changes in the content of the strategic vision. The scientific input, however, triggered less discussion between the participants or between the scientists and participants. This might be partly due to the fact that the Swedish experts were not present at the workshops, in contrast to Ecofys at the energy group. The Swedish expert team (Stockholm University) made strong contributions in terms of scientific input into the dialogue, particularly in the first two workshops. After the first workshop, one member of the transport group stated that the scientific input "was helpful to create a frame for possible development. But it did not play a specific role in the discussion itself". The transport group only prepared questions to scientists on one occasion i.e. in Workshop 1. Stockholm University answered the questions in written form. The answers, however, were not discussed in Workshop 2.

3.3.2 Supply-driven knowledge

The impact of the COOL project team at the beginning of the process was not so great. For example, the input material provided by scientists for Workshop 1 was barely discussed and almost neglected by both sector groups. In the energy group some of the assumptions of the input material for Workshop 2 were questioned. For example, the report from Workshop 2 stated that: "It was noted that the future image did not take into account the expected population growth. Assumptions about the population size in 2050 have important implications for energy policy." Similar questions were asked during Workshop 3. Explanations about assumptions were given to the participants. (46). The impact of the project team increased, however, toward the end of the project. The structure of the final document was very much the work of the project team, and numerous smaller decisions were made on the inclusion and exclusion of issues. The participants suggested topics for discussion but the project team also made decisions about the topics that were put on the agenda. In the end all drafts were of course approved by the participants but the length of the documents, the wide number of topics covered and the limited time available during the workshops gave the 'writers' of the Strategic Visions drafts a significant influence. The fact that three drafts were put forward to the participants for comments and reactions, and most participants used these opportunities for small and more lengthy comments as well as suggestions for change, shows however the involvement of the participants in the construction of the Strategic Visions. In addition to this,

one cannot easily see another mode of operation, given the limited time available to most participants.

The input from the project team was well received by the participants. It should be pointed out that the participants often did not make a distinction between what they received from the project team and science. From the second workshop onward the chair of the transport group and the invited experts presented the documents. The project team prepared the first path analysis document and the draft strategic visions. The project team also prepared the reports from the workshops.

Regarding the influence the scientific advisors had on the course of the substantive discussion in the dialogue groups, it can be concluded that in the energy group the impact was huge in Workshops 2 and 3 and barely significant at Workshop 1. There were no scientific advisors present at Workshop 4. Likewise, there were no scientific advisors present at any of the meetings of the transport group. Consequently, the influence of scientists (that is: those outside the participants of the transport group) was considerably less in this group. In the transport group there was scientific input (e.g. of Stockholm University, on ICT and globalisation, on awareness) but less technical scientific input as for instance in the energy group or in the National and Global dialogue groups. The transport group did not feel a need to make further use of technical scientific knowledge. Consequently the interactions between scientists and participants remained at a lower level than in the other groups. The impact the few external scientists had on the course and content of the transport group was mixed; but overall the transport group seemed more 'autonomous' from science and scientists than was the case in the other groups.

Although participants judged the input material positively overall, deeming it to be both of high quality and to the point, the COOL project team has the idea that on a few occasions additional or more detailed information would have improved the functioning of the sector groups. This might, for instance, be the case regarding the path analysis at the second workshop and the backcasting exercise (at least in one of the subgroups of the transport group). On the other hand, several other things might have also contributed to less optimal functioning and outcomes, for example: the personal chemistry in the sub-groups working on the backcasting exercise, the understanding of the instructions, the topic for backcasting (in general, technical topics seemed to work better for backcasting than did non-technical ones).

3.3.3 Evaluating knowledge utilisation

In the energy group there was a clear distinction between the participants, the project team and the scientists. Ecofys clearly acted as an independent scientist. It was different in the transport group. The project team was seen as the secretariat but there were no scientists present at the workshop, except for those who were invited on special occasions. Stockholm University was never physically present at a COOL Europe workshop but provided scientific support in the beginning of the process.

Generally speaking, the dialogue provided participants with a better understanding of different views or new insights related to the topics under discussion. However, some people learned more than others did. The knowledge level among participants in the groups was not equal. Perhaps, however, this was not so important. It appeared that what *was* most important was to have a broad view and an open mind – seeing solutions as well as seeing ways of working together. People learned to have a more open mind. Environmental NGO representatives, for instance, learned that they could talk to business people and that together they could create coalitions. Whilst some things were new for some people, the same things were not new for others. It is not only about with knowledge, but also about seeing possibilities for action or opportunities for working together. In the energy group, participants learned to think about the long term in a structured way. They had no experience of similar exercises. In the transport group some participants had been involved in a similar process (OECD environmental sustainable transport project), but not in direct interaction with such a diverse group of participants. With respect to costs, the COOL experience may have opened the mind of some people in the sense that costs are relevant but not always the central issue, especially not in the longer term. People have learned from each other. New networks have been established and participants are beginning to exchange information via email.

The transport group did not make use of models and scenarios in the second part of the project. The future image of the transport sector in 2050 was based on certain models and calculations. There was a reference to this in the input material but how it worked was not explained in detail. The participants were not really interested in this; they took the future image for granted. Nevertheless, in the transport group there was a high degree of agreement that (scientific) uncertainty is a key factor to take into account. A sort of educated guessing took place about what would work and what would not work regarding issues like EU enlarge-

ment, institutional arrangements and public awareness. Uncertainty was an integrated part of the framework for path analysis elaborated on by the transport group. Brainstorming in Workshop 2 looked at strategic issues in a path analysis. It included: boundary conditions, surprises, uncertainties, opportunities and obstacles. The uncertainties that were mentioned related to uncertainties occurring once actions were taken. In the energy group Workshop 3 addressed uncertainties regarding decentralisation.

According to the participants, scientific input was relatively well balanced given scientific uncertainties and different points of view. One member of the transport group points out that there was no proper discussion about the feasibility of the -80 per cent target (Source: Final questionnaire, 2001). There was little debate on the scientific uncertainties that went along with, for instance, the future scenarios or the calculations.

In order to optimise the tuning between the demand and supply of scientific information, considerable time was reserved between the COOL Europe workshops (and this time was used efficiently and interactively). The negative effect of this was that some participants thought it was too long a time gap in order to maintain the momentum of the process.

The role of science in relation to the dialogue group was completely different in the national, European and global dialogues. This is a potentially rich opportunity for drawing conclusions on the different approaches. It may be useful to analyse and reflect in detail upon the risks and the benefits of each of the different approaches.

3.3.4 Conclusions

(1) The input of scientific knowledge in the COOL Europe project was both demand-driven (upon the requests of the participants) and supply-driven (upon the initiative of the project team). The COOL team (by encouraging questions) stimulated the demand-driven parts, which worked to a certain extent.

(2) Stakeholders did not make much use of scientific information following the questions asked. Scientific knowledge was used to some extent when it was actively brought to their notice via oral presentations (but sometimes not at all: e.g. European dimension and global-

isation). Technical information in the energy group seemed to be used to a higher degree, partly due to the nature of the group.

(3) The COOL Europe project did not have to pay special attention to communicating science in such a way that could be understood by the non-scientists among the stakeholders. The reason for this was that the knowledge level was very high among virtually all participants in both sector groups.

3.4 Three-level interaction

At several points in time there was a minor input from the national dialogue to the European dialogue. The input material for Workshop 1 contained a summary of the future images used by the national dialogue. One participant from the national energy group had a plenary presentation at Workshop 2. Two people from the national dialogue also participated in the European dialogue, stimulating cross-fertilisation to some extent. In addition two secretaries from the national dialogue participated in several sessions of the COOL Europe dialogue, also contributing to some exchange of information and ideas.
There was very limited input from the global dialogue to the European dialogue (and vice versa). There was also no necessity for such input expressed by the participants. The project-leader of the global dialogue chaired the first session of the transport group and two participants of the global dialogue participated in the final COOL Europe workshop.

COOL Europe contributed with input to the national dialogue in several ways. The secretary of the transport group participated in four meetings of the national transport group. She provided information about recent developments in the European dialogue. The complete COOL Europe team was present at the intermediate workshop of the National Dialogue in March 2000. The chair of the transport group also discussed the outcome of the European Dialogue at the National Integration workshop in March 2000. Participation in the Global Dialogue was more limited. The project leader of the European Dialogue participated in one of the Global Dialogue's workshops.

As a general conclusion concerning the three-level interaction, it can be stated that the mutual exchange of information, experience and insights, especially with regard to the national – and

to a lesser extent the global – COOL dialogues was very useful for the COOL Europe process. However, it influenced neither the content nor the outcome of the European dialogue.

3.5 Learning from the COOL Europe experience: participants' point of view

Generally speaking, the dialogue led to a greater awareness and understanding of different views and new insights related to the issues under discussion. Some people involved in the process, however, learned more than others did. The knowledge level in the groups was not equal.

People involved in the COOL Europe project learned to have a more open mind, visualising solutions and seeing new ways of working together. Most participants gained new insights from the COOL Europe process. It was, however, not simply a matter of similar types of new insights that were gained. Some participants changed their perceptions about the most relevant solution strategies for addressing the climate change problem. For some people, the factual information gained from the exercise was probably most important. For others, the process itself (backcasting, stakeholder dialogue) generated the most value. One member of the energy group argues that he has changed his perception about the climate problem; he now sees the long-term climate problem as a social rather than an economic problem. He has particularly become aware of the need for a high level of education in society. Another member of the energy group claims to have learned that -80% is achievable and is, in fact, not too costly. A member of the transport group has realised that institution building is very important.

According to the participants, the *biggest success* of the COOL Europe project was the fact that stakeholders, sometimes with contradictory views, were brought together in order to discuss strategies for long-term climate change policy. The process was seen as being very interesting. For several participants the process was helpful in terms of changing perspectives. It offered good networking, mutual respect and consensus building between different organisations and sectors.

The *biggest failures* of the project, as seen by the participants, were "the lack of vivid imagination", and "a somewhat vague scenario part (transport group)". Moreover, the time for discussion was probably too short. Participants needed to spend more time together. Furthermore, the time between the different workshops was perhaps too long.

According to one participant (from the energy group) the process was very beneficial and interesting for policy formation. Conversely, another participant (from the transport group) argued that the COOL Europe project “probably offers little to policy”.

Important lessons emerging from the COOL Europe project, according to the participants, are the following:

- A good mix of people in the group is essential.
- Strong management is necessary.
- Backcasting is an interesting alternative to forecasting.
- There must be sufficient time for discussion.

4. EVALUATION OF THE COOL GLOBAL DIALOGUE

J.G. van Minnen, Marcel Berk and Bert Metz

4.1 Introduction

This chapter contains the evaluation of the COOL (Climate OptiOns for the Long-term) Global Dialogue sub-project. Different sources of information have been used in order to carry out the evaluation of the global dialogue:

- Interviews with/questionnaires from the participants before, during, and after the workshops.
- Questionnaires to the project team directly involved in the project.
- Evaluations of the workshops at project team meetings;
- Reports from the workshops.
- Observations during the workshops.

The evaluation report has the following structure. Firstly, the design of the COOL Global Dialogue is introduced (section 4.2). Secondly, in Sections 4.3 to 4.6 we analyse and evaluate the methodology and outcomes of the COOL global dialogue, including a reflection on the assumptions made at the start of the COOL project (as included in Appendix 1.2). Lastly, in Section 4.7 we draw conclusions about the overall performance of the COOL Global Dialogue and formulate a number of lessons learned for future dialogues.

4.2 Design of the COOL Global Dialogue

In this section we describe the design of the COOL Global Dialogue project, firstly by giving a general overview, then discussing the organisation of the project and finally providing information about the four workshops.

4.2.1 General overview

In line with the National and European Dialogues, the COOL Global Dialogue consisted of three phases: (I) Problem definition and dialogue set-up; (II) Contribution of policy makers,

stakeholders and scientists to the International Science Policy Dialogue; (III) Synthesis and evaluation.

The project built upon the experiences of similar international workshops organised over the last ten years (e.g. those organised in Delft and Kassel). The design and outcome of these workshops (e.g. a list of key policy questions in the post-Kyoto era) were used as a basis for the first COOL Global Dialogue workshop.

The Global Dialogue consisted of a series of four workshops. During these workshops the backcasting methodology was used. In the COOL Global Dialogue, the backcasting was implemented firstly by discussing a range of possible long-term climate change goals, followed by a formulation of criteria for meeting these targets. As a third step, suitable emission pathways were explored, including tasks such as describing conditions for meeting targets. The final step of the backcasting exercise was the definition of short-term implications in relation to the long-term view.

In contrast to the National and European Dialogues, where an 50-80% emission reduction in 2050 was taken as a predefined starting point for the backcasting exercise, the Global Dialogue began by discussing different goals for long-term climate change before commencing with backcasting. As well as the requirements of the backcasting method, the remaining workshops were also fed by policy questions identified at the first workshop. This resulted in a somewhat hybrid workshop design, dealing with both the requirements of the backcasting approach and answering priority policy questions as identified at the beginning of the project. In practice, however, the two could be well combined. The backcasting approach resulted in a more structured dialogue with a more clearly defined outcome (synthesis report).

4.2.2 Project team, moderation and scientific input

The Global Dialogue of the COOL project was co-ordinated by the RIVM. Other institutions involved in the organisation of the workshops were the Institute of Environmental Studies (IVM) of the Free University of Amsterdam, the Centre for Environmental Systems Research of the University of Kassel (Germany), the Potsdam Institute for Climate Impact Research (PIK, Germany) and Tufts University (USA) (see Appendix 4.1).

Communication between the members of the project team was not straightforward owing to the international composition of the project team. Another problem was that the contribution of individual project team members had not been clearly defined at the start of the project (due to the open nature of the programme). During the project, capacity problems related to insufficient scientific input and process management support were encountered. One full-time member of the project team (Ursula Fuentes) left prematurely and could not be replaced immediately. Problems with the finalisation of RIVM's new IMAGE model and activities in support of IPCC resulted in a shortage of analytical support. Moreover, the planned involvement of Ferenc Toth, in the process management and moderation of workshops was not be realised. Thus, in dealing with the scientific support problems the capacity for process management was further limited.

Moderation

Each workshop consisted of a number of sessions, dealing with a particular issue/policy question. At the first two workshops of the COOL Global Dialogue, different people, well experienced in the main issue concerned, chaired these sessions. We changed this for both the 3rd and 4th workshops. Both these workshops were chaired entirely by one person, i.e. Bill Moomaw of Tufts University (USA). The advantage of having only one chairperson was that communication became more straightforward, for example with respect to the discussion concerning the objectives of the workshop. Furthermore, having only one moderator enabled opportunities for 'coaching', i.e. having discussions between the moderator and the project team about the objectives of the various sessions. Lastly, an advantage of having one chairperson not affiliated with the RIVM was an increasing level of commitment among the participants.

Organisation of scientific input

The workshops in the COOL Global dialogue had two objectives with respect to the utilisation of scientific knowledge. Firstly, to present policy makers and stakeholders involved in the international climate debate with the latest scientific results, insights and tools relevant for discussing long-term options for climate change and their implications – secondly, to identify key policy questions for science. Considering these objectives, the workshops were a mixture of scientific presentations and discussions among the participants. In addition, several interactive sessions were held, for example, to identify undesirable climate change impacts or to explain different approaches regarding a widening of future commitments using the FAIR model.

Much of the scientific information provided was based on model and scenario analysis performed by RIVM, Kassel University and CPB, supplemented with presentations by (external) experts. Two different types of resource materials were provided for each participant. Firstly, a briefing book was provided at the beginning of each workshop containing an overview of the workshop as well as copies of most of the presentations. Secondly, a report from each workshop was prepared. Due to capacity problems, however, workshop reports were usually only available at the next workshop (sometimes even only as a draft).

4.2.3 Workshops as a base for the dialogue process

The COOL Global Dialogue project consisted of a series of four workshops (see above). A large number of issues were discussed owing to the somewhat hybrid structure of these workshops (Table 4.2). In addition, each workshop had its own objectives considering the different phases in the back casting concept (Table 4.1). The issues discussed did, however, fit in generally well with the information needs of the backcasting method.

Table 4.1 Objectives of the COOL Global Dialogue workshops

	Objectives
Workshop 1	To define key policy questions
	To explore substantive issues in order to identify additional research needs
Workshop 2	To define undesirable climate impacts, indicators and long-term goals for climate change
	To explore the consequences of long-term goals for climate change
	To link long-term targets with short-term policies
Workshop 3	To identify emission reduction pathways for meeting long-term goals for climate change, e.g. define critical conditions, barriers and opportunities.
	To determine technical feasibility and economic aspects of mitigation strategies
	To broaden the acceptance of mitigation strategies: Impacts of mitigation options on developing countries, case OPEC
	To identify additional information needs for further steps in the backcasting process.
Workshop 4	To identify short-term implications of long-term view
	To discuss the COOL Global Dialogue's final report

Table 4.2 Overview of subjects included in the COOL Global Dialogue project

Subject	Workshop 1	Workshop 2	Workshop 3	Workshop 4
IPCC baseline scenarios	X	X		
Undesirable climate change impacts and long-term stabilisation targets		X		
Linking long-term targets with short term policies		X		
Possible emission reduction pathways			X	
Barriers, opportunities and conditions on the road for long-term stabilisation			X	
Technical potentials for stabilisation			X	
Role of sinks and biomass in mitigating climate change	X		X	
Impacts of mitigation strategies on developing countries	X		X	
Economic consequences of stabilisation scenarios	X	X		X
Broadening participation	X	X		
Short-term actions for a long-term view				X
Discussing synthesis for policy makers report				X

4.3 Dialogue Structure

4.3.1 The group of participants

Selection of participants

The intention of the COOL global sub-project was primarily to involve policy makers engaged in the international climate debate, supplemented with representatives from environmental NGOs and business groups. Moreover, the selection process focussed on finding representatives from all parts of the world. A useful starting point for the selection procedure was the list of participants at previous global dialogues (e.g. Delft and Kassel workshops). Many of these participants had been invited given their interest in continuing their participation in a global science policy dialogue. The project team interviewed a number of envisaged participants in order to evaluate their interest and views about the project in more detail.

Composition

A group of 33 policy makers and stakeholders attended one or more of the COOL Global Dialogue project workshops, representing a variety of home countries and affiliations. In addition, 25 non-RIVM scientists participated in (one or more of) the workshops. Not withstanding the differentiation among the group of participants, a large proportion came from the European continent and is involved in the policy process as policy advisors. The contribution from developing countries and countries in transition was limited, despite the efforts of the project team to enlarge the participation from these regions. Eventually, only 10 policy makers and 1 stakeholder out of a total of 33 came from developing countries and countries in transition. In the group of scientists only two participants came from developing countries (attending only one workshop). Likewise, the participation from non-European industrialised countries was limited. Three participants in the group of policy makers and stakeholders came from the US (all from the same organisation), two from Canada (same organisation) and none from Japan. Finally, businesses and NGOs were underrepresented: 4 participants were affiliated with two businesses and 5 with NGOs (of which 3 attended only once).

Despite the efforts of the project team, the participation from developing countries, from industry and from the circle of real policy makers (i.e. those directly involved in the negotiation process) was limited and representatives from important developed countries were also absent (e.g. Japan, USA policy makers). These observations were confirmed by the participants' evaluation.

Heterogeneity versus homogeneity

While not as heterogeneous as planned, the group of participants was still sufficiently heterogeneous. This resulted in clear cases of non-resolvable differences of opinion (e.g. on equity and long-term stabilisation goals) and related paradigm conflicts (e.g. burden sharing versus resource sharing, and an environment-oriented precautionary approach versus a cost-benefit approach.

The heterogeneity placed high demands on the process design and facilitation of discussions in order to avoid deadlocks. Furthermore, the different opinions resulted at times in non- resolvable differences of opinions (e.g. on issues of equity or the importance of defining long-term stabilisation goals).

Continuity

There has been very little continuity in the composition of the group of participants and policy makers in particular (see Figure 4.1). The large degree of discontinuity has fragmented the dialogue process. It has contributed to confusion about the project's objectives and awareness of how the workshops fit together, different levels of information, discontinuity in debate and limited ownership of the overall project results. It raises the question as to what extent the COOL Dialogue workshops can actually be considered a real group process. The high level of non-participation does not seem to be due to a lack of interest in project, but results mainly from conflicts with other (more prevalent) obligations and the fact that many participants were generally very busy. In addition, some people no longer participated because they changed positions during the project. The discontinuity in participation thus seems to be directly related to the timing and duration of the project.

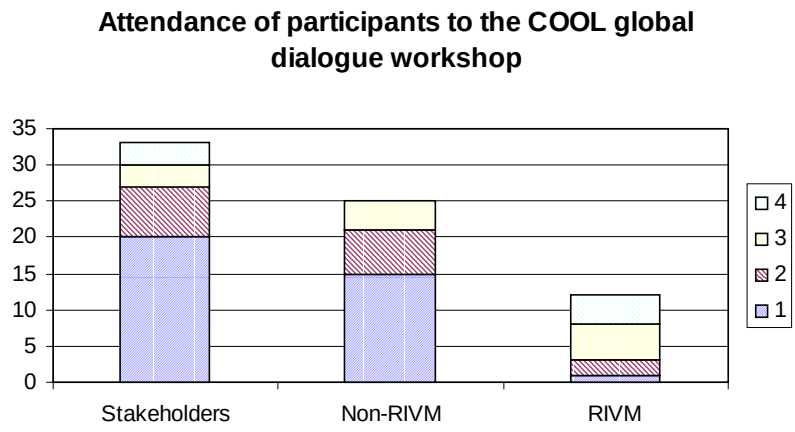

Figure 4.1 Frequency of attendance of policy makers and stakeholders, non-RIVM scientists and RIVM scientists to the COOL Global Dialogue workshops (in absolute numbers of attendance)

Assumptions

- A balance needs to be found between heterogeneity and homogeneity in the composition of the group. Complete homogeneity will not lead to innovative results, whereas in the case of complete heterogeneity the participants do not have a common starting point, which can seriously hamper the discussion process. (confirmed)
- Within the groups, homogeneity is required on the willingness of participants to think constructively along the lines of what possibilities are available in order to drastically re-

duce greenhouse gas emissions (for stabilising at 450ppmv in Global Dialogue). (confirmed)

- In the case of heterogeneous groups, conflict, consensus and power issues need more attention in the design of the process than when dealing with homogeneous groups. (confirmed)
- The ideal number of participants lies between 10 and 15 people, because in such a relatively small group the discussion will have a high quality, people will speak more freely, participation will be equal and participants will be more active than in a larger group. (not confirmed. A small group of participants is problematic for representation of different interest groups. A large group opens the possibility for sub-group activities)
- A constant group, without any changes in composition, will have a positive effect on the common memory of the group as well as the group dynamic. (confirmed)

4.3.2 The role of the Project team

Organisation

The contribution and division of roles of members of the Global Dialogue project team (PT) was not sufficiently defined and secured at the start of the Global Dialogue. This resulted in a lack of process management support, amongst other difficulties. Personal changes in the PT have been detrimental to the progress of the project. Problems with the organisation of the workshops (timing) and problems with participants, as well as difficulties with the involvement of the project team in the provision of scientific information, also had a negative influence on the time available for both process management and communication to the group.

Combining process management and scientific support at mainly one organisation (RIVM) was not a great success. The expected “nice fit” between information demands from the dialogue and scientific support has not really occurred.

The coherence and consistency of scientific information was not optimal. The intertwining of process and content aspects, combined with scientific supply problems, was detrimental to the attention given to process management. Problems related to the supply of scientific information tend to spill over to process management. For future projects, it would perhaps be advisable to separate process management and knowledge supply (as in the European and National Dialogues).

Influence

Most participants indicated that the project team did not have too great an influence on the process and outcomes of the project, but some felt there was too much directing and that the agenda was mainly determined by the project team. In addition it was felt that discussions were too supply driven.

Three things have affected the influence of the project team concerning the outcomes. Firstly, the switch to the backcasting approach after the first workshop limited the room for agenda setting by the participants, additionally because of the limited time available for the back-casting. Secondly, the large contribution of RIVM to both the scientific input and the process management. In fact, for the participants there was no clear distinction between the two. Thirdly, the discontinuity of the group of participants increased the influence of the project team on the outcomes of the project.

It can be concluded that for these reasons the project team has had a considerable influence both on the content of the synthesis report and on the outcomes of the Global Dialogue.

While most participants were generally satisfied with the moderation of the workshops, some were critical about the clarity of the objectives of sessions, the level of direction and the clarity of outcomes from discussions. Also the project team feels that the level of direction and facilitation was insufficient to realise the envisaged outcomes of the workshops. In particular, discussions often did not sufficiently focus on policy dimensions and lines of argument and did not always result in clear conclusions being drawn about points of agreement and disagreement. A more thorough preparation and instruction of moderators was needed. The change from several to one moderator from the group was generally considered a definite improvement.

Assumptions:

- The project team will facilitate the dialogue both on contents and on process. This requires an interdisciplinary project team. (confirmed, but separate responsibilities for process and scientific support)

4.3.3 The project design

Timing and duration

The timing of the COOL Global Dialogue was unfortunate – although participants indicated that the timing was good from the perspective of preparing for discussions on future commitments. The heavy involvement of many participants in the preparations for the Kyoto Protocol negotiations (e.g. for CoP-6) and to a lesser extent the IPCC Third Assessment Report had a negative impact on the ability to participate. This dimension of timing has received little attention in the preparations of the overall COOL project as no direct link to ongoing climate change policy negotiations was aimed at. It seems that – as indicated by the Delft Dialogue (van Daalen et al., 1998) – a clear link to (forthcoming) policy decision processes provides a more effective guarantee for the involvement of climate change policy makers in future international dialogues.

Views were mixed with respect to the duration of the project. While some participants would have preferred a shorter duration in order to promote the commitment and continuity of the group, others indicated that there was insufficient time to deal with all questions, for the path analyses of the backcasting process and for the further development of interactive tools. A more intense dialogue process (with more meetings in a shorter period) seems to be desirable.

The Backcasting approach

The COOL Global Dialogue made a shift from a rather open and unstructured science – policy dialogue to a more structured dialogue by adopting the backcasting approach after the first workshop. A questionnaire during the first phase indicated that participants agreed with the usefulness of the 30-50 year time frame, but only when linked to a backcasting approach leading to concrete results for the second and third commitment periods. This change limited the scope for addressing priority policy questions (e.g. on adaptation). It has resulted in a somewhat hybrid formula with scientific information directed by both policy needs and backcasting (BC) needs. While the issues addressed did, in fact, fit in well with the information needs of the backcasting, the combination seems to have blurred the transparency of the project design.

At the same time, participants were very positive about the backcasting approach, although its performance could have been better if there had been more time available (e.g. an additional

workshop) and less discontinuity in the group of participants. Moreover, the backcasting approach has helped a great deal in integrating different policy issues and making the project more productive.

As mentioned above, the attention given to the identification of a range of acceptable targets relating to long-term climate change in the Global Dialogue (in contrast to the other dialogues) has been very useful in highlighting important differences in perception among participants about the climate change issue. However, some participants that were critical about trying to define long-term goals for climate change (in the first place) – criticised the ambivalent nature of the exercise (defining safe target or starting point?) and would have preferred to start from stabilising at 450 ppmv from the outset. Nevertheless, it seems this step, while not optimally performed, has been important in ensuring the group acceptance of 450 ppmv as a starting point for the BC exercise.

The time available for the BC in the Global Dialogue was too limited. There was no room for iteration with scientific support to deal with information needs and a revision of the rather general intermediate results (in particular regarding path analyses). Moreover, there was no time to sufficiently evaluate various policy options. This evaluation was also hindered by the fact that no common, detailed evaluation criteria were defined. At the same time, it could be argued that performing a BC exercise at global level is more difficult than in the EU and national sector groups, due to the complexity and lack of specific expert knowledge.

Assumptions

- Backcasting will go hand in hand with forecasting. (confirmed: backcasting was combined with scenario analyses)
- During the backcasting process the groups will conduct a path analysis on the implementation of a specific technological option. In this path analysis different opportunities and threats concerning the implementation of the option will be addressed. In the formulation of solution strategies of these problems, the groups will solve the most difficult problem first. (no clear confirmation)

4.3.4 Dialogue process

Distance and Involvement

The use of contrasting images of the future based on the SRES scenarios has helped in making policy makers aware that policy options are contingent to the type of world that may develop (structural uncertainty). At the same time, it has resulted in a focus on the plausibility rather than the acceptability of policy options, creating distance instead of involvement. This raises the question as to whether or not a backcasting process would be more productive and raise more involvement if based on (different) desirable worlds. In the BC desirable worlds would then be confronted with possible worlds (scenarios) in order to account for important possible barriers and identify robust strategies. On the other hand, the heterogeneity of the group may have resulted in irresolvable conflicts about desirable worlds.

The Global Dialogue has shown that flexible analytical frameworks, like FAIR, can play a constructive role in problem structuring and facilitate a debate on contentious issues such as developing country participation / the differentiation of future commitments. Interactive use by participants also enhances involvement.

Inviting COOL participants to give their view on specific policy issues – instead of scientific input – had a very positive influence on the level of debate and involvement of participants in the process. It seems that in such cases scientific information is more useful at a second stage in order to deal with information needs, to test various policy claims and to identify common ground.

Fairness and competence

While the participants indicated that they were satisfied with both the opportunities available for participating in the discussions and about their influence on the workshops outcomes, the project team observed that discussions were often dominated by a limited number of people – mainly from developed countries and often native English speakers.

In some cases, differences in knowledge hindered some participants; in particular those new to either the subject or to the project. It was therefore difficult for such participants to fully understand the findings presented and/or participate in the discussions and interactive sessions.

Some participants indicated their difficulty in judging the quality of scientific modelling results due to their black box character and the lack of comparison to the results of other studies.

Consensus and Conflict

During the COOL Global Dialogue there were a number of occasions where views of participants were clearly conflicting. This was expected. These relate to discussions on long-term stabilisation levels, equitable differentiation of commitments and support for OPEC countries. In the case of long-term stabilisation levels, resistance to defining a 'safe' level or acceptable range resulted in the non-co-operation of some participants. This conflict was resolved by defining stabilising CO_2 concentrations at 450 ppmv as simply a starting point for analyses, without indicating whether it was considered 'safe'. In the discussion on equity no constructive discussion on the pros and cons of various principles was possible. This conflict was 'resolved' by focussing on exploring different approaches instead of discussing principles and by formulating outcomes that would not be acceptable (boundary conditions). The OPEC position represented a clear minority view, with little support from other participants. This conflict was not resolved but elevated to a general level of fossil fuel interests (incl. coal dependent countries) and the relevance of exploring the option of carbon sequestration in order to soften conflicts of interest.

Generally, strong differences of opinion often did not result in the in-depth analyses of lines of argument, but resulted in the acceptance of (known) differences of opinion, and discussion without definite conclusions. Interventions by the project team were required to ensure that discussions at a later stage (e.g. on equity) were more productive.

Assumptions on Distance and involvement

- The workshops do not aim at producing consensus on desired policy targets or policy measures or at decision making. The aim is first and foremost the common clarification of the issues and exploration of options, taking into account differences in perspectives. Moreover, the process is informal. This distance from the real negotiations reduces the stakes of the process. (confirmed)
- The long-term perspective of the project (2050) creates distance. (confirmed)
- Distance is also created by the use of the backcasting technique. (confirmed, maybe even too much distance)

- At the same time backcasting creates involvement as it implies that at the end of the process the implications of the long term for short-term actions will be taken into account. (confirmed)
- Stimulating participants to give their own input (e.g. in the form of giving a presentation or writing an input paper) will also enhance the ownership of the process by the participants. (confirmed, not done enough)
- To prevent the participants from acting reservedly in terms of expressing their views and opinions on an issue, the atmosphere of the meetings should be informal and no personal quotes will be included in the (external) reports from the meetings. (confirmed)
- The stakeholders have to be taken seriously. Only then, their commitment to the results will increase. (confirmed, but modified; participants need to take each other seriously)
- The process provides the opportunity to discuss contentious issues in a constructive way and may result in approaches that could facilitate progress in formal negotiations. It is expected that the participants will also use the outcomes in discussing/evaluating policy options within their own constituency. (confirmed)
- Apart from participants from developing countries and NGOs in the global dialogue, the participants do not receive financial support in order to participate in the dialogue. This implies that their willingness to participate reflects support from the organisations / countries they represent for an investment of time and money in the COOL project. (confirmed)
- Fun and an informal atmosphere are important in terms of stimulating creativity. (confirmed)

Assumptions about Fairness and competence

- In order to have a fair dialogue process (in the sense that all participants are able to attend, initiate and contribute to debate, discuss, and decide about the collective outcomes), at the beginning of the dialogue all the participants should have the same minimum knowledge base. (partly confirmed, some new people in the field participated less in discussions. Suggestions were made by the participants to balance the basic knowledge)
- The selected participants are considered competent in understanding the issues and sufficiently involved in the policy development process to be considered real stakeholders and policy relevant representatives. (confirmed)

- In order to achieve a competent process; the rules of the game – along with a clear description of the dialogue process – will be formulated at the beginning of the dialogue. (not really tested)
- The fairness of the process may be secured by inviting a diverse and balanced group of participants, by proper moderation of the discussions and by using consensus or majority voting procedures both for the selection of approaches and for defining analytical work. (mostly confirmed, but majority rule can be at expense of minorities; balanced group thus essential)
- Policy makers will be able to bring their own information needs into the process in a structured way: through the soliciting and prioritisation of additional/new policy questions as well as through analytical work. It is expected that the diversity of views will result in different information needs. The challenge will be to integrate these different information needs into a coherent and consistent analysis. It is assumed that the development of flexible analytical frameworks can play an important role in this respect. (confirmed)

Assumptions on Consensus versus conflict

- A process of problem structuring attempts to address vested interests by articulating the assumptions underlying stakeholders' different positions. For this, the participatory dialogue in COOL aims not at reaching consensus, but at building the strongest argument possible for different positions and, hence, enhances political choice. (only partly realised but seems confirmed)
- In the case of heterogeneous groups, conflict, consensus and power issues need more attention in the design of the process than when dealing with homogeneous groups. (confirmed)

4.4 Knowledge Utilisation

Scientific information supply

The COOL Global Dialogue generally had more the character of a scientific assessment than of a structured science – policy dialogue. This seems have been caused by various factors: (1) the type of policy makers (many policy advisors), (2) the tradition with similar international dialogue workshops in Delft and Kassel (focussing on the role of models in answering policy

questions), (3) the large time devoted to presentations (related to the too extensive agenda), and (4) the distance created by the BC based on the SRES worlds.
Generally, participants indicated that there was too little time for discussion.

Balance of the type of information
The Global Dialogue mainly focussed on the technical and economic aspects of policy options and paid rather limited attention to the institutional and social aspects of issues of implementation. This may be explained by (1) the level of aggregation at the global level, (2) the limited time for the backcasting exercise, (3) the background of the participants (mainly scientific) and the composition of the project team (limited social science expertise).

Quality of scientific information
The quality and relevance of the scientific information presented was generally well appreciated, but not always adequate. This was particularly the case for economic analyses and the analysis of the contribution of sinks and bio-fuels (not sufficiently realistic or reliable). In this respect, the participants also indicated that is would be better to present results from different models in order to allow for the comparison of these results. They would have preferred the greater involvement of experts from the US and developing countries (the latter was aimed for but only partially realised). The project now relied too heavily on Dutch (RIVM / CPB) and European (PIK, Kassel) models. Moreover, the focus on quantified analyses of options also resulted in too little attention being given to implementation issues (policies and measures, institutional and political hurdles). Some participants also indicated that there should have been more attention given to the analyses of climate damage / adaptation costs versus mitigation costs.

Part of the problems experienced were due to the use of still provisional analytical results produced at a late stage, leading to unclear presentations and questions about the validity of the results. It also resulted in a lack of time for sensitivity and uncertainty analyses. This finding points at the dilemma of providing the latest insights and dedicated analyses against the risks related to non peer-reviewed scientific material. It seems that in any case the information presented should be ready in time for a scientific screening and a good translation into policy relevant information.

Timeliness of information

As mentioned, materials for the workshop – included in the Briefing books – were not sent to the participants beforehand. Additionally, the results of the workshops were often only available at the next workshop. This may have negatively influenced the involvement of and degree of preparation by the participants, in particular given the many changes in the group composition. On the other hand, it is uncertain as to whether or not participants would in fact have read information provided before the meetings given their busy agendas. The late availability of workshop input also has limited quality control with respect to the content and clarity of presentation.

Interactive tools

The Global Dialogue has shown the usefulness of interactive model tools in helping policy makers to explore policy options and their implications (e.g. the use of FAIR to explore long-term climate change targets). Participants were generally very positive about their use and indicated that they provided new insights (e.g. in aspects of equality). Use of the FAIR model even resulted into requests for presentations on other occasions (OECD, UNFCCC and WRI).

At the same time, its use has also shown that (1) the time needed for useful exercises is substantial and underestimated; (2) to make use of their full potential and to come to conclusions, the exercises need to be sharply focused and well prepared and tested as well as moderated and (3) user interfaces need to be very simplistic. Moreover, there are large gaps between the general and aggregated indicators available in the models and indicators considered particularly policy relevant (e.g. local climate impacts). During the project the difficulty of translating undesirable climate impacts into aggregated long-term targets for climate change was underestimated and clearly indicated the need for more additional information than that provided by the model tools.

Linking long-term to short term

In the BC approach, it proved to be difficult to link the long term to the short / medium term in any quantitative way (as done previously in the Delft Dialogue with the Safe Landing Analyses (SLA)). Somewhat surprisingly (given the indicated need for linking the long and short term during the first phase), there was no real request for any such quantification effort (there was little support for the SLA and Tolerable Window Approach). This may be related to diverging opinions on the desirability of goals for long-term climate change.

Assumptions:

- The role of scientific information is to understand the structure of the problem more fully and to explore and judge the feasibility, contribution and acceptability of various policy options. Participants may tend to use certain scientific information for reinforcing their positions, but it may also help in clarifying (value-loaded) arguments and assumptions behind positions. (generally confirmed)
- In a sense, the COOL project is a form of extended peer review. In the dialogue the participants review the utility of the scientific knowledge. (confirmed)
- The input of scientific knowledge in the COOL dialogues may be both demand-driven (upon request of the participants) and supply-driven (upon the initiative of the project team). (confirmed)
- The diversity of views results in different information needs. The challenge will be to integrate these different information needs into a coherent and consistent analysis. It is assumed that the development of flexible analytical frameworks can play an important role in this respect. (confirmed)
- Stakeholders will probably not make much use of scientific information, if it is not actively brought to their notice. (confirmed)
- Particularly when diverging scientific findings are brought into the dialogue, special attention has to be paid to communicating science in such a way that the non-scientists among the stakeholders can understand. (not really tested)
- It is not possible beforehand to give a definite design of Integrated Assessment instruments and methods needed in order to support the dialogues in the COOL project. The dialogues were set up as an iterative process, with considerable time between meetings, in order to optimise the matching of demand and supply of scientific information in the dialogues. (Partly confirmed, more structured design needed and possible in case of backcasting)
- A considerable time gap/period between meetings allows the participants to digest the results of each meeting adequately. (not confirmed, a more intense dialogue preferable; the time in between is only to allow for scientific analyses)
- In the dialogues, scientific uncertainties will need to be made explicit and scientific controversies not concealed. (not sufficiently done, but participants indicated need for more diversity in scientific supply and sensitivity analyses)

- The advantage of the use of (integrated) models in the science-policy dialogue is the coherent, consistent and time-efficient way of exploring and evaluating policy options. These are considered particularly useful for exploring possible futures in a coherent and consistent way. (confirmed)
- Simple, interactive model tools can more easily be adjusted to policy makers requests and allow for learning by doing. They can also more easily allow for accounting for different perspectives and the exploration of uncertainties. It is assumed that these models will very much enhance the communication of scientific insights to policy makers, not only to those participating in the project, but also to those outside the project. (confirmed)
- Scenario-analysis is a suitable methodology for dealing with diversity of views and interests in a productive way. Combined with integrated modelling tools, it allows for a structured and consistent exploration of the environmental, socio-economic and policy implications of different perceptions of scientific and structural uncertainties and of likely and desirable futures. (confirmed)
- It is assumed that the key input from the participants will be information on the kind of considerations/criteria/indicators that are important for selecting and evaluating policy options and the political and societal feasibility and acceptability of possible policy options. (only partly succeeded in reveal these)
- They are also expected to provide information on how to communicate scientific information to the policy community effectively. (partly realised e.g. in design of FAIR)
- The project team has pre-selected analytical tools, mainly on the basis of their availability in The Netherlands. These tools are expected to be adequate for providing relevant answers to policy questions on climate options in the long term. However, there may also be a need to include other tools, either for substantial reasons (in order to meet requested analyses) or for policy reasons (to enhancing support /expectance of the outcomes). There will be attention given to different scientific perspectives and scientific uncertainties. However, it is assumed that the policy makers do not want to be bothered with too detailed scientific discussion among specialists during the workshops. (partly confirmed. On the one hand participants did not want scientific details – yet on the other hand they demanded a more diverse input)
- The models to be used are global models with a long-term perspective. Given this long-term perspective and related uncertainties, the limitation of geographical detail is not ex-

pected to hinder the relevance of the analyses. (partly confirmed, there remains a need for more detailed impact indicators)

4.5 Policy level Interactions

There was hardly any interaction between the Global Dialogue and the other COOL policy levels. Two participants in the COOL Global Dialogue also participated in the COOL European Dialogue, but this did not result in feedback. It was expected that the requests for information would be more bottom up (from the national and European level to the global level) than top-down, but the requests from the National and European Dialogue were remarkably limited. There was only a request from the National Dialogue for information about the potential for biomass energy. This question was dealt with partly by the same experts as those involved in the Global Dialogue, but there was no interaction between the Dialogues. This lack of interaction seems at least partly due to the assumption by the participants in the national / EU dialogues that other countries would implement comparable emission reduction efforts. In addition, participants in the Global Dialogue did not indicate that they needed information on implementation from the European and national level.

Assumptions

- The "COOL light" concept will be used, which avoids too much fine-tuning of the three dialogues that can cause a delay in the process of (one of) them. (confirmed, but less interaction than expected)
- Developments on one level have implications for the other level(s). (not confirmed, due to backcasting)
- The interaction is limited in the sense that the National Dialogue will mainly receive input from the European and Global Dialogues, but the input vice versa (from national to European and global) will be marginal. The relation between the European Dialogue and the Global Dialogue will be a mutual one (input in both directions). (first part confirmed, latter not confirmed)
- By mutual exchange of information, experience and insights, the different dialogues will benefit from each other during the process. (not confirmed)
- It is assumed that the national policy makers will, if not represent, at least communicate national views on the climate change issue during the dialogues and in this way link the

discussion on global policy options to national positions. Policy makers from various European countries, including The Netherlands, will participate in the Global Dialogue. It is expected that they will link the discussion on the various policy levels/dialogues within COOL. (not confirmed)

4.6 Outcomes of the Global Dialogue

Expectations

From both the questionnaire at the beginning and at the end of the project it can concluded that the participants did have rather general and unspecified expectations about the outcome of the project. Many participants seemed to view the project as an interesting opportunity to analyse and discuss the climate change problem from a longer-term perspective than day-to-day negotiations and to think about future policy options. A number were motivated by the success of the Delft dialogue and hoped for the same kind of creative output as for the Safe Landing Analysis. Participants expected that the informal and small group discussions would provide scope for constructive dialogue and ground for developing common visions. They hoped the project would create interesting results for the preparation of the negotiations for the second Kyoto commitment period, as well as for the review of the adequacy of commitments.

With the shift to the backcasting approach, the outcome aimed at by the project became more defined: a coherent and strategic document supported by the participants. This seemed more than the participants had been looking for.

Results and satisfaction

The Global Dialogue did not succeed in establishing ownership of the final synthesis of the results of the dialogue process, although participants indicated their willingness to recommend the report and to be mentioned in the report. Main reasons for this were (1) the discontinuity in the participants group, (2) insufficient time for the BC process to enable a revision of the intermediate results and more extensive evaluation of policy options, (3) the large role of the project team in drafting the synthesis. The heterogeneity of the group may also have played a role.

The lack of ownership of the synthesis report does not mean that the participants were generally dissatisfied with the outcomes of the Global Dialogue. While some indicate that they had

hoped for more concrete results and stronger conclusions, or were disappointed about the eventual level of commitment, most participants were very satisfied about outcomes.

According to the participants, the COOL project has not resulted in a real change of perceptions – more a broadening of horizons and sharpening of vision. Some participants now think more optimistically in terms of the feasibility of stabilising CO_2 concentrations at 450 ppmv, but others are more pessimistic.

New insights and concepts

A number of participants indicated that they gained new insights, in particular about:

- the options for future climate regimes,
- the risks involved in an incremental regime approach,
- the difficulties in deciding about 'safe' long-term stabilisation levels,
- the implication of different possible futures for the challenge of GHG mitigation and mitigation strategies,
- the importance of emission trading for cost levels, and
- the usefulness of a backcasting approach for exploring future options.

During the project two new concepts were also developed:

- the 'comprehensive approach' to the differentiation of commitments (originating from the project team): regimes defining principles, criteria and rules for differentiating future commitments for all countries in a consistent and transparent way (as an alternative to an incremental approach; in order to enhance participation and ensure environmental effectiveness), and
- the 'mirror approach' (originating from the participants): evaluating short-term emission reduction targets (adequacy of commitments) in terms of the risk of excluding low stabilisation levels (as an alternative strategy to setting long-term stabilisation targets).

In addition, the COOL project has resulted in the development of an interactive modelling tool for evaluating different options for a future differentiation of commitments under the UNFCCC (the FAIR model). As indicated previously, this tool has also been used for sessions outside the COOL project itself at the request of participants.

Policy relevance

The outcomes of the COOL Global Dialogue are generally considered to be policy relevant for the post-Kyoto process. Although the participants did not accept full ownership of the synthesis report, they do endorse the communication of the COOL findings. Some participants indicate that COOL results have already been used in other forums (e.g. OECD climate change documents). The project has been useful for participants, but its relevance for the international debate on climate change policy critically depends on the effective dissemination / communication of the outcomes. Participants indicated that the discussions on a number of issues should be continued.

Assumptions:

- Climate change is an unstructured problem that different stakeholders perceive differently. Such problems need to be addressed by a process of interaction referred to as problem structuring identification, confrontation and if possible integration of as many conflicting views on an issue as possible. (generally confirmed, although the problem structuring was not always successful)
- A process of problem structuring may bring about new insights for the participants about the problem and about opportunities for policies. (generally confirmed)
- It is assumed that the key input from the participants will be information on the kind of considerations/criteria/indicators that are important for selecting and evaluating policy options and the political and societal feasibility and acceptability of possible policy options. They are also expected to provide information on how to communicate scientific information to the policy community effectively. (confirmed, e.g. in the case of the FAIR model)
- There are no formal commitments to the outcomes; the assessment is not linked to formal decision making. However, it is expected that since the group largely consists of policy makers involved in the (formal) climate change negotiations that there will be a spin-off to the formal policy process. It is assumed that the process provides the opportunity to discuss contentious issues in a constructive way and may result in approaches that could facilitate progress in the formal negotiations in the FCCC. It is expected that the participants will also use the outcomes in discussing/evaluating policy options within their own constituency. (seems partly confirmed, but real impact cannot be evaluated at this stage)

4.7 Conclusions and lessons learned

In this section we formulate some general conclusions about factors that have been important for the overall performance of the COOL Global Dialogue. These are listed again along the lines of the three dimensions for the evaluation of the project's methodology. The findings of the evaluation were then used in order to formulate a number of lessons learned for the design and contents of future international dialogue projects on climate change.

4.7.1 Conclusions about the overall performance of the COOL global dialogue

Dialogue Structure

- The COOL Global Dialogue project suffered from a lack of continuity in participation. This negatively affected group cohesion and the level of ownership of the project's outcome.
- It was difficult to secure representations from developing countries and businesses. In the future more effort should be made at the start of the project in order to secure their participation.
- The timing of the COOL Global Dialogue project was unfortunate. Many participants were very involved with activities related to the ongoing negotiations on the Kyoto Protocol and/or the IPCC Third Assessment Report. This was much less of a problem for the National and European Dialogues.
- The shift in design after the first phase towards a backcasting approach was successful, but limited the possibilities for addressing specific policy questions identified and was somewhat confusing for the participants. Backcasting itself seems a good methodology for linking the long and short-term perspectives. However, the performance was hampered by a lack of time.
- The moderation of the dialogue did not receive sufficient attention in either the preparation or the execution of the project.

Knowledge utilisation

- The COOL Global Dialogue had a rather supply-oriented (driven) character as considerable time was spent on the presentation and discussion of scientific information. This limited the input from participants themselves and failed to adequately stimulate debate

among the participants. The project was more of a scientist – policy makers dialogue than a dialogue amongst policy makers facilitated by scientific support. In the design of future policy dialogues this should receive more attention.

- Inviting participants to give their view on specific policy issues – instead of scientific input – seems very important in terms of enhancing both the level of debate and involvement of participants in the process. It seems that in such cases scientific information is more useful at a second stage in order to deal with information needs, to test various policy claims and to identify common ground.
- The quality of the scientific supply has received generally good ratings, but there has not been sufficient diversity in supply (too many Dutch/European models and experts, not enough involvement from developing countries and the US). It seems that the heterogeneity of the participants group also needs to be reflected in the organisation of the scientific input/support.
- The scientific support provided was strongly model based. This has not always resulted in sufficiently policy-relevant information. In future dialogues, model analyses should be (further) supplemented by other approaches (such as expert panels).
- The use of interactive model tools has been successful in supporting participants in the exploration of policy options in a flexible and dedicated way, yet demands much time. The amount of time and capacity available to adjust more complex models to specific policy needs has proved to be limited and has been underestimated.

Policy level interaction

- The National and European Dialogue played a negligible role in the course of the Global Dialogue project.

Other

- Combining process management and scientific information supply in one organisation has not proved to be favourable. Problems related to the supply of scientific information tend to spill over into the process management. For future dialogues, separating the two seems more likely to ensure adequate process management.
- The communication with participants in an international dialogue project has proved to be very difficult. People are often hard to reach personally because of travel, busy agendas and time differences. The planning of workshops was also problematic because of many

other international meetings. In future dialogues considerable effort should be devoted to establishing personal contact and securing commitment from the start as well as in planning meetings well ahead.

4.7.2 Lessons learned

The lessons learned have been formulated as "do's" and "don'ts". These are summarised in Table 4.3.

Table 4.3 COOL Global Dialogue – Lessons learned

Issue	Do	Do not
Timing / Duration / location	• plan meetings well ahead • aim for more intensive interaction (e.g. meetings every 4 months) • link to policy decision processes (if possible) • hold workshops in different locations (e.g. developing countries)	• plan during busy negotiation periods • plan more than 2 years ahead (preferably less)
Participation	• involve more senior policy makers • recruit more participants from developing countries and business • secure commitment / continuity	• accept low level replacements
Process	• provide considerable scope for input (views) by participants • provide considerable scope for interaction between participants • pay more attention to political issues (values, conflicts, barriers) • focus (initially) on illuminating and elaborating lines of argument instead of common positions • commence discussions on contentious issues with presentation of views of participants instead of scientific analysis • use backcasting: it works, but allow sufficient time for path analyses • provide clarity about participant group tasks (desired outcomes)	• spend too much time on scientific presentations • use different moderators • use moderation techniques that are "too soft/weak" • combine contents and process management • underestimate the amount of time needed for logistics and effective communication with participants at an international level

	• define clear division of roles / contributions within project team from the start • separate process management and knowledge supply • use one moderator for the whole process (preferably originating from the policy community) • pay attention to coaching of moderators • secure equal contributions from participants (e.g. contributions from developing countries, non native English speakers etc) • give more feedback to participants between meetings (workshops) • involve participants in providing input and in reporting • reserve time for discussing / organising dissemination of results	
Knowledge Utilisation	• present results from (models of) different institutions /scientists • reserve time for translating scientific / model results into policy relevant wording • involve scientists from different regions (in particular developing countries and US) • use interactive decision support models, but spend sufficient time on design of the process of sessions	• allow last minute preparation of presentations • depend on results from expert models not yet available / ready • make too technical / academic presentations • use only a modelling input • have too many different issues on the agenda • expect people to spend much time on the project outside meetings
Contents	• give attention to avoided damages / adaptation costs versus mitigation costs • give more attention to policy implementation / institutional issues • carry out more sector-oriented analyses	

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5. CONCLUSIONS AND LESSONS FOR PARTICIPATORY INTEGRATED ASSESSMENT

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5.1 Introduction

The comparative evaluation of the three dialogues in the COOL project has been conducted along three different, although closely related methodological pathways: 1) dialogue structure, 2) knowledge supply and utilisation and 3) policy interactions at and between three levels. For each pathway, some important issues will be discussed and comparisons between the three dialogues will be made (see Appendix 5.1 for an overview of the strong and weak points of each Dialogue). Section 5.2 discusses the dialogue structure in Integrated Assessment: what lessons are learned about the project team, the backcasting technique, the input of scientific knowledge, the role of the chair, creativity, divergence/convergence and learning in a stakeholder dialogue? Section 5.3 deals with the aspect of knowledge utilisation in Integrated Assessment: in which way has knowledge been brought into the dialogues and in what way has knowledge been asked for and utilised by the participants? Section 5.4 addresses the science-policy interactions at and between the three levels: what experiences with the three levels have the COOL dialogues generated, how can this be used in the further improvement of our understanding of the role of science-policy interactions in (multi-level) political processes, and what contribution can Integrated Assessment make to these processes? This chapter ends with some general conclusions (Section 5.5).

5.2 Dialogue structure

COOL was a stakeholder-driven dialogue. The National, European and Global Dialogues consisted of respectively four (Housing, Industry & Energy, Traffic & Transport, Agriculture & Nutrition), two (Transport, Energy) and one group, with stakeholders from among others business, environmental and consumer NGOs, government and unions. In the preparation of the dialogue, special attention was paid to the composition of the dialogue groups. Efforts were made to involve people from outside the existing climate change network. Although some participants stated that additional expertise in the group would have been desirable, in

general, all the groups were considered sufficiently heterogeneous to address different existing views, opinions and interests with respect to the climate change problem.

The following lessons can be derived from the COOL dialogues as regards dialogue structure.

The project team

The COOL dialogues have shown that interdisciplinary working can be enriching and at the same time very difficult. Although the members of the project team often speak different 'languages', it is crucial that they discuss, listen to each other and learn from each other. In getting the actual dialogue started, it is of vital importance to anticipate what possible problems could arise and to schedule the project in such a way that one is – of course to a certain extent – able to cope with the unexpected. Particularly the National Dialogue has claimed a first phase period in the project that might, at first glimpse, look rather long. This nine-month period was used in order to fine-tune project design and to invite the sixty participants for the dialogue groups. In retrospect it can be concluded that this period was not unrealistic and that the actual dialogue benefited from the preparation. Of the three projects, the National Dialogue has most consistently followed its schedule and has addressed a broad variety of topics at a fairly concrete level as well as some specific recommendations for policymakers. However, one serious point for improvement relates to shortcomings in the project's structure.

The National Dialogue's project team actually included two separate teams: the actual project team and the scientific support team (NRP Theme III Assessment). The researchers working on the NRP Theme III Assessment for the most part joined the COOL project team, but both projects were formally separated in terms of management and budget. In retrospect, it might have been preferable to work with one project, one project team and one budget. This might have improved the co-ordination and scheduling of activities.

Backcasting and argumentation

The backcasting technique generates creativity, equal participation and an informal atmosphere. It also yields insights into the main problems and opportunities for the implementation of different options and the main themes for long-term policy. However, backcasting does not necessarily articulate conflicting views and does not as such stimulate the deepening of argumentation. This is because backcasting has a brainstorming character. The argumentation patterns became visible only after intervention and analysis by the project team.

The role and tasks of the chair

The National and European Dialogue worked with chairs, who were recruited from the sectors or the scientific community, and who were not affiliated with the project team. This proved to be an advantage and without any doubt contributed to the continuity and quality of the dialogue process. A chair that has a good reputation in the sector particularly contributes a great deal to participants' confidence and commitment and to the image and status of the dialogue. Hence, a chair from the sector can establish a strong link between the project team and the participants.

To chair and to facilitate are two different things. It is preferable not to combine both tasks but to recruit facilitators from the project team to assist the meetings.

Creativity

In the COOL dialogues there appeared to be tension between on the one hand problem structuring and problem solving and on the other hand creativity. Furthermore, tension exists between on the one hand commitment and accountability and on the other creativity. The following lessons can be drawn:

- In order to stimulate creativity, a process needs structure.
- Creativity requires that the participants feel at ease.
- Creativity requires a certain degree of expertise on the topic.
- Interests hamper creativity.

In the European Dialogue, the participants were invited to write down their vision and thoughts in a position paper. This appeared an adequate way of stimulating creativity.

Divergence and convergence

In the COOL dialogue it was shown that divergence is only possible if the starting point is clear for all the participants. The COOL dialogue has also shown that divergence becomes more visible when the discussion becomes more concrete, with a focus on the short term.

Ownership

Participants can feel more committed to the dialogue and its products when they know that they have a real influence on the process. In the Global Dialogue it was quite difficult to get the participants committed to the project. The continuity in attendance was rather low and the

participants did not want to connect their names to the end product. The National and the European dialogues have been much more successful in making the participants the owners of the process. In the European Dialogue the continuity was still moderate, but the participants showed great commitment and were willing to put their names to the end product.

Learning?

Although it is hard to say at this stage of the process, it is possible to state that the dialogue has probably been a learning process for many of the representatives involved. An important distinction is

- learning at the level of first order discourse (facts): did the stakeholders gain more insight into the technological options available in order to drastically reduce GHG emissions?
- learning at the level of second order discourse (values, emotions): did participants gain more insight in the different points of view and opinions related to opportunities for emission reductions?

It is too early to draw final conclusions with respect to both aspects of learning, but it seems that learning has taken place on both levels. In particular, learning on an argumentative level may be the strongest added value of COOL as compared to mere research on the potential on options for emission reduction. After all, the dialogue has brought about patterns of argumentation with respect to options that are considered to have high potential in many studies but turn out to be controversial in the dialogue (e.g. biomass). The project team and the scientific support team have certainly learnt from the Dialogue, on substance as well as on process.

Timing

The dimension of timing has received little attention in the preparations of the COOL project, as no direct link with ongoing climate policy negotiations was aimed at. However, especially for the Global Dialogue the timing of COOL has been very unfortunate. Many participants were heavily involved in the preparations of the finalisation of the Kyoto protocol negotiations (COP 6) and some in the IPCC's Third Assessment. This had a negative impact on the ability to participate. In the European and National Dialogue the timing dimension did not play a prominent role. What may have affected the National Dialogue were the many controversial issues the agricultural sector had to deal with.

5.3 Utilisation of knowledge

The three dialogues have each dealt differently with the input and use of scientific information by the project team and the knowledge available among the participants themselves.

In the National Dialogue, the scientific support team provided scientific information on specific moments in the dialogue trajectory (Future images, adjusting Future Images, calculating the contribution to reductions by different options) or on participants' request. At times, the scientific support team made spontaneous interventions either because it felt that certain topics were neglected in the discussion or to assist a dialogue group in structuring the debate.

In the European Dialogue only the Energy group made use of a permanent (natural sciences) support group. The Transport group did not have permanent support but invited experts on certain issues based on the requests of the participants (i.e. ICT, globalisation, and European institutions). The participants gave several presentations themselves. The scientific interest of the energy group was rather technologically and economically oriented. The transport group had a more institutional and social interest and focus.

In the Global Dialogue knowledge input was prepared and presented by either the project team or other scientific experts invited by the project team. Knowledge input was mainly supply driven. The knowledge level and expertise of the participants themselves was high. The participants viewed the process as a way to obtain and to review the latest relevant scientific information. The starting point for the participants in the global dialogue was clearly different from that in the other two dialogues. The participants saw their own role as reviewing and reflecting upon the scientific presentations. Participants saw themselves in this way contributing to the work of the project team instead of the other way round, as was the case in the other two dialogues.

With respect to knowledge input and utilisation, three important lessons can be drawn from the COOL Dialogue. The first lesson is that in a stakeholder dialogue, it is important that the information offered to the groups is compact, tailor-made and easy to understand. If not, the participants will not use it. Specific lessons are:

- Oral presentations prove to be far more effective than mere presentations on paper;
- The use of interactive tools increases the attention span and involvement of participants;

- Presentation skills are far more important than in a ‘normal’ scientific setting;
- Limiting the amount of information is crucial; too much information is clearly counter-productive.

In order to take into account the above-mentioned points a certain attitude is needed with the researchers involved in the dialogue. It is not enough for the project team itself to know the above mentioned quite “open doors”. Invited speakers and supporting scientific teams also need to be aware of them. Interest in the process is needed, a clear customer orientation, the willingness to iterate, to engage in interaction with the participants and, above all, to invest time in preparation. Experience and a positive attitude stimulate such an attitude far more than instructions by a project leader or in a research plan.

The second lesson is that it is not easy to provide heterogeneous groups with an equal knowledge base at the start of the dialogue. For this purpose, the National Dialogue distributed a package of fact sheets among the participants. However, the fact sheets were hardly used and the differences in knowledge still existed.

The third lesson relates to the timing of scientific input. As mentioned above, the principle of competence suggests that, right from the start of the dialogue, participants must have equal access to scientific information and about the same minimal knowledge base. This is unlikely to be the case, especially for heterogeneous groups. Therefore, the National Dialogue provided considerable quantities of scientific information at the start of the dialogue. That this information met with some resistance and was underused was partly due to its quantity and partly due to the lack of communications experience in the scientific support team. However, in retrospect, dialogue design and structure should be held chiefly responsible. At the start of the Dialogue, participants did not have adequate opportunity to express and discuss their mutual expectations, concerns and viewpoints with respect to the dialogue’s substantial focus and schedule. Once this happened during the course of the dialogue, the participants seemed to be more open to scientific information and able to reflect upon it.

In the European Dialogue, the process began not with future images, but with a list of possible inclusions for such future images. This gave the participants greater opportunity to express their own opinion and point of view. Therefore, the experiences in COOL suggest that stakeholders will only take up (factual) scientific information if they feel that their own feelings and resistance are heard and recognised. Certain issues in the dialogue may require repe-

tition and iterations. Some information does not reach participants the first time round. It proved useful to provide information several times in various ways, adapted to the need of participants and the course of the process. In addition, presentations by participants themselves on topics of their own interest and expertise turned out to be very useful, not only in terms of content but also in terms of increasing both their commitment and active involvement. At the same time there is the risk that the information provided has a "bias" resulting from the specific background of the participants. The role of the scientific support team could be to provide additional information if this is available.

In addition to these lessons, two observations can be made. Firstly, in a dialogue such as COOL participants have a greater need for rough estimates than scientists would like to provide or think scientifically possible. Input in the form of such rough estimates may be necessary for bringing the discussions a step forward. Scientists have to be willing to make rough estimates and explain their underlying assumptions and the importance of uncertainties.

Finally, scientific input must not only be diverse in terms of discipline, institution or presentation but also in terms of geographical background. This became very clear in the global dialogue. Where the messenger comes from is as important as the content of the message itself.

5.4 Three-level interaction

In the construction phase the COOL Project chose the so-called 'COOL Light Structure'. This meant that not much time and energy was spent on co-ordination, harmonisation and interaction of the three different projects. With regard to output the 'COOL Light Structure' has been a sensible choice, given the time constraints of participants as well as the project teams. A more intensive co-ordination and interaction between the three projects may have placed a burden on the separate projects.

Knowing now the complexity and the required efforts to carry out three projects like COOL, it is clear that another design is needed for three-level interaction. There has to be a reduction of complexity in the design. A dialogue project on two or three levels may have to focus on a well-defined issue and a clear description of the kind of interactions and their expected gains. Another possibility would be to use the methods of interviewing and participative observation

focused on people working at more than one level; how is it possible to deal with different levels, what are their difficulties and strategies to cope with such difficulties?

5.5 Conclusions

A comparative evaluation of the three COOL dialogues suggests some major lessons for future participatory work in integrated assessment. Before this conclusive section will address these, it makes some general and major observations with respect to the dialogue process, not only with respect to the actual dialogue itself but also with respect to the process surrounding the COOL-project from the very start.

The most important lesson is probably that preparation pays off. Good preparation implies firstly that even at the stage of writing a project proposal it is worthwhile anticipating in quite some detail what activities should be undertaken as well as to estimate the time involved in managing and carrying out different tasks. There should be sufficient time and personnel available for all activities, from the actual start of the project through to the reporting phase. Some good insight into the actual activities planned and the time they may take is essential for calculating a realistic project budget. Projects like COOL may easily suffer from a budget deficit, which may be explained by deficiencies in the preparation phase. This implies that getting a project started may take some time. The two-year period that it took to get COOL started was probably somewhat too long, but this time was used to draft and redraft proposals and budgets as well as to openly discuss uncertainties and doubts both within the team and with the NRP. Along with a gradual improvement of the project overview, trust building turned out to be vital in this phase. In retrospect, then, COOL has also benefited from this long and uncertain period of preparation.

Once the project begins, sufficient time is needed to prepare for the actual dialogue. The National Dialogue in particular took a long period of time in order to fine-tune the project design. This certainly contributed to a relatively smooth dialogue process.

The second major lesson from the COOL process is that it pays to invest in participants' involvement. This implies, among other things, that participants should know what they are doing at each stage of the process, that they are assisted in preparing well for dialogue meetings and that the meetings' agenda is prepared in close co-operation with chairs and partici-

pants. Additionally it implies that dialogue meetings need to be characterised by a variety of issues for discussion – although not too many – and that participants are encouraged to present their own views and experiences. Although COOL has made a serious effort to invest in participants' involvement, the previous sections indicate that further improvements are needed at this point. One point that needs special attention is structuring dialogue meetings in such a way as to balance the presentation of scientific information, brainstorming activities (such as constructing future images and backcasting) and the articulation of diverging views through argumentative debate.

The third major lesson relates to the role of scientific information in the dialogue. The communication of scientific information is extremely relevant in a dialogue on scientifically complex issues such as climate change. The European dialogue would have benefited from a more structured approach with respect to the contribution of scientific information. However, the effectiveness of scientific communication depends on two factors: First of all it must be communicated in a way that people can relate to, e.g. well presented, reduction of information quantity etc. This is difficult for scientists, especially if they have to perform in heterogeneous groups. Secondly, and even more importantly, the dialogue participants must be open to receive scientific information and reflect upon it in a meaningful way. In a demand-driven dialogue, this is only the case once the members of the group have found an audience for their own needs and wants with respect to the dialogue, their expectations, views and maybe even their hobby horses. In retrospect, here also a point for improvement can be found.

The fourth major lesson is to recognise the limitations of the project in good time. Do not try to achieve too much in too little time! In retrospect, during the preparation phase it was the right decision to lower expectations with respect to three-level interaction. In retrospect, particularly with respect to the National Dialogue, expectations were too high in terms of what could be realistically achieved in one meeting. In retrospect, especially with regard to the Global Dialogue, the aim was to present too much scientific information at the expense of reflection and debate. So, on this point too, further improvements could be made.

It could be argued that some of the lessons from the COOL project are not that new. Some mistakes might certainly have been avoided. However, participatory integrated assessment is an interdisciplinary challenge and, as such, still in a pioneering stage. The mistakes might be forgiven by the many participants who have evaluated the COOL project in generally positive

terms. They might look familiar to colleagues in this field who know, better than we do, that knowledge gained from literature is not at all equivalent to knowledge gained from practice. The achievements are more important than the mistakes. At this stage of reporting, it is not yet certain as to whether or not COOL will be able to make a difference to Dutch climate change policy in a European and global context. However, the lessons from the project stand and may inspire others to develop and improve approaches and methods for participatory integrated assessment.

COOL Evaluation APPENDIXES

Appendix 1.1 Evaluation framework

Actor	Input	Policy	Analysis	Results	Use/effects
		Effect of input on dialogue	**Dialogue content and process**		
Participants	Group composition: • What expectations (on the sides of both project team and participants) with respect to diversity underlie the composition of the dialogue groups? Input from participants • Did participants bring up topics for discussion? • Did participants formulate questions for project team and / or scientific support? • Did participants request external experts? • Was there input from other dia-	• How was the scientific input received by the participants (relevance to topics on agenda, relevance to questions in the group, relevance to objectives of dialogue, quality, timeliness, clarity, usage of inputs, handling of three level aspects) • How was the input from the project team received by the participants (relevance to topics on agenda, relevance to questions in the group, relevance to objectives of dia-	Group composition: • How was the attendance of individual participants? • Was the group sufficiently diverse to deal with the various aspects identified in the course of the dialogue? Content (Argumentation) Precision: • Did the group define the topics for discussion? • Were value judgements specifically recognised? • Were aspects clearly related to	• Were the results in accordance with the agenda? • Were all participants in agreement with the (intermediate) results? • If not, were points of explicit disagreement set aside for a new round of discussion? • See also under inputs	• Did participants discuss the COOL-project with others between the meetings? • Was there any external use of the project results by participants? If so, did that have any impact on decisions made?

	logue groups (same geographical scale, different geographical scale)? • Was there input to other dialogue groups? • Was there input on aspects that relate at other geographical levels (other dialogues)?	logue process, usage of inputs, trust in suggested objectives and agenda, handling of three-level aspects) • Was there any influence of other input on the dialogue? • Was there any influence of other unexpected actors/ events on dialogue process?	the relevant geographical level in terms of decision making? Differentiation: • To what extent were different aspects taken into account (both technical and social)? • Were underlying values related to preferences for certain options? • Were there any paradigm differences recognised? • Were different arguments allowed as equally valid during the discussion or was there pressure to disregard minority views? • How were views related to participants' back-		

			ground? • What were the patterns of differences (many individual opinions, two “camps”, changing coalitions)? Integration: • How did the priority setting take place (voting, consensus, overruling)? • How was the consistency of various choices checked? • Did the groups discuss different paradigms? • Did the dialogue focus on variables that can be influenced by stakeholders? • Did the group succeed in handling different views constructively?		

			Use of knowledge: • Were arguments underpinned with reference to scientific observations? • How did the group deal with (scientific) uncertainty? • Did the dialogue groups use information from other dialogue groups / other dialogues? Legitimacy: • How were issues related to legitimacy taken into account? Process • How much influence did project team members and scientists have on the course of the substantive discussion in the dialogue groups (se-		

			lection of options, priority setting, identification of critical conditions, formulation of strategic visions) as seen by the participants? • How much influence did project team members and scientists have on the course of the dialogue process, as seen by the participants Fairness: • How did participants evaluate the opportunity to equally participate in the dialogue? • How active were participants in participating in the debate? Competence: • Did participants		

			have access to relevant information (from previous exposure, from project, from other sources)? • Did participants feel able to follow and engage into the debate? • Did the dialogue produce a better understanding of different views or new insights related to the topics under discussion?		
Scientists (project team / External experts)	• What input has been provided? • Quality of input? • Input timely? • Clarity of input? • Models, scenario's clearly identified and assumptions clearly stated? • Was input bal-	• How do the experts evaluate the impact of their contribution to the dialogue (relevance to topics on agenda, relevance to questions in the group, relevance to objectives of dia-	• How much influence did scientific advisors have on the course of the substantive discussion in the dialogue groups (selection of options, priority setting, identification of		

	anced given scientific differences? • Was uncertainty handled carefully? • Was there a clear distinction in variables that can be affected and those that cannot be affected? • Was there sufficient input on relevant aspects at other geographical levels?	logue process, usage of inputs)?	critical conditions, formulation of strategic visions), as seen by themselves and (other) project team members who were present at the meetings?		
Project team	• What input has been provided by the project team? (objectives, agenda, reports from previous meetings, reports from other group meetings, reports from advisory board meetings, suggested working methods) • Input timely?	• How does the project team evaluate the impact of their input to the dialogue (relevance to topics on agenda, relevance to questions in the group, relevance to objectives of dialogue process, usage of inputs, trust in suggested objectives and	• How do the project team members evaluate their influence on the dialogue (content and process)? • How do the scientific advisors evaluate the influence of the project team?	• Were all backcasting process steps (problem formulation, different visions, path-analysis, confrontation with current trends, formulation of strategic visions) completed in sufficient detail?	

	• Clarity of input? • Was there input on relevant aspects at other geographical levels?	agenda)? • How does the project team evaluate the effects of the input from (other) stakeholder groups, funders, advisory board etc, as well as unexpected actors / events?			
Stakeholder groups	• Was there any input from stakeholder groups to which participants belong? • Were there any external events that may have influenced the course of the dialogue?				• What were the reactions of the stakeholder groups on the results of the dialogue process?
Funders, advisory board and others	• Was there any input (decisions or otherwise) that may have influenced the course of the dialogue?				• Were the reactions of funders, advisory board and other outside actors on the results of the dialogue process?

Appendix 1.2 Assumptions that underlie the design of the COOL dialogues

Willemijn Tuinstra, Marleen van de Kerkhof and Matthijs Hisschemöller

This Appendix gives an overview of the assumptions that underlie the design of the COOL dialogues. The assumptions will be evaluated within the evaluation framework of the COOL project. The structure of this document matches as much as possible the structure of the evaluation framework. Six categories of assumptions can be distinguished:

1. Assumptions concerning the expected outcomes of the dialogues,
2. Assumptions concerning the selection of participants,
3. Assumptions concerning the dialogue process,
4. Assumptions concerning knowledge utilisation in the dialogues,
5. Assumptions concerning the three level interaction,
6. Assumptions concerning the use of results.

1. Assumptions concerning the expected results of the project

1.1 Climate change is an unstructured problem that different stakeholders perceive differently. In order to realise the expected results in terms of content (strategic visions on how to realise –80% GHG emissions by 2050 for The Netherlands in a European and Global context) the climate problem needs to be structured. Problem structuring is defined as a process of interaction which brings about identification, confrontation and if possible integration of as many conflicting views on an issue as possible.

1.2 Problem structuring yields new insights on problem and opportunities for solution among those involved in the dialogue.

1.3 Problem structuring addresses vested interests by articulating the assumptions that underlie stakeholders' different positions.

1.4 The dialogues in COOL do not aim at reaching consensus, but at building the strongest argument possible in favour of different positions and, hence, enhances political choice.

1.5 The dialogues will result into considerations with respect to (conflicting) assumptions and paradigms, criteria and indicators that serve for assessing and *ex ante* evaluating long term climate policies and actions by public and private actors.

1.6 In the National Dialogue the groups follow a process of diverging, subsequently converging. The degree of divergence and convergence will decrease in the course of the dialogue process.

2. Assumptions concerning the selection of participants

2.1 The dialogue may be more successful (in terms of new insights for policy) to the extent that the dialogue groups are composed in such a way that they include stakeholders who are not involved in the dominant climate policy-science network beside stakeholders who are in this network.

2.2 The groups must balance heterogeneity and homogeneity. Too much homogeneity stands in the way of surprising results, but in case of too much heterogeneity participants may lack a common starting point, which will severely hamper the discussion.

2.3 As regards homogeneity:

- Participants should be willing to explore the possibilities to reduce the emissions of greenhouse gases 50 – 80% in 2050.
- Furthermore, some homogeneity is required concerning participants' appreciation of the COOL project, of scientific knowledge and of non-scientific knowledge.

2.4 As regards heterogeneity:

- the organisations the participants represent,
- their position in the climate debate,
- representation of the demand or supply side of products and services,
- gender and age.

2.5 In case of heterogeneous groups, conflict, consensus and power issues need more attention in the design of the process then when dealing with homogeneous groups.

2.6 The ideal number of participants lies between 10 and 15 people. In a group of this size the process tends to meet the requirements of fairness and competence (see 3.1).

2.7 A fixed group, without fluctuations over time, will have a positive effect on the common memory of its members and on group dynamics.

2.8 In the National Dialogue the groups are composed in such a way that the participants represent the actors who are responsible for the bigger part of the greenhouse gas emissions in the Netherlands.

2.9 In the National Dialogue, policy makers have a dual role. On the one hand, they are policy analysts just like the other participants. On the other hand, they are supposed to inform the other participants on existing policy goals, plans and measures.

3. Assumptions concerning the dialogue process

Process goal: Fairness and competence

3.1 The stakeholders must be taken seriously. Only then, they may feel committed to the process and its results. For this, the preparatory phase of the project has to be extensive.

3.2 In order to have a fair dialogue process (in the sense that all participants can attend, initiate and contribute to debate, discuss, and decide about the collective outcomes), the design of the dialogue process must be transparent, take into account the participants' objectives, and must be adequately communicated to the participants. In order to reach a fair process, at the beginning of the dialogue rules of the game will be formulated, as well as a clear description of the dialogue process.

3.3 The process will be competent if all participants have access to information. At the beginning of the dialogue all the participants should have the same minimum knowledge base.

Distance and involvement

3.4 Stakeholders tend to consider the climate change issue quite remote in time and place. There is relatively little knowledge outside the climate policy network and the issue seems to have low priority as compared to other (environmental) problems. So, the dialogue faces the issue of making stakeholders more familiar and involved with the climate issue.

3.5 At the same time, the stakes are very high, especially for those who represent sectors of economy or countries that will have to pay a relatively high price for implementing emission reduction. So the dialogue process needs to create an atmosphere of trust and confidence, which enables participants to freely explore options for drastic emission reductions.

3.6 Taken together, 3.4 and 3.5 point to what can be considered a dilemma in process design. On the one hand, the dialogue should encourage stakeholder involvement, on the other hand, vested interests and bargaining positions may frustrate an open dialogue process, if not some distance is taken from the substance matter. The dialogue has taken an ap-

proach, which aims at balancing distance and involvement. This is a pragmatic approach which is not necessarily the best from a scientific point of view. In the dialogue a balance is created between distance and involvement in several ways (3.7 – 3.18).

3.7 One way of increasing participants' involvement is that in the dialogues, different groups are formed which represent a specific sector of economy. In this way it is possible to specify the climate problem into issues which are relevant for different groups of stakeholders. Furthermore, it is possible to connect long term sectoral planning with climate policy.

3.8 Distance is created by the long term perspective of the project (2050). A scope on 2050 prevents an interfering with short-term policy making and avoids disturbance of the process by short-term political complications.

3.9 Distance is also created by the use of the backcasting technique. This allows the participants to discuss in an open atmosphere, remote from the daily interests and policies.

3.10 At the same time backcasting creates involvement because it implies that at the end of the process the implications of the long term for the short term actions will be taken into account. Backcasting will go hand in hand with forecasting.

3.11 Articulating and exploring conflicting assumptions and paradigms strengthens policy argument and thereby participants' involvement.

3.12 Furthermore, involvement is created by making the participants owner of the dialogue process. The participants are in principle autonomous within the structure that the project team gives them (rules of the game). Involvement will increase when the dialogue cares for the participants as they are, with their specific views, interests and concerns.

3.13 A chairman from the group of participants will enhance the ownership of the process by the participants.

3.14 To prevent de participants from being reserved in expressing their opinion and view on the issue, the notes from the meetings are kept anonymous.

3.15 The process provides the opportunity to discuss contentious issues in a constructive way and may result in approaches that could facilitate progress in the formal negotiations in the FCCC. It is expected that the participants will also use the outcomes in discussing/evaluating policy options within there own constituency. (Global dialogue).

3.16 The participants do not receive a financial compensation to participate in the dialogue. This implies that their willingness to participate reflects a support from the organisations they represent for an investment of time and money in the COOL project.

3.17 Stimulating participants to give their own input (e.g. in the form of giving a presentation or writing an input paper) will enhance the ownership of the process by the participants.

3.18 Fun is important to stimulate creativeness.

4. Assumptions concerning knowledge utilisation

4.1 Scientific information will help to better understand the climate problem and to explore and judge the feasibility, contribution and acceptability of various policy options.

4.2 Participants may tend to use certain scientific information for re-enforcing their positions, but it may also help in clarifying (value-loaded) arguments and assumptions behind positions.

4.3 In a sense, the COOL project is a form of extended peer review. In the dialogue the participants review the utility of the scientific knowledge.

4.4 The input of scientific knowledge in the COOL dialogues can be both demand driven (upon request of the participants) and supply driven (upon initiative of the project team).

4.5 The diversity of views will result in different information needs. The challenge will be to integrate these different information needs into coherent en consistent analyses. It is assumed that the development of flexible analytical frameworks can play an important role in this respect.

4.6 Stakeholders will probably not make much use of scientific information, if it is not actively brought to their notice.

4.7 Especially when diverging scientific findings are brought into the dialogue, special attention has to be paid to communicating science in such a way that the non-scientists among the stakeholders can understand.

4.8 Because it is not possible to give at forehand a definite design of Integrated Assessment instruments and methods to support the dialogues in the COOL project, a knowledge base will be developed (the COOL box). The COOL box contains instruments and methods that can be used to integrate both scientific knowledge and other knowledge. Furthermore, the COOL box contains instruments and methods to connect the different levels of analysis in the COOL project.

4.9 In order to optimise the tuning between demand and supply of scientific information in the dialogues, considerable time is reserved between the meetings.

4.10 A considerable time gap between the meetings allows for a successful interaction between dialogue participants and scientific support.

4.11 In the dialogues, scientific uncertainties will be made explicit and scientific controversies will not be concealed.

4.12 Global Dialogue: The advantage of the use of (integrated) models in the science-policy dialogue is the coherent, consistent and time-efficient way of exploring and evaluating policy options. These are considered particularly useful for exploring possible futures in an coherent and consistent way.

4.13 Simple, interactive model tools can more easily be adjusted to policy makers requests and allow for learning by doing. They also can more easily allow for accounting for different perspectives and the exploration of uncertainties. It is assumed that these models will very much enhance the communication of scientific insights to policy makers, not only to those participating in the project, but also those outside the project.

4.14 Scenario-analysis is a suitable methodology for dealing with this diversity of views and interests in a productive way. Combined with integrated modelling tools it allows for a structured and consistent exploration of the environmental, socio-economic and policy implications of different perceptions of scientific and structural uncertainties and of likely and desirable futures.

4.15 The informal and explorative character of the project will limit the level of contention and strategic behaviour that hinders the utilisation of scientific knowledge during many formal meeting.

5. Assumptions concerning the three level interaction

5.1 The “COOL light” concept means that too much fine tuning of the three dialogues can cause a delay in the process of (one of) the three dialogues.

5.2 The interaction is limited in the sense that the National Dialogue will mainly receive input from the European and Global Dialogue, but the input vice versa (from National

to European and Global) will be marginal. The relation between the European Dialogue and the Global Dialogue will be an interactive one (input in both directions).

5.3 By mutual exchange of information, experience and insights, the different dialogues will profit from each other during the process.

6. Assumptions concerning the use of results

6.1 Involvement of stakeholders will enhance the relevance of the assessment to policy makers.

Appendix 2.1 Note 'Fasering en Tijdpad Nationale Dialoog'

FASERING EN TIJDPAD VAN DE NATIONALE DIALOOG

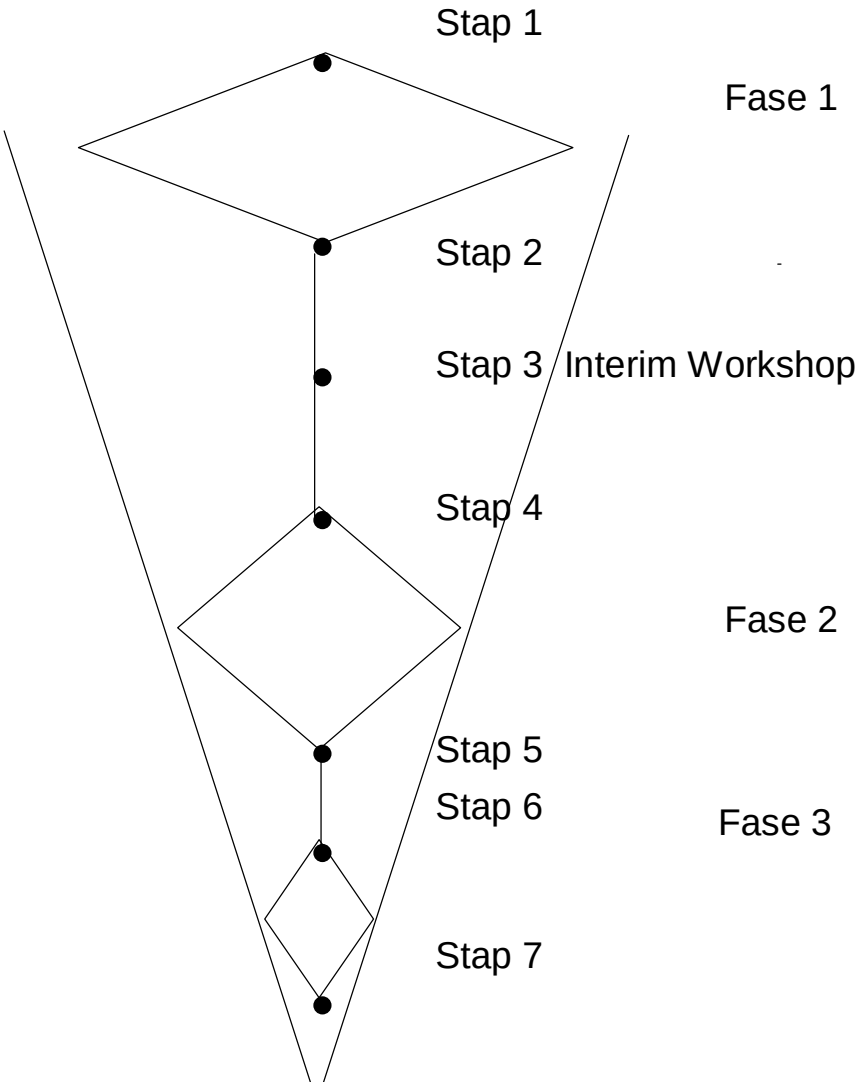
De voorliggende notitie beschrijft op welke wijze de dialooggroepen in het kader van COOL Nationaal de ontwikkeling van strategische visies voor lange termijn klimaatbeleid kunnen realiseren. Het schema is gebaseerd op de volgende vier overwegingen:

1) Om van de uitgangssituatie (twee toekomstbeelden die voorzien in een reductie van de uitstoot van broeikasgassen met 50% á 80% in 2050, het ene georiënteerd op verandering in gedrag, het andere op technologie) te komen tot strategische visies voor een sector (industrie, gebouwde omgeving, verkeer en vervoer, landbouw en voeding) zijn drie fasen nodig:
   - Uitwerken toekomstbeeld en beleidscontext per sector;
   - Backcasting: opties en implementatietrajecten;
   - Formuleren van strategische visies.

2) Elke fase bestaat idealiter uit twee stappen, die worden aangeduid als *divergeren* en *convergeren*. Met *divergeren* wordt bedoeld dat de verscheidenheid aan opvattingen binnen een dialooggroep en de onzekerheden en informatiebehoefte (binnen de beperkte mogelijkheden die het project biedt) optimaal voor het voetlicht worden gebracht. Met *convergeren* wordt bedoeld dat de dialooggroep komt tot een selectie van kernpunten en nagaat in hoeverre en onder welke voorwaarden hierover consensus bestaat dan wel zou kunnen worden bereikt (zie in dit verband ook de Notitie *Algemene Uitgangspunten en Spelregels* onder 2.2). Het proces van fasegewijs divergeren en convergeren noemen wij *wyberen*. Het ligt in de verwachting dat de divergentie in de eerste twee fasen van de dialoog groter zal zijn dan in de derde fase waarin de strategische visies op papier worden gezet. Vandaar dat het dialoogproces zich behalve als *wyberen* ook laat aanduiden als *trechteren* (zie FIGUUR 1). Een en ander betekent dat er in beginsel zes of, wanneer het vaststellen van de strategische visies schriftelijk afgedaan kan worden, in ieder geval vijf bijeenkomsten van de dialooggroepen nodig zijn. Elke bijeenkomst zal naar onze verwachting circa vijf werkzame uren in beslag moeten nemen, maar zie *Notitie Algemene Uitgangspunten en Spelregels* onder 2.9 en 2.13 over de handelingsvrijheid van de dialooggroepen. Een aparte notitie over de opzet van dialoog bijeenkomsten zal aan de groepen worden voorgelegd.

3) In elke fase van de dialoog moet er voldoende gelegenheid zijn voor het mede op verzoek van de dialoogdeelnemers verzamelen van (wetenschappelijke en andere) informatie. Dit betekent dat er binnen de drie fasen voldoende ruimte moet zijn tussen de twee bijeenkomsten.

4) Er moet in de dialoog voldoende gelegenheid zijn voor het uitwisselen van informatie tussen de sectoren alsmede tussen de Nationale Dialoog en de Europese en Mondiale Dialogen in COOL. Dit wordt gerealiseerd in de vorm van de zogenaamde Interim Workshop (na fase 1) en, middels het (kwantitatief en kwalitatief) vergelijken van de afzonderlijke strategische visies door het projectteam gedurende fase 3.



De Nationale Dialoog schematisch weergegeven

Fase 1 Bepalen toekomstbeeld en beleidscontext per sector

11/99	stap 1	***Proces***: Toelichting op de procesarchitectuur groepen stellen hun eigen regels vast ***Verkennen van context en vragen (divergeren):*** toelichting op de toekomstbeelden groepen maken de toekomstbeelden bruikbaar voor de eigen dialoog inventariseren van vragen aan de wetenschap
2/2000	stap 2	***Informatie ontvangen en selecteren (convergeren):*** beantwoording van vragen door de wetenschap (paper en auteurspresentatie voor een of twee 'grote' vragen, 'kleine' vragen op andere wijze) besluitvorming over de informatie / assumpties die de groep betrekt in de verdere dialoog initiële keuze voor opties die voor nadere verkenning in aanmerking komen
3/2000	stap 3	***Voorwerk door projectteam***: opstellen van het interim-rapport (gebundelde notulen van de groepen plus een rode draad, 'eerste analyse' o.i.d.) ***Interim Workshop:*** informatie-uitwisseling tussen de verschillende schaalniveaus en de verschillende dialooggroepen dialooggroepen vergelijken onderling de aannames en voorlopig geselecteerde opties identificeren van gemeenschappelijke informatiebehoefte dialooggroepen met het oog op fase 2

Fase 2 Backcasting: opties en implementatietrajecten verkennen

4/2000	stap 4	***Verkennen van implementatietrajecten (divergeren)*** opties vaststellen (naar aanleiding van Interim Workshop) implementatietrajecten in kaart brengen: * wat is er voor nodig om de opties te realiseren? * wie kunnen trekkers worden van de meest kansrijke opties; * welke barrières zijn er en wie kan een rol spelen bij het slechten van die barrières? Vragen aan de wetenschap identificeren
9/2000	stap 5	***Informatie ontvangen en selecteren (convergeren):*** Beantwoording van vragen door de wetenschap (paper en auteurspresentatie voor een of twee 'grote' vragen, 'kleine' vragen op andere wijze) Besluitvorming over de informatie / assumpties die de groep betrekt in de verdere dialoog

Fase 3 Formuleren van strategische visies

11/2000	stap 6	***Voorwerk door projectteam:*** op basis van notulen opstellen van aanzet tot strategische visie ***Opstellen 1e concept strategische visie:*** beschrijving van de meest kansrijke opties, hun reductiepotentieel, de bijbehorende randvoorwaarden, de stappen die gezet moeten worden om deze opties te realiseren en de potentiële trekkers van deze realisatiestappen De groepen stellen concept strategische visie voor de sector vast
1/2001	stap 7	***Vergelijking concept strategische visies van dialooggroepen:*** ***Voorwerk door wetenschappelijke ondersteuning*** beeld van reductiepotentieel van geselecteerde opties van alle groepen afzonderlijk en voor de groepen gezamenlijk identificeren van knelpunten, waaronder mogelijke afwentelingrelaties tussen sectoren ***Reactie van groepen op input van wetenschappelijke ondersteuning*** 'haardvuurafsluiting' door de groepen (of, indien er consensus is, schriftelijke afhandeling)
3/2001	stap 8	***Nationale COOL Conferentie:*** formuleren van conclusies uit de gevoerde dialogen doorwerking van de resultaten bevorderen richting politiek, wetenschap en sectoren

Appendix 2.2 Criteria for composition of the groups

Notitie samenstelling van de dialooggroepen

Hoe heterogener de groepssamenstelling, des te moeilijker het proces en des te interessanter de resultaten.

Uitgangspunt: op sommige aspecten moeten de groepen heterogeen zijn en op andere aspecten homogeen. Heterogeniteit op vrijwel alle relevante aspecten zet het proces te veel onder druk.

Hieronder staat in tabelvorm een overzicht van aspecten die we (tot op zekere hoogte) een rol kunnen laten spelen bij de samenstelling van de groepen. Van elk aspect is een inschatting gemaakt van de gewenste mate van homogeniteit, respectievelijk heterogeniteit. Niet opgenomen is het aspect 'communicatieve vaardigheden'. Dit aspect wordt bij de samenstelling van de groepen wel in het achterhoofd gehouden, maar fungeert niet op voorhand als criterium.

	Zo homogeen mogelijk	Zo heterogeen mogelijk
Postie in klimaatdebat		X
Politieke kleur		X
Achtergrond/interesse/oriëntatie (technisch, sociaal/maatschappelijk)	x	
Maatschappelijke positie c.q. positie in de eigen organisatie	x	
Schaalniveau van de eigen werkzaamheden (lokaal/mondiaal)	x	
Denkstijl (visionair, stategisch/ praktisch, uitvoerend)	x	
Leeftijd		x
Geslacht		x
Vertegenwoordiger van de vraagkant c.q. de aanbodkant van diensten en producten		x
Waardering voor de wetenschap	x	
Waardering voor niet-wetenschappelijke kennis	x	
Waardering voor COOL-project	x	

Appendix 2.3 Methods used in the National Dialogue

1. The future images

The future images fulfilled various functions in the Cool Dialogue:

- one function of the future images was to stimulate thinking about the long term; this function took place in the first phase of the dialogue;
- another function of the future images was to facilitate the generation of options; this function also happened in the first phase of the dialogue;
- in the second phase of the dialogue the future images functioned as a frame of reference during the mapping of implementation problems as well as opportunities of options;
- in the third phase of the dialogue the future images functioned as a frame of reference again, this time to facilitate the evaluation process of the options, especially the aspect of robustness of the path of implementation: when an option seemed to be promising against the background of one future image, would this evaluation endure against the background of another future image or not?

These functions of the future images were explained to the participants at several moments in the dialogue.

2. The backcasting methodology

The backcasting methodology was used to explore the implementation path of different options by the participants. The steps of the methodology were as follows:

- At first the group had to select an option for a backcasting exercise; the selected option had to be promising in terms of reduction of GHG and challenging to think about.
- Then the group was divided in two smaller groups. From this moment the groups had the possibility to choose variation A or B:

  Variation A: one subgroup was going to work on an option against the background of one future image, the other subgroup was going to work on the same option against the background of the other future image.

  Variation B: one subgroup was going to work on an option against the background of one future image and after that, they had to check the robustness of the implementation path by changing the background: how promising will this implementation path be with the other future image as a frame of reference? The other subgroup had to do the same with another option.

- Each subgroup had to start with the following question: ‘we assume that option x has been implemented successfully in 2050; what should have been happened in the years between 2050 and the moment we live now to realise this situation?’ The subgroups worked on large wall papers, on which an empty timeline was drawn from 2000 to 2050. Each subgroup has had to fill this timeline with the required technical innovations, cultural changes, political actions and so on which, according to the participants, would be necessary to reach the implementation of the selected option in 2050. This step resulted in an overview of successive actions, developments and intermediate results, leading to the expected implementation of the option in 2050.
- The next step the subgroups had to carry out was a brainstorm about the opportunities and problems connected with the implementation path. After this brainstorm the participants had to select ‘the most challenging problem(s)’. This meant: the solution of this problem seemed to be crucial to reach the implementation goal *and* it seemed to be reasonable that (at least some) actors could influence the problem.
- After that the subgroups had to carry out a discussion about solutions -and their actors – for the most challenging problem(s).
- In the end the two subgroups presented their results to each other and discussed the two implementation paths.

3. Working in subgroups

During the meetings the dialogue group was frequently divided in two subgroups. There were several reasons to do so.

Working in subgroups:

- stimulates equal participation of the participants;
- enables people to participate in those discussions they liked most;
- enlarges the productivity of the meeting;
- created the possibility of different or confronting results, and as a consequence, created the opportunity for argumentative debate.

Working in subgroups is a successful tool is the next requirements are fulfilled:

- participants are free in their choice of the subgroup they participate;
- the assignment for the two subgroups is the same (except for small variations) as well as the available time to carry out the assignment;

- the group or their facilitator is able to give a clear presentation of their results in the plenary session of the meeting.

4. The Repertory Grid method

In the National Dialogue the Repertory Grid method was used in order to link the results of the backcasting exercises explicitly to the discussion on criteria for long term climate policy. In the backcasting exercises (meeting 3 and 4), the groups explored the implementation path of different options. In the preparation phase of the fifth meeting, the secretary applied the Repertory Grid method. He/she presented each participant in a telephonic interview three options (e.g. biomass, CO_2-storage and solar PV). The participants were asked the following question:

> *"In what way are two of these options similar to each other and in what way do they differ from the third?"*.

A possible answer was: "biomass and solar PV differ from CO_2-storage, since these options are renewable and CO_2-storage is a fossil energy option". But of course the options can also be distinguished on another ground, for example: "CO_2-storage and biomass differ from solar PV, since these options will probably meet societal resistance whereas solar PV has more societal support".

This 'thought experiment' was repeated three times, with different combinations of options. Interviews with all the participants of the group resulted in a list of distinctive features of options, such as: source approach versus end of pipe approach, demand side versus supply side, clean fossil versus sustainable and renewable et cetera. This list was used as input for the discussion on criteria.

Appendix 2.4 Note 'Spelregels en Uitgangspunten'

DEELNAME AAN DE NATIONALE DIALOOG

Algemene uitgangspunten en spelregels

Dit stuk geeft een beeld van gemeenschappelijke uitgangspunten van projectteam en deelnemers met betrekking tot (1) doel en werkwijze, (2) de dialooggroepen en (3) het projectteam. Door het schetsen van uitgangspunten en verantwoordelijkheden hoopt het projectteam bij te dragen aan de kwaliteit van de dialoog en de doorzichtigheid en efficiëntie van het proces.

1. Doel en werkwijze

1.1 De dialooggroepen formuleren strategische visies voor het lange termijn klimaatbeleid (2012 - 2050) van Nederland, waarbij zij zich in het bijzonder richten op het identificeren van randvoorwaarden, kansen en bedreigingen in een bepaalde sector van de Nederlandse economie. De vier sectoren zijn Gebouwde Omgeving, Industrie, Landbouw en Voeding, en Verkeer en Vervoer. De strategische visies vormen het eindproduct van de dialooggroepen (zie ook 3.15).

1.2 De aanpak van de dialoog, in het bijzonder de stappen die uiteindelijk resulteren in een strategische visie en de onderwerpen van de afzonderlijke bijeenkomsten, is beschreven in de notitie (zie *Fasering en tijdpad van de Nationale Dialoog).* De punten 1.3 t/m 1.5 geven de werkwijze van de dialooggroepen op hoofdlijnen weer.

1.3 De werkwijze is backcasten. De hypothetische uitgangssituatie is de Nederlandse samenleving in 2050 waar ten opzichte van 1990 de uitstoot van broeikasgassen (inclusief CO_2) met 50% à 80% is gereduceerd. De groepen gaan na wat dit voor de sector in de tijd betekent en schetsen in concrete bewoordingen de route die zij om hun moverende redenen het meest wenselijk achten.

1.4 De dialooggroepen geven hierbij aan in hoeverre zij gebruik maken van wetenschappelijke informatie die hun wordt aangeboden. Zij identificeren relevante onzekerheden in kennis en richten zich, wanneer zij dit nodig achten, met specifieke kennisvragen tot het projectteam.

1.5 De dialooggroepen betrekken waar nodig de visievorming in andere dialooggroepen in hun beraadslaging. Waar mogelijk geldt dit ook voor tussentijdse uitkomsten van de mondiale en Europese dialogen in het kader van COOL.

1.6 De dialooggroepen worden in hun werk bijgestaan door ‘resource persons’. Onder ‘resource persons’ worden verstaan beleidsmakers werkzaam bij de departementen VROM, EZ, LNV en V&W.

1.7 De dialooggroepen hebben de mogelijkheid om bij het project betrokken ‘informanten’ te raadplegen. Onder ‘informanten’ worden verstaan personen uit het bedrijfsleven en de maatschappij, die betrokken zijn bij het klimaatvraagstuk.

2. De dialooggroepen

Inhoud en proces

2.1 De dialooggroepen zijn verantwoordelijk voor het produceren van strategische visies.

2.2 De dialooggroepen streven er naar de verschillende argumenten en inzichten van hun deelnemers zo goed mogelijk voor het voetlicht te brengen. Consensus wordt nagestreefd met betrekking tot het verhelderen van kernthema’s. Consensus ten aanzien van afzonderlijke opties en implementatie trajecten is geen vereiste en kan zelfs onwenselijk zijn wanneer de concreetheid van bepaalde voorstellen er door wordt verlaagd.

2.3 Deelname aan de dialooggroepen vindt plaats op persoonlijke titel. Dit laat onverlet dat deelnemers de kennis, inzichten en opvattingen van maatschappelijke verbanden waar zij deel van uitmaken kunnen inbrengen in de dialoog.

2.4 Deelnemers aan de dialoog kunnen zich niet laten vervangen.

2.5 Iedere dialooggroep heeft een voorzitter. De taken en verantwoordelijkheden van de voorzitter zijn, naast het voorzitten van de vergaderingen van de groep, het inhoudelijk en procesmatig voorbereiden van de vergaderingen in overleg met de projectleider en projectsecretaris (zie in het bijzonder 3.3 en 3.7).

2.6 De dialoog wordt gevoerd op de bijeenkomsten van de dialooggroepen.

2.7 Iedere dialooggroep komt tenminste vijf en bij voorkeur zes maal bijeen (zie notitie Fasering en tijdpad van de Nationale Dialoog). Alle deelnemers worden geacht hierbij aanwezig te zijn.

2.8 Naast de bijeenkomsten van de afzonderlijke dialooggroepen vindt halverwege de dialoog een zogenaamde Interim Workshop plaats. De dialoog wordt afgesloten met een Nationale COOL-conferentie (zie notitie Fasering en tijdpad van de Nationale Dialoog). De dialooggroepen of hun vertegenwoordigers nemen hieraan deel.

2.9 De dialooggroepen bepalen hun eigen agenda binnen het kader beschreven in de notitie Fasering en tijdpad van de Nationale Dialoog.

2.10 De dialooggroepen stellen, binnen het kader van de opzet van de dialoog, hun eigen besluitvormingsregels vast (zie ook 3.9), en maken andere afspraken betreffende vertrouwelijkheid, wijze van rapportage en externe communicatie.

2.11 De dialooggroepen bepalen zelf in hoeverre zij behoefte hebben aan informatie door derden (zie ook 3.8).

2.12 De dialooggroepen hebben de mogelijkheid gebruik te maken van door het projectteam aangeboden 'tools' om onderdelen van de dialoog te faciliteren (zie ook 3.9).

Logistiek

2.13 De dialooggroepen bepalen plaats en tijdstip van hun bijeenkomsten. Bij voorkeur worden de kosten door de deelnemers gedragen.

2.14 Deelnemers aan de dialoog dragen hun eigen reis- en verblijfskosten met uitzondering van de Interim Workshop (zie onder 3.13).

3. Het projectteam

Wie/wat is het projectteam

- Projectleider: dr. M. Hisschemöller met ondersteuning van de directeur van het IVM, prof.dr.ir. P. Vellinga;
- Vice-projectleider: ir. O.J. Kuik (IVM);
- Projectmedewerker: drs. M. Berk (RIVM),
- Secretaris van het projectteam en secretaris van de dialooggroepen Industrie en Gebouwde Omgeving: drs. M. van de Kerkhof (IVM);
- Projectmedewerker en secretaris van de dialooggroep Verkeer en Vervoer: drs. M.T.J. Kok (NOP);
- Projectmedewerker en secretaris van de dialooggroep Landbouw en Voeding: ir. R. Folkert (RIVM);
- Wetenschappelijke Ondersteuning:
  - technisch wetenschappelijk: drs. J. Oude Lohuis (RIVM);
    dr. A.P.C. Faaij (RUU);
    dr. S. Bos (ECN);

ir. J. Spakman (RIVM);
ir. D.J. Teffers (RUU);

- economie en sociale wetenschappen: ir. O.J. Kuik (IVM).

- Procesbegeleider: dr. M. Spanjersberg (Spanjersberg & Pe).

De projectleider

3.1 De projectleider bepaalt de samenstelling van de dialooggroepen in overleg met hun voorzitters. De samenstelling van de groepen blijft gedurende de dialoog ongewijzigd.

3.2 Een uitzondering op 3.1. Persoonlijke omstandigheden kunnen leiden tot uittreding van een deelnemer uit een dialooggroep, in overleg met de projectleider.

3.3 De projectleider bespreekt de voortgang in de dialooggroepen met de voorzitters.

3.4 De projectleider neemt beslissingen over het aanwenden van externe (wetenschappelijke) expertise ten behoeve van het werk in de dialooggroepen op advies van de voorzitter.

3.5 De projectleider is verantwoordelijk voor en aanspreekbaar op de taakvervulling door het projectteam.

Inhoud en proces

3.6 Het projectteam biedt de deelnemers aan de dialoog een heldere opzet voor het realiseren van strategische visies in de dialooggroepen (zie notitie *Fasering en tijdpad van de Nationale Dialoog*).

3.7 Het projectteam biedt de dialooggroepen ondersteuning in de vorm van een secretaris. Deze

- organiseert de bijeenkomsten in overleg met de voorzitter,
- bereidt bijeenkomsten van de dialooggroep inhoudelijk en procesmatig voor in overleg met de deelnemers,
- doet verslag van de bijeenkomsten,
- zet de strategische visies van de dialooggroep op schrift.

3.8 Het projectteam biedt wetenschappelijke informatie aan in een beknopte en leesbare vorm en zoekt desgevraagd wetenschappelijke experts om de dialoog in de groepen inhoudelijk te ondersteunen.

3.9 Het projectteam biedt een aantal mogelijke besluitvormingsregels en een aantal ‘proces tools’ aan om de dialoog te faciliteren.

3.10 Het projectteam organiseert halverwege de dialoog de zogenaamde *Interim Workshop* en de *Nationale COOL Conferentie* ter afsluiting van de dialoog (zie notitie *Fasering en tijdpad van de Nationale Dialoog*).

3.11 Het projectteam intervenieert niet in de agenda van de dialooggroepen, tenzij
- de groep naar haar oordeel buiten het kader van de dialoog treedt,
- naar haar oordeel een bepaald onderdeel in de beraadslagingen van de groep nadere toelichting behoeft,
- naar haar oordeel een bepaalde uitkomst van de beraadslagingen in strijd is met de uitkomst in een andere groep; het team kan beide groepen vragen zich hier over te beraden,
- op verzoek van een andere dialooggroep of (wetenschappelijke) experts om een punt onder de aandacht van de groep te brengen.

Een voornemen tot interventie wordt door de projectleider afgestemd met de voorzitter van de betreffende groep (zie 3.3. en 3.4).

3.12 Leden van het projectteam staan actief open voor opmerkingen, commentaar, vragen en suggesties van deelnemers aan de dialoog en doen alles wat in hun vermogen ligt om de kwaliteit van het project te garanderen.

Logistiek

3.13 Het projectteam draagt zorg voor de publicatie en verspreiding van de strategische visies in overleg met de dialooggroepen.

3.14 Het projectteam draagt de kosten, inclusief de verblijfskosten van de deelnemers, van de Interim Workshop en de Nationale COOL Conferentie.

Eindrapportage

3.15 Het projectteam schrijft op basis van de strategische visies een eindrapportage aan het Nationaal Onderzoek Programma Mondiale Luchtverontreiniging en Klimaatverandering (NOP). De integrale analyse van de Nationale, de Europese en de Mondiale Dialogen in COOL wordt vastgelegd in het eindrapport van het COOL project als geheel.

Appendix 3.1 Input material to the COOL Europe process

The input material provided by scientists, in co-operation with the COOL Europe project team, has been the following (42):

- Dreborg, K.H. (2000) *Future Images for 2050 - Transport*. Input paper for the transport group, COOL Europe workshop 2, 6-7 April 2000.
- Dreborg, K.H. (2000) *Path Analysis.* Input paper for COOL Europe workshop 2, 6-7 April 2000.
- Phylipsen, D. (2000). *Questions to science*. Input to COOL Europe workshop 2, 6-7 April.
- Phylipsen, D. (2000). *Future Images for 2050 - Energy*. Input paper for the energy group, COOL Europe workshop 2, 6-7 April 2000.
- Phylipsen, D and K. Blok (2000). *COOL Europe pathways. 1. Pathways based on biomass-intensive image. 2 Pathway based on solar hydrogen image*. Input material for the energy group, COOL Europe workshop 3, 18-19 September 2000.
- Tuinstra, W., K.H. Dreborg, P. Steen, J.W. Bode, D. de Jager and K. Blok. (1999). *Briefing Document*. Prepared for the first COOL Europe workshop, 29 November 1999.

The input material provided by the COOL Europe project team has been: (53)

- Andersson, M., A. Mol and W. Tuinstra (1999). *Climate Options for the Long term. The European Dialogue*. Input material to COOL Europe workshop 1, 29 November 1999.
- Andersson, M. and W. Tuinstra (2000). *Towards future images*. Report of COOL Europe workshop 1, 29 November 1999.
- Andersson, M. and W. Tuinstra (2000). *Path Analysis*. Report of COOL Europe workshop 2, 6-7 April 2000.
- Andersson, M., G. Bennett, A. Mol and W. Tuinstra (1999). *Framework for Strategic Vision.* Input paper for COOL Europe workshop 3, 18-19 September 2000.
- Andersson, M., T. Kaberger, A. Mol and D. Phylipsen (eds) (2000). *Strategic vision for the European energy sector*. Second draft, November 2000. Input material for COOL Europe workshop 4, 8 December 2000.
- Andersson, M. and W. Tuinstra (2001). *Options and key issues*. Report of COOL Europe workshop 3, 18-19 September 2000.
- Andersson, M. and W. Tuinstra (2001). *Towards strategic visions.* Report of COOL Europe workshop 4, 8 December 2000.

- Bennett, G. and W. Tuinstra (2000). *Strategic vision for the European transport sector*. Draft November 2000. Input material for COOL Europe workshop 4, 8 December 2000.
- Bennett, G. and W. Tuinstra (2000). *Path Analysis for the European transport sector*. Input paper for COOL Europe workshop 3, 18-19 September 2000.

Appendix 4.1 Project team of Cool Global Dialogue

Core team:
Marcel Berk (RIVM, project leader)
Bert Metz (RIVM, supervisor)
Ursula Fuentes (RIVM, project co-ordinator until September 1999)
Jelle van Minnen (RIVM, project co-ordinator as from January 2000)

Other member of project team:
Joseph Alcamo (Kassel University)
Johannes Bollen (RIVM)
Michel den Elzen (RIVM)
Albert Faber (RIVM)
Joyeeta Gupta (IVM)
Eric Kreileman (RIVM)
Rik Leemans (RIVM)
Tom Manders (CPB)
William Moomaw (Tufts University)
Ferenc Toth (PIK)
Bert de Vries (RIVM)
Detlef van Vuuren (RIVM)

Appendix 5.1 Strong and weak points in the COOL dialogues

• **National dialogue**	
Strong points	*Weak points*
• Time for reflection in project team, commitment • Commitment groups • Good chairpersons from the sector • Maintain process structure • Innovative character in process structure • Balance scientific input and process steering. • Contrasting Images help to put controversial issues on agenda and to focus on 80% • Flexibility in planning of meetings, times and timeframes • Participants state that they learned something • Consultation by phone with the participants before a meeting increased commitment and involvement • Succeeded in revealing many different view points in the discussions • Long preparation including creating boundary conditions for project as well as set up of the dialogue • Careful selection of participants • Participants were challenged to take their responsibility and to come with arguments	• Unclear role of scientific input • Conceited scientists • Unclear role of the images: desirable of feasible futures should more be distinguished • Images and backcasting didn't facilitate articulation of argumentations • Too little connection between different steps in the process. How too use stepping stones? • Too little commitment of participants representing government • Too little time to discuss institutional aspects and barriers.

European dialogue	
Strong points	*Weak points*
• Good chairs, committed and knowledgeable (a bit conceit) • Committed groups: feeling of ownership quite good despite discontinuity • Contacts with the participants between the meetings increased commitment	• Green bias ("Green"-thinking despite "not-green" professional backgrounds) • Drive for Consensus blurred argumentations • Participants were not really familiar with EU policy level

• Realisation of having the two groups meet at the same time at the same location • Groups constructed the images themselves • Connections with other dialogues • After a difficult start good adjustment and management by project team • Participants put uncertainties and issues on the agenda themselves. • Participants learned • Policy panels were good reparation of initial design (too little policymakers as participants) • Composition of the groups were sufficient heterogeneous as far as background was concerned • Attention for institutional aspects	• Images did not play contrasting role • Limited impact of scientific input (not much need for input from participants) • To little means and preparations • Lack of time in the agenda, no time for reflection. Too little balance in production and reflection • Too little focus on the EU level, despite concrete actions by the project team to draw the attention of the participants to the European dimension • Quite little creativity and novelty in outcomes.

Global Dialogue	
Strong points	*Weak points*
• Dialogue was imbedded in ongoing scientific process: use of existing model studies, which enhances consistency and continuity. • Differences in the perception of the climate problem became clear by staring the discussion making long term climate targets explicit • Heterogeneity in the group • Repeated improved scientific input on certain issues. • Interactive tools structured differences , facilitated a quick feedback and helped participants to ask each other about differences in perceptions	• Lack of continuity in the group • Lack of preparation and staff • Lack of time during the meetings. One extra meeting would have been desirable • To much falling back on earlier project structures (both project team and participants) • No transparent project structure • Too much scientific steering, too little process steering: also to many double roles of the project team • Too little ownership by the participants: participants passive and consumptive and in a “shopping”-mood • Not really client oriented presentations: lack of steering on this point by the project team • Too little input from the south