

CLIMATE OPTIONS FOR THE LONG TERM COOL PHASE I REPORT



*Report on the activities of Phase I of the COOL-project
(January-October 1999)
including the Work Plan for Phase II
(October 1999-December 2000)*

Wageningen UR

RIVM
IVM-VU
2000

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1 Introduction

The Climate OptiOns for the Long term (COOL)¹ project is funded by the Dutch National Research Programme on Global Air Pollution and Climate Change (NRP). The two aims of the project are

- to investigate options for a long-term climate policy strategy in the Netherlands in an international context,
- to contribute to the development of methods for participatory integrated assessment.

The COOL project organises dialogues in which policymakers, stakeholders and scientists assess options for long-term climate strategies. In this way, a range of experiences and insights is included in the process and taken into account when designing effective strategies. The participatory character of the project is very important because of the uncertainties shrouding the climate issue, the strong links with other areas of policy making and the many interests at stake.

The COOL project runs for 2.5 years, from January 1999 to June 2001. It has three phases. In the first phase, which is documented in this report, the dialogues have been prepared. In the second phase the actual dialogues will take place: stakeholders will enter into a dialogue with each other and with scientists to analyse and evaluate policy options and develop strategic visions. In the final phase the results of the dialogues at the different levels will be evaluated and synthesised.

Dialogue at Three Levels

In a small country like the Netherlands, national climate policy is strongly dependent on international developments in the contexts of the Framework Convention on Climate Change (FCCC) and the European Union. Therefore, to be able to devise and evaluate policy options for the Netherlands it is essential to have insight into international economic and political conditions and policy developments. For this reason the COOL project incorporates not only the national level, but also the European and global levels.

National Dialogue

In the first phase of the project, stakeholders from sectors of the Dutch economy have been invited to participate in dialogues which will take place in the second phase. The dialogues will concentrate on de-linking emissions of greenhouse gases from economic growth, which should enable emission reductions of up to 80% to be achieved by the middle of the 21st century. The questions to be debated in the dialogue relate to technological opportunities and political choices with respect to the future structure of the Dutch economy.

European Dialogue

The European Dialogue explores long-term policy options for ambitious Europe-wide reductions in greenhouse gas emissions. In the first phase the COOL Europe project has invited stakeholders related to the economic sectors energy production/industrial energy use and transport. The stakeholders include business representatives, environmental NGOs, the European Commission and representatives of key EU member states.

Global Dialogue

¹ See project proposal: Climate OptiOns for the Long term. Project Overview and Project proposals. October 1998. See also the web-site: <http://www.nop.nl/cool>

The Global Dialogue of the COOL project is primarily directed at stakeholders involved in devising international climate policies within the context of the UN-FCCC, including representatives of environmental and industrial NGOs. The global dialogue aims at exploring critical policy issues relevant for developing effective long-term control of the problem of climate change, through international strategies. During the first phase one dialogue meeting already took place.

Scientific support to the dialogues

When assessing policy options relating to climate it is necessary to integrate knowledge from various fields of expertise. The demand driven supply of knowledge is central to COOL. COOL will draw on a knowledge base of various models, databases, and previous studies to facilitate the integration and use of scientific knowledge within the project.

Evaluation

Within COOL the utilisation of knowledge will be evaluated: How is knowledge used? Does it facilitate insight, does it add to learning? Is this also depending on the way knowledge is supplied? Is scientific knowledge relevant? How is scientific uncertainty or dispute handled in the dialogues?

The COOL-project hopes to contribute to further developing methods for participatory approaches to integrated assessment, through systematic evaluation. In this way we want to improve the effectiveness of such assessments for decision-making processes. Next to knowledge utilisation COOL will evaluate two other aspects of the project :

- the added value of stakeholder participation and the lessons from approaches followed in the various dialogues;
- the interactions between science and policy at the three levels of policy making: national, European and global.

Phase 1

This document reports on the activities carried out in the first phase of the Climate OptiOns for the Long term (COOL) project. It describes the work of the National, European and Global Dialogue Teams as well as the work of the Core-project team.

In the first phase, the COOL dialogues have been prepared: participants have been invited and specific directions for the sub-projects have been identified. In the first phase also the work plans of the second phase have been elaborated. They are included in Annex I of this report. The first phase was concluded with a COOL Conference (7 October 1999, Ede). The report of this conference is included in Annex II.

2. COOL National Dialogue – Report on activities and results of Phase 1

2.1 Introduction and project team

The National Dialogue is intended to develop strategic visions for Dutch long-term (2012 - 2050) policy on climate in a European and global context. It entails to explore how the Netherlands can de-link economic growth from the emission of greenhouse gases in the long term (2050). This amounts to reducing emissions by a massive 50 to 80 percent. What are the technological options for achieving this? What economic and political choices have to be made, given the economic structure of the Netherlands and international trends?

The National Dialogue will be conducted in four dialogue groups, each consisting of eight to ten people from a certain sector of the Dutch economy. These participants will represent various interests from

society. The sectors comprise industry, traffic & transport, the built environment, and agriculture & food. The dialogue groups are assembled on the basis of a series of interviews with stakeholders from various echelons of society.

The dialogue groups will be given two feasible futures developed by the project team, in which the emission of greenhouse gases has been drastically reduced. The dialogue groups will discuss these futures or visions of the year 2050 and adjust and refine them for their respective sectors. They will then discuss the steps that must be taken to achieve them. This method of retrospective reasoning is called back-casting. The dialogue groups will formulate a strategic vision indicating which decisions should be taken and which constraints should be imposed to increase the likelihood that the visions will be achieved. The dialogue groups may call in scientists for help.

The National Dialogue is supported by a panel of scientists and academics from a broad range of disciplines. This panel will answer the dialogue groups' questions to the best of their ability in clear and succinct papers and fact sheets and will not gloss over any lack of scientific unanimity. The dialogue groups may also invite scientific experts to explain something to a dialogue group meeting. The project team can tap into a wide range of international scientific expertise. The scientists can also make suggestions to the dialogue groups.

The National Dialogue is co-ordinated by the Instituut voor Milieuvraagstukken (Institute for Environmental Studies). Also involved are RIVM (National Institute of Public Health and the Environment), the Department of Science and Society at Utrecht University, Energieonderzoek Centrum Nederland (Netherlands Energy Research Foundation) and two consultancy and research firms: Ecofys and Spanjersberg & Pe.

The project team consists of the following persons (in alphabetical order):

drs. M. Berk (RIVM)
dr. S. Bos (ECN)
dr. A.P.C. Faaij (RUU)
ir. R. Folkert (RIVM)
dr. M. Hisschemöller (IVM, project leader)
drs. M. van de Kerkhof (IVM)
drs. M.T.J. Kok (RIVM)
ir. O.J. Kuik (IVM)
drs. J. Oude Lohuis (RIVM)
dr. M. Spanjersberg (Spanjersberg & Pe)
ir. J. Spakman (RIVM)
ir. D.-J. Treffers (RUU/NWS)
prof.dr.ir. P. Vellinga (IVM)

The project team has held 7 plenary meetings in the period January-September 1999. This report gives an account of the activities that were carried out in the first phase of the National Dialogue and presents its main results.

2.2 Overview of activities of the first phase

The first phase of the National Dialogue was carried out in the period January-September of 1999. The general objective of the first phase was to prepare the National Dialogue. In the project proposal of the National Dialogue project (COOL Project Overview and Project Proposals, 1998), seven activities were distinguished. These activities were:

1. Assess the opportunities for a National Dialogue among stakeholders;
2. Develop two hypothetical futures for the year 2050 in which the GHG emissions are eighty percent below the 1990 levels; and create an information package with technical options for emission reductions;
3. Fine-tune the methodology for the dialogue group dialogue;
4. Establish four dialogue groups and identify, invite and commit participants;
5. Organise a first half-day meeting for each dialogue group in order to commit stakeholders to participate in the Phase II dialogue activities; update the participating stakeholders with the most

recent scientific findings and political context of the climate change issue; and sensitise them to the links between the long-term and global nature of climate change and its implications for industrialised countries like the Netherlands and the different economic sectors;

6. Develop a Working Plan for Phase II, including the fine-tuning of the contributions of Theme II and Theme III assessment studies to the National Dialogue;
7. Deliver a contribution to the 'plenary' National COOL Workshop.

At the start of the project, these activities were elaborated and detailed, and responsibilities were assigned. This resulted in the development and adoption by the project team of a detailed scenario (draaiboek) that distinguished between six activities, called Working Documents (WD). The following discussion of activities and results is based on the detailed (sub) tasks defined within the WDs.

WORKING DOCUMENT 1 (WD 1)

WD 1 reports on the interviews with stakeholders and includes:

- Opinions of the interviewees about the climate change problem and climate change policies;
- Challenges for long-term climate change policy;
- Opportunities and threats for the National Dialogue;
- Overview of related activities and studies in the sectors;
- Proposal for dialogue groups and potential participants

The following subtasks were defined:

1. Prepare an information leaflet to be sent to the interviewees. A leaflet was produced that was sent together with an accompanying letter to all interviewees
- 2., 3., 5. Interviews. In the course of the first phase of the National Dialogue project 75 interviews were conducted with 90 stakeholders from government, business and NGOs.
4. Reporting. Working Document 1 was produced in May 1999 and holds a report on the first 28 interviews with 37 stakeholders, held in March and April 1999. (Hisschemöller et al. 1999). The report included an overview of the opinions expressed by the interviewees on climate change issues, long-term planning and Dialogue projects. It also includes a list of related activities and studies in the sectors. It did not, however, make a proposal for dialogue groups and participants. During the interviews it became apparent that more interviews should be held than was originally planned, and that the interview process would take a longer time.

In May the Dialogue Groups were defined and a first list of potential participant was produced and discussed in a plenary team meeting (12 May). It was decided to continue with the formulation of the Dialogue Groups in WD5.

WORKING DOCUMENT 2 (WD 2)

The objective of WD2 is to produce two hypothetical futures (visions) of the year 2050 in which the GHG emissions are significantly reduced compared to 1990 levels; and create an information package with technical options for emission reductions.

A number of subtasks were defined:

6. Finalise the agreement between COOL and Theme III Assessment. In April 1999 a memorandum was drafted on the objectives and division of responsibilities regarding the input of Theme III assessment into the COOL project, phase 1.
7. Prepare two or three rough sketches of the hypothetical futures and a first draft of the information package, to be discussed at the project meeting of April 14. At the meeting of April 14, the approach was discussed to develop two sufficiently contrasting hypothetical futures.
8. Prepare draft-visions to be discussed at the project meeting of June 23. The draft visions were presented at the meeting of June 23. The presentation regarded a qualitative description of the visions and preliminary cadres for the quantification of energy demand and supply.
9. Prepare the final visions and accompanying information package. To be finalised on August 18. There has been some delay in the months of June, July and August. The latest draft visions have been discussed in the steering committee of COOL on August 31. They have been presented to the project team on September 1. On September 15, the visions have again been discussed with selected Steering Committee members and COOL National Dialogue team members. The planning is to finalise the visions in the second part of September, thus allowing them to be presented on October 7. Fact sheets

per technical option and sector will be finalised at a later date, either before the first Dialogue Group Meeting or in between the first and the second.

WORKING DOCUMENT 3 (WD 3)

The objective of WD3 is to fine-tune the methodology of stakeholder participation to be used in the National Dialogues, and to develop an evaluation framework in co-operation with the Core project.

Subtasks include:

10. Prepare a Note on methodology for the methodology meeting of March 31 1999. A short note was prepared on the objective and the program of the methodology meeting.

11. Organise and chair the methodology meeting. The methodology meeting was held in Ede on March 31. Included in the program were presentations of Geert Grootveld and John Grin on the methodology used in the DTO (Duurzame technologische Ontwikkeling) process and the lessons learned. Other agenda items regarded a discussion on the 'architecture' of the Dialogue process and a preliminary discussion on the evaluation framework. A report on the methodology meeting has been prepared. It was decided to organise a follow-up, joint methodology meeting with the Core project and the other Dialogues in Petten on June 30 1999.

12. Develop evaluation framework in co-operation with Core project. A preliminary discussion was held on the methodology meeting on March 31. A follow-up discussion found place at the joint methodology meeting in Petten on June 30. The draft "EVALUATION FRAMEWORK FOR COOL DIALOGUES (VERSION 2.0)" was discussed at the project meeting of September 1.

13. Report on methodology. A number of notes on elements of the overall methodology of the Dialogue process have been produced and discussed by the project team:

- a) Criteria for the composition of Dialogue groups;
- b) Function and tasks of the chair, secretary and resource persons of Dialogue groups.
- c) Design of the COOL dialogue
- d) The functions of "visions" in the Dialogue
- e) Phasing and time path of the National Dialogue (in co-operation with WD5)
- f) Relationship between process questions and the Dialogue framework

WORKING DOCUMENT 4 (WD 4)

The objective of WD4 is to organise an orientation meeting for the participants of the National Dialogue and to report on this meeting. The purpose of the orientation meeting is to:

- Motivate participants to take part in the National Dialogue;
- To inform participants about the background, motivation, set-up and aim of the project;
- To explain to the participants why the drastic reduction of the emission of GHGs was chosen as the basic assumption of National Dialogue;
- To inform the participants on the state-of-the-art of the science of climate change and recent developments in international climate change policies.

The orientation meeting was planned for August 31 at RIVM.

14. Organise an orientation meeting and report. In the course of the project doubts arose as to the necessity, and even the desirability of the orientation meeting at this stage, for a number of reasons. The interviews had made it clear that most potential participants would make their participation conditional upon a reduction of the planned number and duration of the Dialogue's activities. Most interviewees regarded the original schedule too demanding. The interviews also showed that most interviewees did not feel a great need to discuss the climate change problem at this stage. Most interviewees understood the problem definition of the Dialogue very well. Finally, it appeared that many invitees were unable to attend the meeting at the planned date.

These considerations led to the decision of the COOL project management to cancel the orientation meeting at the planned date. The team has decided to organise the meeting at another date if dialogue participants put forward the need to be better informed about the climate problem.

WORKING DOCUMENT 5 (WD 5)

The aim of WD5 is to develop a working plan for Phase 2 of the National Dialogue: the Sector Dialogues.

It subtasks include:

15. The definition of the outcome or products of the Dialogue. The two methodology meetings (WD3) provided an excellent platform to discuss the products of the National Dialogue. The reports on these meetings contain abstracts of these discussions.

16. To define the process architecture for the sector Dialogues, including essential preconditions and arrangements. The process architecture is contained in three documents: DEELNAME AAN DE DIALOOG: ALGEMENE UITGANGSPUNTEN EN SPELREGELS (Dialogue Participation: Basic assumptions and rules), FASERING EN TIJDPAD VAN DE NATIONALE DIALOOG (Phasing and time path of the National Dialogue), and LIJST VAN GENODIGDEN VOOR HET PROJECT NATIONALE DIALOOG (list of invitees). (See Annex I of this report Work plan Phase II National Dialogue)

17. To make arrangements among members of the COOL National project team (especially in relation to the work of Theme III assessment, and possibly also Theme II assessment). Arrangements with the COOL National project team were made during the project team meetings. These arrangements defined the tasks and responsibilities of the team members during Phase 2 of the National Dialogue. A special meeting with Theme III assessment team was organised to discuss and agree on the interaction between COOL National Dialogue and Theme III assessment.

18. To individually interview potential participants. After the first 27 interviews with stakeholders to assess societal support for the National Dialogue (see WD1), another 47 interviews were conducted in WD5 with the specific aim to select potential candidates for participation in the National Dialogue Groups. Four Dialogue Groups have been defined: Industry, Transport, Built Environment, and Agriculture and Food. At this moment in time (22 October 1999), the commitment of 46 participants in the Dialogue Groups is secured, among which 4 participants who have agreed to act as chairperson. A further four participants have been invited but have not decided yet. The division among the Dialogue Groups is as follows:

Industry: 12 participants, 1 invited;

Transport: 12 participants

Built environment: 11 participants, 2 invited

Agriculture and Food: 11 participants, 1 invited

Conclusions

The overall conclusion is that the first phase of the COOL National Dialogue has been successful. The interviews showed a reasonable level of interest in the National Dialogue among a wide array of stakeholders. The methodology of the National Dialogue has been fine-tuned and some very practical questions have been addressed and settled. Four Dialogue groups have been formulated and three of them have been chaired, and participation of 33 stakeholders has been secured. Efforts are being made to finalise the composition of the Dialogue Groups.

For reasons specified above, the orientation meeting has been cancelled. The formulation of the "visions" or "hypothetical futures" has been somewhat delayed, but it is expected that they will be ready well in time to be used in the Dialogue process. Due to various circumstances the evaluation framework has not been finalised yet, but the Core project has granted permission to the project leader of the National Dialogue to finalise this framework in the month of October in co-operation with a member of Cool's steering committee.

2.3 Overview of publications and working documents

Hisschemöller, M, M.F. van de Kerkhof, O.J. Kuik, M.Kok (1999). COOL Nationale Dialoog: Verslag van de oriënterende interviews, IVM-W99/17, Instituut voor Milieuvraagstukken, Vrije Universiteit, Amsterdam.

Kerkhof van de, M. en M. Hisschemöller (1999). De Nationale Dialoog klimaatverandering: Lessen uit gesprekken met stakeholders, in: Marktdagboek SWOME-Marktdag, 28 oktober 1999. SISWO, Amsterdam.

Kerkhof van de, M., M. Hisschemöller en O.J. Kuik (1999). Report of the first COOL Conference. Werkdocument 6 COOL Nationale Dialoog. IVM. W-99/46, Amsterdam.

2.4 Co-ordination with other projects and programs

Evaluation of risk approaches. This program, supported by NRP is carried out by the UU/NWS (dr. J. van der Sluijs, project leader), IVM/VU (dr. M. Hisschemöller) and RUG/IVEM (Prof. dr. C. Vlek). This program has partly interviewed similar persons as the COOL National Dialogue. COOL will use the outcome of the interviews.

2.5 Attendance at national and international meetings

M. v.d. Kerkhof and M. Hisschemöller, 28 October 1999; Marktdag SWOME, Social Wetenschappelijk Onderzoek Milieu en Energie, Amsterdam.

M. Hisschemöller and M. van de Kerkhof attended the RMNO (Advisory Council for Research on Nature and Environment)-Conference "Integrerende modellen: brug tussen onderzoek en beleid?", at March 15 1999.

3 COOL European Dialogue - Report on activities and results of Phase 1

3.1 Introduction and Project team

In opting for a sectoral approach and the use of back-casting, COOL Europe diverges from the original project plan. The rationale for the new approach will be addressed in this report. A revised work plan for Phase 2 (including a tentative programme for workshop 1 is included in Annex I.

During Phase 1 the European COOL project was managed by Arthur Mol. Leen Hordijk was overall project leader of the COOL project. The following staff members from various institutions participated in the EU COOL sub-project.

Research institution	Position
WU, ESA (Hordijk)	Advisor
WU, ESA (Tuinstra)	Junior researcher
WU ES&SM (Andersson)	Post-doc
WU ES&SM (Mol)	COOL Europe project-leader
Ecofys (Blok)	Senior researcher

Ger Klaasen was replaced by Kornelis Blok and other members from the consultancy firm Ecofys (see below). In addition, the planned participation of Jill Jäger will be cut drastically due to the latter's appointment at the IHDP programme. New contacts have been made to replace the expertise of Jill Jäger by others (see below). Besides, experts on back-casting have been approached to strengthen the knowledge on this methodological tool that will take a central place in the COOL Europe dialogue.

3.2 Overview of activities in the First Phase

Throughout the phase 1 period several meetings have been organised by the project team to - step by step - concretise the activities, methodologies, workshops organisation, and participants. During this process input from various outside experts have been incorporated, of which some are listed below. During this process some significant divergences have been made from the initial ideas as has been laid down in the project proposal. In addition, significant steps have been made in further linking the COOL Europe dialogue to the other sub-projects and to refine the two methodological starting points: back-casting and participatory policy-making. During the various stages it proved that the two are not automatically in line with each other and can actually conflict, as experience from other back-casting projects showed.

In addition to these internal meetings and activities and the participation in the other COOL sub-projects (especially the core project) the other activities are listed below.

At an IPCC meeting in Bonn in May 1999, Bert Metz, Willemijn Tuinstra and Leen Hordijk approached Jos Delbeke and Marianne Wenning of the climate unit of DGXI, for advice about the COOL Europe workshops (focus, relevance, participants etc.). Also Jill Jäger, Director of IHDP, and Klaus Kohlhase, formerly at BP Amoco were contacted then. In the beginning of July, Magnus Andersson had several consultations at VROM. Interviews were made with Hayo Haanstra and Leo Meyer of the department of climate change and Hugo von Meijenfeldt, head of the European Environmental Policy Division. The sectoral approach of COOL Europe was presented and discussed. Furthermore, the role of various actors in EU climate policy (especially the EU Council's Ad Hoc Group for climate issues) was discussed.

In the middle of July (12-16) Magnus Andersson was in Brussels to make interviews with stakeholders in European climate policy. Interviews were made with representatives of three environmental NGOs,

two interest organisations representing the oil and car industries, four representatives of the European Commission (DGII, DGVII, DGXI, and DGXVII) and one member of the EU parliament. The interviewees were asked questions about the seriousness of the climate change problem, the usefulness of long-term approaches, the interface between science and policy, and the role of the COOL Europe workshops (ideas about participants and issues to be on the agenda). Moreover, a great deal of information on EU climate policy was collected in Brussels.

In the beginning of September Magnus Andersson made interviews with climate policy stakeholders in Sweden. Contacts were established with several persons who are expected to play an important role in phase two of the COOL Europe project. Tomas Kaberger, a researcher at the department of Physical Resource Theory at Chalmers Technological University in Goteborg, commented on key issues in European energy and transport policies and gave his ideas about how back-casting could be operationalised in the COOL Europe setting. Kaberger was asked to be a chairman of one of the sectoral workgroups at the COOL Europe workshops and accepted this proposal. Peter Steen, a researcher at the Environmental Strategies Research Group in Stockholm with extensive back-casting experience, was asked to give his ideas about the usefulness of back-casting in general and the relevance of back-casting in the COOL Europe project. Steen accepted to remain in contact with the COOL Europe project group and to investigate the possibilities for further co-operation.

After initial contact with Kornelis Blok in June, in the beginning of September 1999 Magnus Andersson, Arthur Mol and Willemijn Tuinstra met Kornelis Blok of Ecofys in Utrecht and discussed in detail the various stages the EU COOL project will go through and the possible input of Ecofys. The outcome of the meeting was a framework decision on future co-operation with Ecofys with respect to scientific input to be used at the COOL European workshops. It was agreed that Kornelis Blok will prepare a draft contract to detail the co-operation.

The COOL Europe project team arranged a telephone conference with Tomas Kaberger on September 16. This conference addressed the following issues: (1) a definition of Kaberger's role in COOL Europe as a chairman for one sector group at the COOL Europe workshops and (2) his contributions as a general consultant to the project. A framework decision was made, to be concretised later in a contract with him, specifying the detailed tasks and time input in the COOL project.

On 20 September Magnus Andersson had a phone conversation with Marianne Wenning, deputy head of the climate unit of DGXI. She agreed to give a keynote speech at the first COOL Europe workshop.

Magnus Andersson and Arthur Mol had a consultation with Bert Metz, RIVM on 21 September. Bert Metz agreed to present COOL at the first COOL Europe workshop in Brussels (29 November or 2 December). Suitable participants for the COOL Europe workshops were discussed. Attention was also given to the way to present future images of low GHG emission at the first workshop. A last important topic was how to improve the links between the global and European dialogues. Various options were selected, among which the scenario's of the IPCC as an important linkage, the possibility of the Global Dialogue to pay more attention to sectoral approaches, and the input from the European dialogue into the global workshops.

A telephone conference on back-casting was held on 23 September. The COOL Europe project team discussed with Peter Steen the possible input of Environmental Strategies Research Group in Stockholm. After detailed exchange of information and discussion of possible mode of co-operation an agreement was reached how to operationalise the collaborative links. A contract will be drafted that arranges the input of the Swedish institute in the COOL EU dialogue.

The COOL Europe project team has actively attempted to initiate co-operation with organisations and fora involved in activities closely related to the ones of COOL Europe. Pier Vellinga, director of the European Forum of Integrated Environmental Assessment (EFIEA), has been approached to give his ideas about the possibilities to initiate co-operation between EFIEA and COOL Europe. In line with this, RIVM (Bert Metz c.s.) approached Arthur Mol to be member of the organisational committee for the next EFIEA conference, in order to further strengthen the link between COOL EU and EFIEA. Furthermore, the possibility to jointly organise the COOL European workshops together with DGXI has been examined. Unfortunately, it appeared that the current work overload at DGXI did not admit such a commitment. Contact has also been established with Peter Wiederkehr of the OECD who is in charge of a project entitled Environmentally Sustainable Transport. This project makes use of back-casting and has its main focus on Europe.

The total number of interviews that has been conducted in phase one is 42. The majority of these interviews has had an open-ended character and has been carried out via phone or email. However, the twelve face-to-face interviews that were conducted in Brussels in July were structured and in-depth. Together, the interviews have given the COOL Europe project team a broad orientation about (1) the key challenges for a long-term climate policy in the European Union; (2) the specific conditions of the energy and transport sectors; (3) the usefulness of back-casting, and (4) suitable stakeholders to invite to the COOL Europe workshops.

The address list compiled by the COOL Europe project team comprises presently approximately 150 names. Many of these persons could be seen as potential resource persons for the project.

Several persons have been approached only to give advice on suitable participants for the COOL Europe workshops. Jean-Charles Hourcade, CIRED, has provided useful information about relevant stakeholders in France (for example, representatives of EdF, the car industry, and governmental agencies etc.). Sybille van den Hove of University of Versailles has given useful comments about stakeholders in EU climate policy. Uno Svedin of the Council for Planning and Co-ordination of Research in Sweden has provided advice on potential participants of the European Technology Assessment Network (ETAN).

A summary of the interviews has been compiled in a document covering 56 pages. The key conclusions from the interviews are presented below

3.3 Interviews with stakeholders in European climate policy.

3.3.1 Key Findings

The long-term dimension

The interviewees unequivocally indicated that there is a tremendous bias towards the short-term in the European Union's present climate policy. The EU should indeed have a long-term goal but today there is no consideration of this. In order to address this policy vacuum, one interviewee suggested the establishment of a unit for strategic planning and long-term analysis for the development of a long-term climate policy. Another interviewee proposed the establishment of a European forum on long-term climate policy.

The interviews showed that there are several *institutional incentives* that create a bias towards short-term solutions. Firstly, the election cycle (in general four years) has impacts on national policy-making, but also on the way policy is made within the EU Commission. Secondly, a focus on the short-term tends to give people better career opportunities. Thirdly, the focus on profits creates a short-term bias in the business sector.

Several interviewees emphasised the importance of bringing the short-term and the long-term in line with each other. As one representative of the European Commission put it: "It is worth while to reflect how these two time frames may overlap." Some stakeholders argue that the Kyoto Protocol should be seen as the first step in a long-term strategy. The Kyoto Protocol itself is not sufficient but it is an acceptable first step. One interviewee warned that a focus on the long-term could be used as an excuse for escaping from real political constraints. One environmental NGO representative expressed the view that if there are no short-term policies, there will be no long-term policies.

Several stakeholders express concern that long-term climate policy is not sufficiently tackled by the environmental NGOs. According to one interviewee, the environmental movement has not fully realised the policy implications of global environmental problems.

Another conclusion from the first round of interviews is that *sophisticated* models are not relevant for the long-term because of the great number of uncertainties. There are many unknown external events that may fundamentally change the long-term scenario: war, disease, technical innovation etc. Nevertheless, preparations for sudden and unexpected changes should be made now.

Most of the interviewees regard climate change to be a serious problem. Radical emission reductions will most likely come about as a result of (1) the mobilisation of strong public opinion or (2) a climate catastrophe.

The science-policy interface

The science-policy interface is not working very well. A lot of research is presented to the policy-makers in an incoherent way. The policy-makers operate under time constraints; they are in a constant rush to take the next practical step and have little time to reflect deeply on scientific results. One interviewee emphasised that "there is a jungle of technological solutions. These technologies need to be classified and evaluated better." A representative of the European Commission claimed that the Kyoto Protocol has created a necessity for an enhanced dialogue between the natural and social sciences.

Private sector representatives argued that science is being politicised, as is the funding of science.

Transport

EU legislation has a huge impact on transport policy. Taxes and fees are dealt with in Brussels and the general framework is decided there. The EU co-finances 16 projects within the framework of the Trans European Networks and the Cohesion Fund and the structural funds support the construction of roads. However, public transport and physical planning are still very much in the hands of local and regional authorities. According to one interviewee, as much as 75 per cent of the decisions related to transport policy (especially infrastructure) are taken on the local level.

Representatives of environmental NGOs claim that the EU does not possess an independent transport policy. It has transport policies that are dependent on short-term economic gains.

Several interviewees emphasised that transport is the sector with the highest costs for carbon dioxide mitigation. It is therefore easier to reduce carbon dioxide emissions in the context of, for example, the generation of heat and electricity.

Transport is considered to be more political than the energy sector. As one interviewee put it, "the solution to the transport sector's problem is not a technical one. It is the economic and political problems that should be addressed." Another point that was raised was that the transport sector is less flexible than the energy sector. It is particularly important to address the problems of the less flexible sectors.

Mobility is perceived to be the foundation of freedom and economic development. There are psychological aspects of mobility that are important. One implication of this is, according to one interviewee, is that transport has no natural saturation point.

Passenger transport and freight transport compete for infrastructure. At the same time, they may use the same technologies, for example, fuel cells. It was argued that freight transport is more complicated than passenger traffic. Therefore relatively few policies have been focused on freight.

Climate policy is a business opportunity for the railways and other forms of public transport. Car industry has to plan for the long-term. A vehicle has a life-span of approximately, and the engine of approximately 15-20 years.

The role of physical planning for reducing the need of transport was emphasised by several interviewees. Moreover, assumptions about passenger km and ton km are important for the long-term. Also fuel quality should be high on the agenda.

Energy

The liberalised electricity markets in the EU imply that expensive power plants will become less competitive. Less capacity will be needed in a united system than in isolated systems. A massive transition to gas will take place in Europe. Russia is interested in finding new ways to transport its gas to Western Europe.

The climate change problem has, generally speaking, increased the rational of nuclear power. Germany's and Sweden's commitments to phase out nuclear power have made their energy policies very complicated from a political perspective. According to one interviewee, "these countries are going through nuclear traumas which block constructive approaches to energy policy." The strongest long-term support for nuclear power is likely to be found in France and Finland. As one interviewee put it, "I am sure that by the year 2050 there will be two countries in Europe which still use nuclear power: France and Finland."

According to Danish energy plans, renewable energy should cover 50 per cent of the supply by 2030. Most of this will be biomass. Wind power will be developed offshore. Denmark's development of renewable energy sources is based on a government-led, top-down strategy.

One NGO representative drew attention to the problems of introducing energy taxes in Europe: "The losers are visible while the winners are not even aware that they are winners. This is what has happened with the energy and gas tax in the Netherlands."

A majority of the interviewees consider the developments within the traditional oil companies to be very interesting. They may turn out as key actors. Several interviewees also emphasised the role of combined heat and power production (CHP). It was also concluded that bio fuels are not in frequent use in central and Eastern Europe due to a lack of market incentives.

Technological and infrastructure policy

There is a general agreement that infrastructure and technological policies require long-term perspectives. There is a great deal of inertia in changing infrastructure. The rolling stock of the railways exists longer than road transport. Two major technological challenges could be identified: (1) the development of new technologies and (2) the dissemination of clean technologies which are already developed.

Long-term technological and infrastructure policies should take the following aspects into consideration. Firstly, technological succession is important. For example, one has to make sure that there are appropriate fuels around when the fuel cells become ready for commercial use.² Secondly, policies should come in the right packages. For example, the imposition of 30 km speed limit in cities will facilitate the introduction of electric cars. Thirdly, research and development is a typical long-term issue. Fourthly, a key question is how to make certain that today's decisions do not trap us in problematic lock-in situations. Fifthly, the role of financing and investments are important long-term issues. Sixthly, the co-ordination between sectoral policies should be improved.

According to a private sector representative, there is too little focus on technological innovation in climate policy. Instead, much of the attention is paid to policy instruments.

Interaction with the general public

It is a widely held belief among the interviewees that if the general public does not change its behaviour, climate change will likely remain an unsolved problem. The general public is perceived to be not sufficiently informed about the climate change problem and the ways it could be addressed. A few quotations from the interviews could illustrate this: "Information to the general public is almost non-existent," "there is little communication," "moral persuasion is an underdeveloped policy instrument," and "science is too far removed from the public." Policy-makers may be disinclined to interact with the general public for several reasons. One interviewee provides the following explanation: "People who drive cars are also voters. Politicians do not like to tell their voters to change their behaviour."

However, people's willingness to change their behaviour may be greater than the decision-makers assume. One environmental NGO representative expressed the conviction that the public will accept radical changes if they are (1) understandable, (2) fair, and (3) if they see the results.

The COOL Europe workshops

Several interviewees provided useful ideas about the design and content of the workshop and relevant stakeholders to invite.

With respect to issues to be on the agenda in the COOL Europe workshops, the following items were suggested:

- a. How many no-regret investment options exist?
- b. How much subsidies, including tax incentives, distort the

² According to one interviewee, "the benefits of back-casting will be obvious when discussing some technological alternatives such as fuel cells. Fuel cells can be introduced for automotive purposes if there are suitable fuels available, while it is much more difficult to introduce both fuel cells and a new fuel supply system in one step. Another example is the long-term value of infrastructure for distribution of electricity and gas, this is also dependent on long-term visions. Back-casting also has implications for institutional strategies and the business strategies of companies. In an exercise of the kind COOL is preparing the dynamic interaction between the different actors may become very interesting as actors may be changing perspectives and move between alternative strategies during the process."

level-playing field ?

c. Which policy options are readily available in some countries?

d. Which policy options are waiting for test/implementation?

It was emphasised that the preparation of the workshops should be made very carefully. Institutional issues need to be addressed at the workshops. It is important to find the right match between research supply and policy demand. COOL Europe needs to be specific about what policy demands it wants to address.

At the workshops, it is important to avoid situations where industry representatives claim "we did all we could" and where NGO representatives reply that "industry did not move". This is what usually happens. It is important not to repeat this. COOL needs people who are able to step out of their traditional roles. It is important to be able to step aside, to take a wider approach.

With respect to workshop participants, one interviewee gave the following comments: "Please be aware of the following. A series of workshops for 6 or 8 days duration is a considerable investment for a company or an organisation. Usually it is easier for the well-staffed 'vested' interests to do such investments than for 'emerging' businesses. Unfortunately, the first group does not really want the changes to happen quickly that are the subject of the workshop, while the last group would support the changes in their self-interest, but cannot yet afford to come. I will try to propose good participants, but not all of them will easily be convinced of their self-interest to participate. Some will perhaps participate with different people in the different workshops."

Below follows a selection of a number of useful comments about workshop participants: (1) Representatives of foreign ministries tend to take a broader perspective than representatives of environmental ministries. (2) Representatives of sectoral ministries are more relevant for COOL Europe than climate negotiators. (3) Not too many climate negotiators should participate in the COOL Europe workshops. (4) Spain is a good representative of southern EU countries, according to several interviewees. (5) Several interviewees mention BP and Shell as suitable participants for the COOL Europe workshops. For instance, Shell has produced long-term energy scenarios. (6) EDF is identified as one of the most interesting power generating companies in Europe, partly because of its interest in renewable energy sources, such as solar power. (7) The German car manufacturers appear to be most forward-looking.

A general advice is that if many workshop participants cannot attend, it is best to cancel the workshop and look for another date.

3.3.2 *List of interviewees*

Reino Abrahamsson, Swedish Environmental Protection Agency, Sweden

Stefanos Anastasiadis, Information Officer, Transport and Environment Europe, Brussels

Stefan Andersson, the MATS project, Swedish Environmental Protection Agency, Sweden

Christian Azar, Department of Physical Resource Theory, Chalmers Technical University, Goteborg, Sweden

Luc Bastard and John Turner, European Automobile Manufacturers Association (ACEA), Brussels

Paul Beekmans, Community of European Railways (CER), Brussels

Peter Betts, Head, Global Atmosphere Division, Department of the Environment, Transport and the Regions, UK

Kornelis Blok, Ecofys, the Netherlands

Rob Bradley, Climate Network Europe, Brussels

Bertil Carstam, Swedish Institute for Transport and Communication Analysis (KFB), Sweden

Kristina Dahlberg, Baltic 21, Ministry of Environment, Sweden

Jaime Garcia-Rodriguez, European Commission, DGXVII - Energy

Hayo Haanstra, Department of Climate Change, VROM, the Netherlands

John Hontelez, Director, European Environmental Bureau, Brussels

Jean-Charles Hourcade, CIRED, France

Tomas Kaberger, Department of Physical Resource Theory, Chalmers Technical University, Goteborg, Sweden

Bo Kjellen, Ambassador, Ministry of Environment, Sweden
 Per Kagesson, consultant, Sweden
 Peter Larsson, Stockholm Country Government Board and the Social Democratic Party, Sweden
 Kevin Leydon, European Commission, DGXVII – Energy, Head of Unit – Forward analyses and environmental dimension
 Angela Liberatore, European Commission, DG XII – Science, Research, and Development
 Duncan Liefferink, environmental consultant, Deloitte, the Netherlands
 Bert Metz, RIVM
 Paul E. Metz, Director, e5 – European Business Council for a Sustainable Energy Future
 Hugo von Meyenfeldt, Head, European Environmental Policy Department, VROM, the Netherlands
 Leo Meyer, Deputy Head, Department of Climate Change, VROM, the Netherlands
 Tuur Mol, Wageningen University, the Netherlands
 Jan-Peter Paul, Head of Unit European Commission, DGVII – Transport
 Maciej Sadowski, Executive Office for the Climate Convention, Poland
 Jurgén Salay, Swedish Energy Authority, Sweden
 Charlotta Sorkvist and Anders Turesson, Ministry of the Environment, Sweden
 Peter Steen, Environmental Strategies Research Group (FMS), Stockholm, Sweden
 Bjorn-Olof Svanholm, analyst, Birka Energi, Sweden
 Uno Svedin, Council for Planning and Co-ordination of Research (FRN), Sweden
 Bill Thompson, European Petroleum Industry Association (Europia), Brussels
 John Turner, European Automobile Manufacturers Association (ACEA), Brussels
 Johan Voorberg, Klimaatverbond, The Netherlands
 Joke Waller-Hunter, Director, Environmental Protection Department, OECD, France
 Marianne Wenning, European Commission, DGXI – Environment, Nuclear Safety
 Lars Westermark, The MATS Europe project, Swedish Environmental Protection Agency (SNV), Sweden
 Peter Wiederkehr, OECD (The Environmentally Sustainable Transport project)
 Peter Zapfel, European Commission, DGII – Economic and Financial Affairs

3.4 Divergence from the original Project plan

In the COOL Europe initial project proposal seven tasks were identified to be carried out in the first phase. Five of these tasks have been carried out:

1. Literature review regarding EU climate policy.
2. Meetings with representatives of the European Council's Ad Hoc Group and with Dutch climate policy makers. (The conclusions of these discussions are presented in the internal report on interviews, see point 3.)
3. Interviews with representatives of key sectors and NGOs. Internal report prepared.
4. Presentation of interim results and plan for phase 2 at the first overall COOL National workshop.
5. Establishment of links with other related projects.

Two of tasks planned for the first phase (a first workshop with key policy makers and elaboration of results from this workshop) have *not* been carried out. Because of time constraints, the COOL Europe project team has decided to move the first workshop to the second phase. These time constraints were partly caused by a late start and partly by the fact that during the elaboration of the initial project proposal some changes were made vis-à-vis the original ideas.

Sectoral approach

The original project plan for COOL Europe envisaged that long-term EU climate policy would be approached from a general perspective. In May 1999 the COOL Europe project team decided to opt for a sectoral approach. There were several reasons for this decision. First, a focus on sectors would allow a closer link with the national dialogue. Second, a focus on sectors would be an innovation compared to the hitherto domination of national states in EU climate policy. Third, a sectoral focus would have a better chance to avoid short-term political controversies by starting with substantial sectoral scenarios.

Lastly, a sectoral focus would increase the possibility to focus the discussion and to give the discussion more relevance for the participants.

The COOL Europe project team decided to select two sectors, energy and transport. The energy sector was selected for two main reasons. First, the burning of fossil fuels account for the majority of the EU carbon dioxide emissions. Second, the European energy sector is in a period of major transition. The transport sector accounts for 26 per cent of total EU carbon dioxide emissions. Carbon dioxide emissions from transport are estimated to increase substantially in the future due to increases in travel, especially air travel and freight transport.

The Kyoto Protocol

In contrast to the initial COOL Europe project proposal there is currently no main focus on the Kyoto Protocol and its instruments. The COOL Europe project has an unequivocal focus on the period 2000-2050.

Participants

The initial COOL Europe project proposal envisaged that approximately half of the workshop participants would be climate negotiators from key member states and applicant countries. Because of the decision to shift the focus to the energy and transport sectors the number of climate negotiators will be reduced. Their share is not likely to be more than 10-20 per cent.

Back-casting

A novelty compared to the initial project proposal is that back-casting will be the key methodology at the COOL Europe workshops. Back-casting can be operationalised in different ways (see, for example, Dreborg, 1996; Holmberg and Robert, 1999; Mulder and Biesiot, 1998; Rotmans, 1998; and World Bank, 1997). A useful definition of back-casting is provided by Rotmans (1998: 159): "Back-casting or anticipatory scenarios (...) are backward directed, i.e., they start from some assumed final state, and explore the preconditions that could lead to this state, including a palette of strategies to reach this situation."

Back-casting is a so-called future technique. Examples of other future techniques are: Delphi Analysis or Questionnaire, Focus Groups, Technological Forecasting, Personal Interviews, Models or Simulations, Scenarios, Science Fiction, Surveys, Modified Trend Analysis, Cross Impact Analysis and Futuring Wheel (<http://ag.arizona.edu/futures/fut/semtech.html>).

It is important to ask the right question when dealing with any futures analysis. Back-casting allows this to be done by leaping to the future through a vision or scenario, *without regard* to the method of getting there. In this way, preferred futures can be identified and evaluated independently of the constraints of how to achieve the future situation. Then, after sufficient discussion to determine where we would like to be, we can look at where we are and determine the various methods/means of getting to the preferred future (*ibid.*).

According to the Environmental Strategies Research Group in Stockholm, back-casting involves the following steps: (1) Problem setting and criteria selection; (2) Elaboration of images of the future; (3) Path analysis of needs (magnitude of changes, lead-times for penetration of solutions and technological succession, obstacles etc.); (4) Short-term implications (institutional aspects, R&D priorities, choice of policy instruments etc.); (5) Formulate the complete Strategic Vision

Partners and consultants

The initial project proposal envisaged a strong input from Jill Jager (consult on workshop) and Ger Klaasen (senior researcher) at IIASA. Unfortunately, because of severe time constraints they will not be able to participate. The COOL Europe project team has decided to replace them with the following persons:

Tomas Käberger, researcher at the Institute of Physical Resource Theory, Chalmers University of Technology, Goteborg, Sweden. He will have a dual role as (1) chairman of one of the sectoral workgroups and (2) general consultant to the COOL Europe project. A contract is likely to be signed in October or November. The following tasks has been identified for him:

1. Read and learn about the COOL project. General discussions with the project team (Sep-Oct 99).

2. Advise on participants, look for new names (Sep-Oct 99).
3. Comment on COOL Europe project team's proposal on the operationalization of back-casting (Oct-Nov 99).
4. Comment on COOL Europe project team's ideas on content and process in WS1 (Oct-Nov 99).
5. Expert advise on each workshop day.
6. Chair one sector group at four workshops.
7. Other tasks - not yet defined.

Kornelis Blok, Ecofys in Utrecht, has agreed to take an overall responsibility for the scientific input to be used at the workshops. A contract with Kornelis Blok is under preparation.

Prof. Peter Steen and Dr Karl H. Dreborg of the Environmental Strategies Research Group (FMS) in Stockholm have applied back-casting in analysing environmentally viable energy and transport policies for the long-term. The COOL Europe project team has decided to link them to the project. A contract will be signed in October or November. FMS will contribute to the COOL project, European Dialogue, by giving advice to Wageningen University as regards back-casting methodology, workshop design and criteria for transport systems that are compatible with an 80 per cent reduction in CO₂ emissions.

Before workshop 1, FMS will provide input to a ten pages briefing paper – in co-operation with Wageningen university and Ecofys - to the workshop participants. FMS' contribution will consist of

- Criteria to be fulfilled by a transport system that is compatible with an 80 per cent reduction of CO₂ emissions.
- A paper based on relevant transport and environment future studies, presenting a list of important issues/problems and ideas on possible solutions.
- A paper on back-casting methodology.

During the period 11 October 1999 to 30 June 2000 FMS will assist Wageningen University in preparations for workshops 1–3 and in analysis and synthesising work in between workshops. FMS contribution will mainly consist in advice and feedback on drafts by Wageningen University and Ecofys. FMS may also make own contributions to the process - especially on transport – after agreement with Wageningen University.

3.5 Co-ordination with other projects

As indicated above COOL Europe has been in close contact with the other sub-projects within the overall COOL project. In detailing the COOL Europe project the project team has profited to some extent from the experiences from the National COOL project, as it was decided in an earlier phase to organise COOL Europe equally along sectoral lines. With COOL Global discussions have been held how the two could profit from each other and how the experiences and in- and output can be linked.

The COOL Europe project has also stayed in close contact with the NOP project on the Evaluation of the Netherlands Climate regimes, although the latter project has only started recently. As some project members of the COOL Europe also participate in the Netherlands evaluation project, links can be maintained easily.

COOL Europe has linked with various other back-casting project, especially in the field of transportation and energy. Co-operation have been established with four organisations with extensive back-casting experience: the Natural Step Foundation, Stockholm (Sweden), the Environmental Strategies Research Group, Stockholm (Sweden), the Institute of Physical Resource Theory, Chalmers Technological University, Goteborg (Sweden) and the OECD (its project on Environmentally Sustainable Transport).

COOL Europe has also co-ordinated its activities with a research carried out by the department of Sociology of Wisconsin University at Madison. This research compared the climate policies in the three main regions of globalisation: EU, Japan, and the USA/Canada. This link will give COOL some ideas of the developments in the other regions of the triad. One of the researchers from Wisconsin University plans to spend three months at WAU Environmental Sociology and Social Methodology group in spring 2000.

COOL Europe participates in the steering committee for the EFIEA workshop on European Climate Policy to be held in the Netherlands in early 2000.

3.6 Attendance at national and international meetings

Arthur Mol attended the six days American Sociological Association annual conference and especially its meetings on Technology and Environment. The purpose was to get involved in the various social science researches that are going on in the USA (and Canada) that might be of interest for the COOL EU project (both from a methodological and from a comparative point of view). Several new contacts were made and co-operation with Wisconsin University has been established (He presented a non-COOL related paper, but disseminated on various moment information on COOL Europe).

Arthur Mol co-organised a two day international conference in Chicago, entitled "the environmental state under pressure", with one session (having four papers) on climate change policies. Social Scientist from various western and non-western parts of the world participated in this conference. The COOL project was shortly announced, and leaflets were disseminated.

Willemijn Tuinstra participated in the European Forum on Integrated Environmental Assessment (EFIEA) workshops on Climate (March 1999, Milano, Italy) and on Uncertainty (July 1999, Baden, Austria). The first workshop was fruitful for the European Dialogue because of insights gained in important issues for European Climate Policy. The second workshop has been useful because the methodological focus on participatory approaches of which lessons can be drawn for COOL Europe. This last meeting was also attended by Leen Hordijk

Leen Hordijk participated in the Global Environmental Assessment (GEA- Kennedy School of Government) workshop on "Participation: Critical Design Choices for Effective Assessments". Methodological insights resulting from this workshop can be used for COOL as well.

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4 COOL Global Dialogue – Report on activities and results of Phase 1

4.1 Introduction and Project team

The *COOL Global Dialogue sub-project* aims at exploring long-term (30-50 year) international climate policy options and their implications for medium-term policy development (second and third commitment periods). It will do so by means of a series of *international science-policy dialogue workshops*. These are intended to provide international climate policymakers and stakeholders from NGOs and the business community with scientific results, insights and tools relevant for evaluating and discussing long-term climate policy options and - by way of back casting - their implications for medium-term (e.g. second commitment period) decision making. At the same time, the project intends to provide insights into the international policy context of COOL's other sub-projects (European and National Dialogue).

The COOL Global Dialogue project builds upon experiences and results of previous international science-policy dialogue workshops, like the *Delft process* based on applications of the integrated climate change model *IMAGE 2*. More recently, in 1998, two science-policy dialogue workshops were organised jointly with Kassel University (Germany). These resulted in a list of *key policy questions in the post-Kyoto era*, that are used as starting point for the first workshop of the COOL Global Dialogue project.

The dialogue has been set up as a series of workshops and participants are expected to participate in the entire series, since continuity of participation is important for the process. During the first phase of the COOL project the first of a series of four workshops was organised. The *participants* in the workshop were climate policymakers from around the world, as well as representatives from environmental NGOs and from industry. This relatively small group should reflect the *diversity of views and interests* found in the international climate negotiations, while its size should allow for fruitful interactions.

Project team

The Global Dialogue is co-ordinated by the National Institute of Public Health and the Environment (RIVM). Other institutes involved are the Netherlands Bureau for Economic Policy Analyses (CPB), the Institute of Environmental Studies (IVM) in the Netherlands, the Center for Environmental Systems Research - University of Kassel, the Potsdam Institute of Climate Impacts (PIK) in Germany, and Centre International de Recherche sur l'Environnement et le Développement (CIRED) in France. However, if needed input from other research institutes may be involved in the project too.

The project team consists of the following persons:

- Drs. Marcel Berk (RIVM), project leader / climate policy analyst
- Bert Metz (RIVM), supervisor / moderator / climate policy analyst
- Dr. Ursula Fuentes (RIVM) (replaced by Ir. Jelle van Minnen); (temporary) researcher
- Dr. Rik Leemans (RIVM), senior specialist climate impacts / IA modelling
- Dr. Bert de Vries (RIVM), senior specialist energy
- Dr. Michel den Elzen (RIVM), senior researcher IA-modelling
- Ir. Eric Kreileman (RIVM), IA- modeller
- Drs. Johannes Bollen (RIVM), economist
- Dr. Joyeeta Gupta, (IVM), climate policy analyst

Dr. Ferenc Toth (PIK) acts as advisor on the moderation of the workshops, in particular with respect to interactive sessions.

4.2 Results of The First Phase

During the first phase the following activities were planned:

- the development of a list of participants,
- the preparation of the programme and analytical work for the first workshop,
- organisation of the first cool global dialogue workshop,
- reporting on the first cool global dialogue workshop,
- development of a work plan for the second phase.

In addition, a questionnaire was developed to investigate the invited participants' views on the climate problem and expectations with respect to the project. About two-third of the participants have been interviewed.

4.2.1 Main results of Interviews

Participants were interviewed before the first workshop to investigate their views about the climate problem, the design of the project, the list of invitees and the preliminary programme of the first workshop and their overall expectations with regard to the project. About 2/3 of the invited participants were actually interviewed before the workshop, mainly those present during the 10th meeting of SBSTA/SBI 31/5-11/6 in Bonn.

The main results are:

- Participants have clearly different views of the climate problem, with regard to its seriousness, the framing of the problem (ecological, economic, development perspective), as well as the economic impacts of emission reductions and ways of solving the problem. This is illustrated in table 1.

Table 1: General views about the climate problem					
n=14	fully agree	mostly agree	mostly disagree	fully disagree	no view
Questions:					
a) The Earth System is fragile, humankind can easily destabilise the climate system	5	6	2		1
b) Human societies' ability to adapt to climate change is high	1	4	3	3	3
c) There is sufficient scientific evidence to justify immediate action	9	2	2		1
d) Climate policy should be based on the precautionary approach	10	2			2
e) The Kyoto Protocol poses a risk to economic development	2	2	6	3	1
f) Future global emission reductions will not hamper economic development		7	4	2	1
g) Climate policy should be based on balancing costs and benefits	3	3	4	2	2
h) The climate problem cannot be solved without dealing with international equity issues	10	3	1		
i) Climate policy should be based on an equitable share of emission rights and costs and benefits	5	4	2	1	2
j) The climate change problem can only be solved as part of policies addressing other societal / environmental problems	5	3	5		1
k) The climate problem can only be solved by technological change	2	7	4		1
l) Solving the climate problem requires a change of societal values	1	11	1		1

- Participants generally see more opportunities than pitfalls for the project; they expect the informal and small group discussions will provide room for constructive dialogue and ground for common visions; they hope the project can create interesting results that can be fed back to the formal negotiations. Important possible pitfalls include too academic analyses, too much northern dominated science and too political discussions.
- Participants agree with the usefulness of the 30-50 year time frame, but only when linked to a back-casting approach resulting in concrete results for the second and third commitment period.
- Participants expect support from the COOL Global Dialogue Project mainly for the preparation of negotiations for the second commitment period, as well as for the review of the adequacy of

commitments, which is still pending for COP 5. Support is not expected for the issues on the agenda for COP 6 (mainly decisions on Kyoto Mechanisms) with the exception of the land use, land-use change and forestry issue, where direct support is expected for decisions which have to be made at COP 6.

- The most important policy issues are very much the same as the ones from the Kassel workshops; the programme of the first workshop is therefore generally considered to be policy relevant. However, more attention is demanded for article 2 (FCCC) issues (tolerable concentration levels and emission pathways, environmental and economic limits, adequacy of commitments) and adaptation/vulnerability.
- There is a clear need of improving the dialogue between science and policy making, especially in better synthesis and communication of scientific insights and in providing more support to developing country parties. Different views were expressed regarding the role of models in policy advisory, and the role of Integrated Assessment Models (IAM), in particular. While some viewed IAM as very useful, others expressed scepticism towards economic models and modelling of social processes, where the outcomes are seen as too dependent on assumptions.
- The list of participants is generally judged to be good, with some qualifications: Some consider the OECD to be over represented, not all participants are considered to be really policy makers (too many policy advisors), there should be a better representation by business.
- A number of policymakers criticised the scientific input as being too homogeneous (too much input from RIVM). More diversity in scientific input is wished, especially scientific input from developing countries is suggested.

4.2.2 *The First Global Dialogue Workshop*

The first global dialogue workshop was organised from 4-6 July in Bilthoven at RIVM. The report of the workshop is attached to this document. In this section, the main results are summarised.

Participants

As indicated in the project description, it is the intention of the cool global dialogue project to try to incorporate a more heterogeneous group of participants than during the Delft process. For this reason, a heterogeneous group of policy makers, and representatives of NGOs and industry from both the north and the south was invited.

The initial response was very positive, but for various reasons the eventual group of participants was not as heterogeneous as planned. In particular, there was no representation from business, a limited representation of developing countries and no policy makers from the USA and AOSIS. It is expected, however, that next time the representation will be broader as most that were not there have indicated their interest in being involved in the project. This requires special attention.

Programme

The programme of the workshop was based on the priority policy issues identified at the second Kassel workshop organised in October 1998. The programme consisted of presentations on the following issues:

- The new IPCC reference scenarios (SRES),
- Economic impacts of Annex-I activities on developing countries,
- Broadening participation: different approaches,
- LUCF in climate policy: The role of the terrestrial biosphere in the carbon cycle; IMAGE scenarios with carbon plantations,
- Mitigation and Stabilisation Scenarios.

In addition, policy makers explored the FAIR model in an interactive session.

Results of the First Workshop: Policy Questions

At the end of the workshop a new list of priority policy issues for further analysis was produced. This was done in two steps: first a list of about 60 relevant policy questions which derived from the discussion in the different sessions was compiled in a plenary session; secondly, all participants (including the scientists) could attach an equal amount of points to one or several of the issues on the

list. The points given by the scientists should give an indication of the feasibility of the analysis. The following policy questions were given high priority for further analysis in the second phase:

IPCC Reference Scenarios

- Are SRES-Scenarios consistent with short-term projections by parties?
- Are SRES-Scenarios consistent with socio-economic projections? Are the assumptions behind the Scenarios plausible? (sustainable development, biomass,...)

Impacts of Annex-I activities on developing countries

- What are economic and social impacts of Annex-I activities on developing countries?
- What are ecological impacts of climate change and adaptation costs on developing countries (influence of assumptions on post Kyoto)?
- What are the economic impacts on oil-exporting countries?

Broadening Participation in the Global Climate Change regime

- What could make it attractive to take on targets? (no-regrets, financial gains, technological transfer)
- Short-term analyses (20-30 years)/incremental approach/how to narrow the gap
- Incentives for deepening participation of all parties? Which incentives are needed for different groups of countries?

Land use, Land-use change and Forestry

- What are the long-term consequences of Art. 3.3 and 3.4 activities implemented in the first or second commitment period as well as consequences of long-term implementation?
- How can IMAGE be further developed to model the possible transition of the biosphere from a sink to a source? What are the policy implications of the biosphere turning from a sink into a source, including inter alia for the carbon plantations?
- What are the implications of the additional supply of wood from carbon plantations, as well as of increased use of wood on the wood market/substitution of fuel-intensive products?

Mitigation/Stabilisation Scenarios

- Dependence of conclusions regarding e.g. delay versus early action on the stabilisation scenario/level
- Integrated environmental and economic impacts of early vs. delayed mitigation? Influence of delay vs. early action on degrees of freedom (lock-in). Implications for technology development in the north in the context of full where flexibility

Article 2 FCCC

- Adaptation
- IPCC Policy Relevant Scientific Questions
- food production

Appreciation of the workshop

The programme of the workshop was evaluated via a anonymous evaluation form at the end of the workshop. Generally, participants were quite satisfied with the workshops' results. All participants indicated their interest in coming back to the next workshop. The contents and policy relevance of most presentations was on average rated good. The lowest scores were received for the information provided on the economic impacts of Annex-I activities on developing countries (not well addressed, not very policy relevant) and IMAGE scenarios with carbon plantations (while in principle policy relevant, the specific contents and presentations were criticised). Some indicated that they had expected more attention for developing countries aspects and suggested to invite more policy makers as well as scientists from developing countries. Issues missed were climate impacts and adaptation, costs of adaptation and issues regarding the implementation of the flexible mechanisms.

The participants, in general, liked the interactive sessions with the FAIR model, but some participants were unsatisfied with the moderation and explanations given, as well as with the preparation of the

session. Moreover, a number would have liked to have more time and to work with the FAIR- model more directly (hands on the tool).

The rating of the quality of the discussions, with regard to content, moderation and time availability, was generally good.

The participants were quite satisfied with the general set up of the workshop. Some indicated that there was not sufficient time for discussion. Others remarked that the discussion part remained too much as a questioning and answering exercise, so that too little real debate between participants developed. Some did not like the separation of the policy makers from the scientists by an inner and outer circle of tables. Suggestions were made to provide the briefing book materials in advance.

Participants were happy with the location and organisation of the meeting, as well as the workshop facilities. For a next time, it was suggested to have some more communication facilities near the meeting room. Regarding the planning of the meeting policy makers indicated a clear preference of keeping the future COOL workshops detached from FCCC meetings.

4.3 Lessons learned for the second phase

On the basis of an internal evaluation of the interviews and of the first workshop, the following lessons have been learned for the second phase of the project:

- The group of invitees is indeed heterogeneous, but more attention is needed to make all participate (especially business community and the USA).
- Physical/ecological and economic analyses should be more integrated. The input to the workshops should not be limited to integrated assessment model output only.
- There is a need to develop a stronger integrating overall problem formulation, like: what are the implications of the (uncertainty about) long-term climate targets and possible non-linear climate system changes for allowable emission levels for the second and third commitment period and how can these be reached in a fair, effective and efficient way?
- It seems important to involve a more heterogeneous group of scientists to answer the policy questions (e.g. scientists from the USA and developed countries). This may also help in getting a better acceptance of results.
- The workshops should not be back to back to negotiation meetings.
- The iterative design of the science-stakeholder dialogue is supported.
- Linking the long and short/medium term is essential for the policy relevance of the project and the willingness to participate. In particular, implications of long-term analyses for the second commitment period should be explored.
- There is interest in the development and use of more interactive and communicative tools, but much more attention is needed for how to make stakeholders learn from them.

5 COOL Core Project - Report on activities in Phase 1

5.1 Introduction and Project team

The COOL Core project co-ordinates the three sub-projects in order to create maximum synergy in achieving the central objectives of the COOL-project. It enables the exchange of information between the three dialogues of the COOL project. Tasks of the core project include also the methodology development and evaluation. The project leaders of the three dialogue projects and the project leaders of the entire project participate in the COOL Core team.

The COOL Core team consists of the following persons:

Leen Hordijk (Wageningen University, Project leader)

Bert Metz (RIVM, Deputy Project leader)

Matthijs Hisschemöller (VU-IVM, Project leader National Dialogue)

Arthur Mol (Wageningen University, Project leader European Dialogue)

Marcel Berk (RIVM, Project leader Global Dialogue)

Willemijn Tuinstra (Project Co-ordinator)

Magnus Andersson (European Dialogue)

Marcel Kok (NRP)

Harmen Verbruggen (National Dialogue)

The tasks of the Core project in Phase 1 were:

- (a) Co-ordination and regular exchange of information between the sub projects and between COOL, the NRP thematic assessments and external projects and programs
- (b) developing the information basis
- (c) developing evaluation criteria and methodology
- (d) concluding Phase 1 and planning Phase 2

The planned deliverables/products of Phase 1 of the Core project were:

- An information basis, including a test version of a NRP/COOL web site;
- A plan for evaluation methodologies and criteria systematically addressing the methodological objective of the project;
- A "plenary" National COOL Workshop (presenting and discussing the achievements of Phase 1 and planning of Phase 2;
- Detailed work plans for Phase 2 of the Core project, and recommendations for further developing the thematic assessment studies ("impacts and adaptation", "technical, social and economic aspects of policy options")
- Report on the first phase.

5.2 Overview of activities

Despite uncertainties in the situation of the involved research groups in Wageningen activities of the Core project could be started early in Phase 1. During Phase 1 the project leader Leen Hordijk has been ill for several weeks (4 weeks in April and 8 weeks in August and September). During this time, Bert Metz has been replacing him.

(a) co-ordination and regular exchange of information between the sub projects and between COOL, the NRP thematic assessments and external projects and programs

During weekly telephone conferences, the progress of the different sub-projects, the synergy between them, methodology development, the COOL information base (COOL Box) and the relation with the NRP thematic assessments projects have been discussed among the project leaders.

Five full Core team meetings were being held (at February 24, May 19, June 16, August 24). In those meetings also the project leader of the NRP theme III assessment participated. In March the co-

operation with the NRP Theme II assessment has been discussed with the project leader of the NRP Theme II assessment. Though an agreement on the procedure of input from the Assessment has been reached, no further steps could be taken as the project proposal of the Theme II assessment has not been approved within NRP.

See for interactions with other projects and programs section 4.

Further activities concerning information exchange in and outside the project included the development of a common COOL brochure, the set up of a web-site and drafting a publication and public relation plan.

(b) developing the information base (COOL Box)

A small group of COOL-team members has been formed in Phase 1 to set up the information base for COOL. This information base should make scientific knowledge available which is likely to be of relevance for the dialogues. Because of time constraints of the COOL team members involved, not as much progress could be achieved as was foreseen. A test version of a COOL-box on the COOL-web-site will be available before the first National and Europe dialogue sessions start. It was decided to use a more evolutionary approach to building the COOL box by gradually adding elements to the COOL box as they become available. The COOL box should not be too broad and all encompassing. The main target group of the cool box will be the policy makers and the stakeholders involved in the dialogues. The contents of the COOL box will mainly consist of (information about) tools, scenarios, reports etc. that are actually (planned to be) used within the dialogues. Also information on e.g. the back-casting procedure used within the COOL-project will be described in the COOL box. (See also under c) methodology)

NRP thematic assessments

Intensive co-operation has been set up between the COOL project and the NRP Theme III assessment project. This co-operation has been mainly established through communication between the Theme III team and the National Dialogue team. It has been agreed that information of the Theme III assessment will be available for the other two Dialogue levels as well. Like mentioned under a) co-operation with Theme II could not be operationalised yet.

During phase 1 the COOL box didn't formally serve the role of supporting the development of the "strategic visions" in the national and European dialogue projects as the COOL information basis was still not available. Information about the work of Theme III towards visions for the National Dialogue was shared regularly with the European and Global teams however.

Roster of experts

In principle through NRP, NRP experts and project results are available. Though NRP researchers can't be expected to be stand-by during the entire COOL-project, it is agreed that they can be asked to present the results of their research in the COOL-dialogues. This is the so-called "passive list".

An "active list" will be made of "knowledge resource persons" who will be actively following the COOL dialogues and alerting the COOL team for relevant information. They may present this information themselves or point to other experts. A beginning with this list has been made by asking the participants of the 1st COOL Conference about their interest and possible input.

(c) developing evaluation criteria and methodology

During phase 1 two meetings have been organised in co-operation with the National Dialogue team which were entirely devoted to methodology (March 31 and June 30). During the first meeting background information about back-casting has been given by John Grin and Geert Grootveld (DTO). Within the European project an additional session on methodology and workshop design was organised with back-casting experts from Stockholm. The results from this meeting will be used in the common description of the use of back-casting within COOL.

Based on the discussion in the COOL methodology meetings also a first draft of evaluation questions of the entire project has been developed. This draft has been discussed with several members of the Advisory board. This has led to the decision to elaborate the evaluation framework further before tabling it at the full Advisory Board. This work will be finished by the end of November 1999. An extra meeting on devoted to the evaluation framework is planned for November 1st.

(d) concluding Phase 1 and planning Phase 2

All sub projects delivered detailed work plans for Phase 2. (See Appendix I)

Much time was devoted to the organisation of the first COOL Conference which was held on October 7, in Ede. The audience for the conference were NRP researchers, government representatives and stakeholder representatives, including the participants of the National Dialogue. During this conference the different dialogue levels of COOL have been put in context and a start has been made for the dialogue sessions of the National Dialogue (see Annex II).

5.3 Overview of publications and working documents

B. Metz and W. Tuinstra (1999) *COOL (Climate OptiOns for the Long term). A presentation*. Proceedings of the first NRP-II Symposium on Climate Change Research, Garderen, The Netherlands, 29-30 October 1999. NRP, the Netherlands. Report no.: 410 200 033

W. Tuinstra. (1999) *Climate OptiOns for the Long term: the COOL project*. Change 48, NRP, the Netherlands.

There is a COOL Web-page available: www.nop.nl/cool

5.4 Co-ordination with other projects and programmes

EFEIA (European Forum on Integrated Environmental Assessment):

- Leen Hordijk has been member of the Steering Committee for the preparation of the 1999 EFEIA Matrix -workshop on "Uncertainty", 10-18 July 1999 in Baden, Austria.
- COOL Europe participates in the steering committee for the EFIEA workshop on European Climate Policy to be held in the Netherlands in early 2000.

5.5 Attendance at national and international meetings

EFEIA (European Forum on Integrated Environmental Assessment):

- Marcel Berk, Leen Hordijk, Marcel Kok en Willemijn Tuinstra participated in the 1999 EFEIA Matrix -workshop on "Uncertainty", 10-18 Juli 1999 in Baden, Austria.
- Marcel Berk, Bert Metz en Willemijn Tuinstra participated in the EFEIA Climate Policy workshop 4-6 March 1999, Milano, Italy)

Leen Hordijk and Willemijn Tuinstra attended the RMNO (Advisory Council for Research on Nature and Environment)-Conference "Integrerende modellen: brug tussen onderzoek en beleid?", at March 15 1999.

Leen Hordijk participated in the Global Environmental Assessment (GEA- Kennedy School of Government) workshop on "Participation: Critical Design Choices for Effective Assessments". May 17-20 1999, Washington, USA. Methodological insights resulting from this workshop can be used for COOL as well.

Willemijn Tuinstra attended a meeting organised by Wageningen University and Research Centre WUR on " Interactive planning as a field for expertise for Wageningen University and Research Centre", April 22, 1999. This meeting gave insight in the different methods for participatory planning which are used within Wageningen.

Appendix I COOL Work plan Phase II

Work plan for the Second Phase of the COOL Project

Appendix I Work plan Phase II COOL

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Chapter I: Work plan for the Second Phase of the COOL National Dialogue (*in Dutch*)

1 Inleiding

Dit hoofdstuk behandelt achtereenvolgens de algemene uitgangspunten en spelregels (2), en de fasering en het tijdpad (3) van de Nationale Dialoog. In paragraaf 4 wordt de lijst genodigden voor de dialooggroepen gepresenteerd. Al deze informatie is ook naar de beoogde deelnemers aan de dialogen toegestuurd, en is daarom in het Nederlands. Annex I achterin dit rapport bevat de begeleidende brief die de genodigden ontvingen.

2 Algemene uitgangspunten en spelregels

Deze paragraaf geeft een beeld van gemeenschappelijke uitgangspunten van Project team en deelnemers in de Nationale Dialoog met betrekking tot (1) doel en werkwijze, (2) de dialooggroepen en (3) het Project team. Door het schetsen van uitgangspunten en verantwoordelijkheden hoopt het Project team 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 paragraaf 3 *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 back-casten. De hypothetische uitgangssituatie is de Nederlandse samenleving in 2050 waar ten opzichte van 1990 de uitstoot van broeikasgassen (inclusief CO₂) 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 Project team.
- 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 paragraaf 3 *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 paragraaf 3 *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 paragraaf 3 *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 rapporteren 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 Project team 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 Project team

Wie/wat is het Project team

- 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 Project team 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);

- economie en sociale wetenschappen: ir. J. Spakman (RIVM)
- procesbegeleider: ir. D.J. Treffers (RUU)
- ir. O.J. Kuik (IVM).
- 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 Project team.

Inhoud en proces

- 3.6 Het Project team biedt de deelnemers aan de dialoog een heldere opzet voor het realiseren van strategische visies in de dialooggroepen (zie paragraaf 3 *Fasering en tijdpad van de Nationale Dialoog*).
- 3.7 Het Project team 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 Project team 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 Project team biedt een aantal mogelijke besluitvormingsregels en een aantal 'proces tools' aan om de dialoog te faciliteren.
- 3.10 Het Project team organiseert halverwege de dialoog de zogenaamde *Interim Workshop* en de *Nationale COOL Conferentie* ter afsluiting van de dialoog (zie paragraaf 3 *Fasering en tijdpad van de Nationale Dialoog*).
- 3.11 Het Project team interenieert 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 Project team 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 Project team draagt zorg voor de publicatie en verspreiding van de strategische visies in overleg met de dialooggroepen.
- 3.14 Het Project team draagt de kosten, inclusief de verblijfskosten van de deelnemers, van de *Interim Workshop* en de *Nationale COOL Conferentie*
- 3.15 Het Project team 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.

3 Fasering en tijdpad van de nationale dialoog

Deze paragraaf 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:

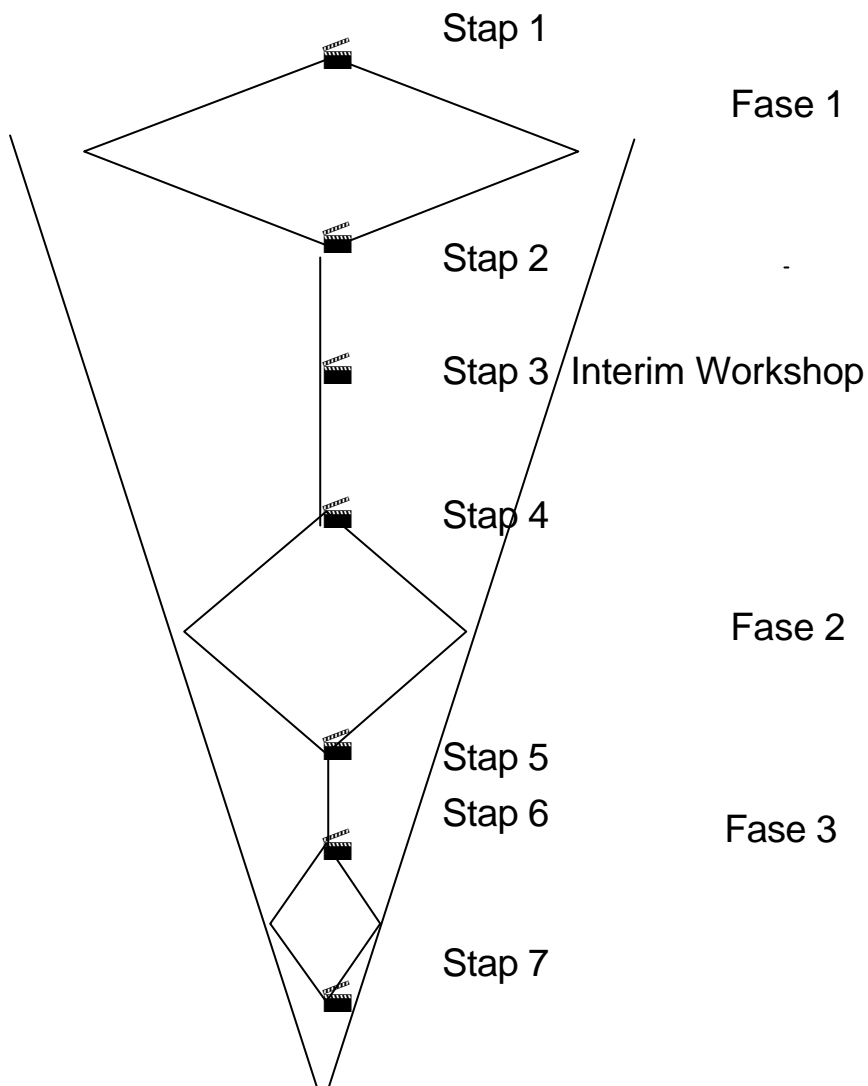
- 1) Om van de Ausgangssituatie (twee toekomstbeelden die voorzien in een reductie van de uitstoot van broeikasgassen met 50% á 80% in 2050, het ene georiënteerd op verandering in gedrag, het andere op technologie) te komen tot strategische visies voor een sector (industrie, gebouwde omgeving, verkeer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

NB Het woord *fase* duidt hier op de drie fasen binnen het dialoogproces van de Nationale Dialoog. Het dialoogproces en daarmee de drie fasen vallen allen in "Fase II" van het gehele COOL-project.

- 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 Paragraaf 2 *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 *Paragraaf 2 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 Project team gedurende fase 3.



Figuur 1 De Nationale Dialoog schematisch weergegeven

Fasering en tijdpad Fase 2 van de Nationale Dialoog

Fase 2.1 Bepalen toekomstbeeld en beleidscontext per sector

11/99	stap 1	<p>Proces:</p> <ul style="list-style-type: none"> ■ Toelichting op de procesarchitectuur ■ Groepen stellen hun eigen regels vast <p>Verkennen van context en vragen (divergeren):</p> <ul style="list-style-type: none"> ■ Toelichting op de toekomstbeelden ■ Groepen maken de toekomstbeelden bruikbaar voor de eigen dialoog ■ Inventariseren van vragen aan de wetenschap
2/2000	stap 2	<p>Informatie ontvangen en selecteren (convergeren):</p> <ul style="list-style-type: none"> ■ 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 betreft in de verdere dialoog ■ Initiële keuze voor opties die voor nadere verkenning in aanmerking komen
3/2000	stap 3	<p>Voorwerk door Project team:</p> <ul style="list-style-type: none"> ■ Opstellen van het interim-rapport (gebundelde notulen van de groepen plus een rode draad, 'eerste analyse' o.i.d.) <p>Interim Workshop:</p> <ul style="list-style-type: none"> ■ 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

Fasering en tijdpad Fase 2 van de Nationale Dialoog

Fase 2.2 Back-casting: opties en implementatietrajecten verkennen

4/2000	stap 4	<p><i>Verkennen van implementatietrajecten (divergeren)</i></p> <ul style="list-style-type: none"> ■ Opties vaststellen (naar aanleiding van Interim Workshop) ■ Implementatietrajecten in kaart brengen: <ul style="list-style-type: none"> * 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	<p><i>Informatie ontvangen en selecteren (convergeren):</i></p> <ul style="list-style-type: none"> ■ 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 betreft in de verdere dialoog

Fasering en tijdpad Fase 2 van de Nationale Dialoog

Fase 2.3 Formuleren van strategische visies

11/2000	stap 6	<p>Voorwerk door Project team:</p> <ul style="list-style-type: none"> ■ op basis van notulen opstellen van aanzet tot strategische visie <p>Opstellen 1e concept strategische visie:</p> <ul style="list-style-type: none"> ■ 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	<p>Vergelijking concept strategische visies van dialooggroepen:</p> <p>Voorwerk door wetenschappelijke ondersteuning</p> <ul style="list-style-type: none"> ■ beeld van reductiepotentieel van geselecteerde opties van alle groepen afzonderlijk en voor de groepen gezamenlijk ■ identificeren van knelpunten, waaronder mogelijke afwentelingrelaties tussen sectoren <p>Reactie van groepen op input van wetenschappelijke ondersteuning</p> <ul style="list-style-type: none"> ■ 'haardvuurafsluiting' door de groepen (of, indien er consensus is, schriftelijke afhandeling)
3/2001	stap 8	<p>Nationale COOL Conferentie:</p> <ul style="list-style-type: none"> ■ formuleren van conclusies uit de gevoerde dialogen ■ doorwerking van de resultaten bevorderen richting politiek, wetenschap en sectoren

4 Lijst van deelnemers aan het project Nationale Dialoog

Deelnemers aan de dialooggroep Gebouwde Omgeving

Dr. D.K.J. Tommel	Nationaal Woninginstituut (voorzitter)
Ir. E. van Andel	FIWIHEX
A.W.L.A. Cruyssen	WILMA Bouw
Ir. J.C. Heemrood	Nationaal Dubo-Centrum
Mevr. ir. J. Hofman	Le Clercq Planontwikkeling B.V.
Drs. J.F. Huibers	N.V. Huisvuil Centrale Noord Holland
R. Van Gulp	Wethouder Milieu gemeente Tilburg/ Vereniging Klimaatverbond
Ir. A.A. Koedam	Aedes
Drs. A.J.A. Kramps	Ministerie van VROM
Prof. ir. J. Kristinsson	Architecten- en Ingenieursbureau Kristinsson
P. van Luttervelt	Global Action Plan

Mevr. drs. M. Quené
A.R.W. Snelders
E. Stigter

NUON
Siemens Nederland
Ministerie van VROM/PEGO

Deelnemers aan de dialooggroep Industrie

Ir. M.E.E. Enthoven

Nationale Investeringsbank
N.V. (voorzitter)

H. Altevogt

Greenpeace Nederland

C. Bronke

DSM

H. Brouwer

Ministerie van EZ/DGE

Prof. ir. J.P. van Buijtenen

Stork Engineers and
Contractors

Ir. G.N. van Ingen

Akzo Nobel Energy B.V.

Mr. dr. P.W. Kwant

Shell International

W.J. Lenstra

Ministerie van VROM/LE

dr. P.E. Metz

European Business Council for
a Sustainable Energy Future

Ir. N.A. Manders

Essent B.V.

E.J. Postmus

N.V. Nederlandse Gasunie

Ir. J. van der Sar

Kerk en Wereld

Ir. J.P. van Soest

Centrum voor
Energiebesparing en Schone
Technologie

Mevr. drs. W.A.S. Stibbe

EnergieNed

H. van de Wetering

CORUS B.V.

Deelnemers aan de dialooggroep Landbouw en Voeding

Mevr. dr. J.C.M. van Eijndhoven

Rathenau Instituut (voorzitter)

Mr. W.G. Albrecht

Platform Biologica

A. van den Brand

WLTO

Ir. L.J.M. Dielen

Stichting Bos en Hout

D. Dijk

Rabobank Nederland

C.H. Dutilh

Unilever

Mevr. P. Hazenberg

NBvP

F.H. Hoogervorst

LTO Nederland, Vakgroep

A. van Hoorn

Glastuinbouw

Ministerie van LNV/VVM

Ir. R. Kalwij

COSUN

H. Opsteeg

LTO Melkveehouderij

Drs. S. Schöne

Wereld Natuur Fonds

J. de Vries

Nederlandse Bond van

Boomkwekers

Deelnemers aan de dialooggroep Verkeer en Vervoer

Prof. drs. P. Bouw

Ir. P. Clausing

J.M. Dekkers

A. Douma

L. Tegelberg

H.J. Leemreize

H. van Manen

Ir. A.B.M. van der Plas

P.H.P. Sierat

Ir. E.M. Storm

G.H.J. Peters

Drs. T. Wams

Raad voor Verkeer en

Waterstaat (voorzitter)

ANWB

ECT

Railforum Nederland

Lacis Nederland B.V.

FNV

Van Gend en Loos B.V.

Nederland Distributieland

Verachtert B.V.

Ondernemersvereniging SIVN

Milieudienst Rijnmond

Vereniging Milieudefensie

5 Uitnodigingsbrief deelnemers COOL Nationale Dialoog

Uitnodiging tot deelname aan de Nationale Dialoog in het kader van het COOL-project

Geachte,

Enige tijd geleden hebben wij met u gesproken over het COOL-project, een lange-termijn verkenning voor het klimaatbeleid vanuit maatschappelijke sectoren. Wij hebben dit gesprek als zeer plezierig ervaren en willen u langs deze weg hartelijk bedanken voor uw inbreng.

Het verheugt mij u op de hoogte te kunnen stellen van de vorderingen in het COOL-project. Het afgelopen half jaar hebben de leden van het Project team COOL Nationale Dialoog met circa negentig mensen gesproken. In de gesprekken zijn tal van suggesties naar voren gebracht die wij konden gebruiken bij de uitwerking en precisering van de dialoogopzet. Naar aanleiding van de gesprekken en de verdere inhoudelijke voorbereidingen hebben wij er op dit moment alle vertrouwen in dat het project kansrijk is.

Daarnaast zijn er oriënterende gesprekken gevoerd met de beoogde voorzitters van de dialooggroepen. Wij hebben op dit moment voor drie dialooggroepen een voorzitter bereid gevonden, te weten mevrouw dr. J.C.M. van Eijndhoven, directeur van het Rathenau Instituut, voor de groep Landbouw en Voeding en de heren prof. drs. P. Bouw, lid van de Raad voor Verkeer en Waterstaat, voor de groep Verkeer en Vervoer en Ir. M.E.E. Enthoven, directeur van de Nationale Investeringsbank voor de groep Industrie. Ik hoop u binnenkort uitsluitel te geven over de voorzitter van de dialooggroep Gebouwde Omgeving.

Bij deze wil ik u, namens het Project team van harte uitnodigen om deel te nemen aan de dialoog en wel in de groep **cursief** Van deelnemers aan de dialoog wordt verwacht dat zij aanwezig zijn bij de vijf à zes bijeenkomsten van hun eigen dialooggroep. Verder zullen de deelnemers worden uitgenodigd voor een Nationale COOL workshop, een interim workshop en een Nationale COOL-conferentie. Deze bijeenkomsten zijn gespreid over een periode van 22 maanden.

In een overzicht ziet dit er als volgt uit:

Vorbereidingsfase

- Nationale COOL workshop in oktober a.s. Deze workshop, die bedoeld is voor een bredere groep belangstellenden, vormt het startsein voor de Nationale, Europese en Mondiale dialogen in het kader van het COOL project. De heer Prof. L.A. Hordijk (LUW), algemeen projectleider van COOL, zal u binnenkort voor deze bijeenkomst uitnodigen.

De feitelijke dialoog (zie ook bijlage 2, Notitie Fasering en Tijdpad)

- Vijf a zes bijeenkomsten van de dialooggroepen tussen november 1999 en maart 2001. Data worden vastgesteld in overleg met de deelnemers aan de dialooggroepen,
- Halverwege een zogenaamde *Interim workshop* voor de gezamenlijke dialooggroepen (of hun vertegenwoordigers) en deelnemers aan de Europese en mondiale dialogen.

Ter afsluiting

- Een Nationale COOL-conferentie in het voorjaar van 2001. Hier worden de resultaten van het COOL-project gepresenteerd en bediscussieerd met vertegenwoordigers van doelgroepen, wetenschappelijk veld en politiek.

Naast het deelnemen aan bijeenkomsten wordt van deelnemers verwacht dat zij wat leeswerk doen ter voorbereiding van hun sessies. Het Project team streeft er naar het aantal pagina's tot een minimum te beperken.

Ik zou u vriendelijk willen verzoeken de uitnodiging in positieve overweging te willen nemen. Alvorens definitief te besluiten verzoek ik u kennis te nemen van bijgaande stukken. Vooral bijlage 1, de *Notitie*

Algemene Uitgangspunten en Spelregels en bijlage 2, de *Notitie Fasering en Tijdpad* zijn voor u van belang. De in deze notities aangegeven werkwijze kan op basis van uw reacties binnen zekere marges worden aangepast. In geval van vragen of opmerkingen kunt u direct met mij contact opnemen.

Ik zou het op prijs stellen voor 31 augustus a.s. van u een reactie te ontvangen. Mocht u onverhoopt niet beschikbaar zijn voor deelname aan de dialoog, dan verzoek ik u mij dit liefst eerder te berichten, gezien de beperkte omvang van de dialooggroepen (acht à twaalf deelnemers). Een tijdige afzegging geeft ons de ruimte om in overleg met de beoogde voorzitter van de dialooggroep een ander uit te nodigen.

Voor eventuele vragen, opmerkingen of suggesties kunt u zich te allen tijde wenden tot mij of (bij mijn afwezigheid) tot prof. dr. ir. Pier Vellinga, ir. Onno Kuik of mevrouw drs. Marleen van de Kerkhof.

Hoogachtend,

Dr. Matthijs Hisschemöller
projectleider

Chapter II: Work plan for the Second Phase of the COOL European Dialogue

1 Introduction

The original project plan for COOL Europe envisaged that long-term EU climate policy would be approached from a general perspective. In mid-1999 the COOL Europe project team decided to opt for a sectoral approach. There were several reasons for this decision. First, a focus on sectors would allow a closer link with the national dialogue. Second, a focus on sectors would be an innovation compared to the hitherto domination of national states in EU climate policy. This would also anticipate a tendency to be expected in a future EU, where sectoral policy-making at the EU level gains in importance vis-à-vis a model based primarily on national states as the dominant political actors. Third, a sectoral focus would have a better chance to avoid short-term political controversies by starting with substantial long-term sectoral scenarios. Lastly, a sectoral focus would increase the possibility to focus the discussion, go more in depth at a limited amount of greenhouse gas relevant developments in the European production, consumption, and mitigation strategies, and to give the discussion more relevance for the participants.

In close co-operation with the two other COOL dialogues and after consultation of various experts and stakeholders at the national and EU levels, the COOL Europe project team decided to select two sectors, energy and transport. The energy sector was selected for two main reasons. First, the burning of fossil fuels accounts for the majority of the EU carbon dioxide emissions. Second, the European energy sector is in a period of major transition, not only with respect to liberalisation and merging but also being at the eve of a jump to non-fossil fuels. The transport sector accounts for 26 per cent of total EU carbon dioxide emissions. Carbon dioxide emissions from transport are estimated to increase substantially in the future due to increases in travel, especially air travel and freight transport. Besides these more substantial reasons the linking with especially the national dialogue was an important criterion for this selection.

2 Sectoral focus: energy and transport

2.1 Introduction

Radical emission reductions of greenhouse gases from the energy and transport sectors require, *inter alia*, the development of new technologies and changes in infrastructure. The policy challenge for Research and Development (R&D) could be summarised in the following way (European Commission, 1998):

- ensure there are adequate public funds for relevant climate change related R&D activities;
- develop appropriate institutional forms for R&D;
- evolve a realistic distribution of tasks and responsibilities between the public and private sectors;
- develop connections between R&D policies and other policies;
- develop institutional and regulatory frameworks which facilitate the generation and flow of information and knowledge between all relevant actors.

Many sources of inertia govern the rate at which techno-economic systems change. These include low capital stock turnover rates in some sectors; the time needed for innovations to incubate; institutional barriers to diffusion; weak mechanisms incapable of translating political or societal imperatives into effective economic signals; and self-reinforcing loops between particular technical options and consumption patterns, which create technological lock-in and discourage radical innovation (*ibid.*).

Problems of lock-in and inertia are particularly keen in complex technology systems characterised by massive investment in long-life capital stock and extensive associated infrastructure, e.g. transport systems and energy production and distribution systems. The inertia of overall socio-technical systems is exacerbated when the options for change within one sector or area are linked or modified by the options for change in other areas. The net result is that the inertia of an inter-related system as a whole is governed by the most inert component of the system. Lock-in then stifles the opportunities for change (*ibid.*).

These problems of radical techno-economic change point at the close interrelations with socio-cultural and behavioural aspects of low greenhouse gas emission futures. Any technological transformation will have to take these more behavioural transformations into account. But at the same time, major transformations in life-style patterns can form to some extent an alternative to drastic technological transformations. In both sectors this interplay between 'technology' and 'behaviour' will be a key focus.

2.2 Energy

The burning of fossil fuels accounts for the majority of EU carbon dioxide emissions. The European energy sector is in a period of major transition. Markets for electricity and gas are subject to liberalisation at both the Member state and EU levels. Liberalisation is changing the context for climate policies. If liberalisation results in lower prices, then energy demand will be higher than it would otherwise have been. Increased exposure to competition and commercial risk is forcing electricity generators to seek out less capital-intensive forms of generation. This has stimulated investment in gas-fired power. In the longer-term, it could inhibit the adoption of carbon-free renewable energy. Another impact of liberalisation can be a decline in research and technological development activity conducted by utilities in the public interest, as R&D will increasingly be profit-oriented (European Commission, 1998).

The range of technical options available for reducing energy-related carbon dioxide emissions is wide and include at least (*ibid.*):

- improved energy end use efficiency, for example in the heating of buildings;
- behavioural changes related to energy consumption;
- switching to less polluting fossil fuels such as natural gas;
- improving the efficiency of fossil fuel conversion;
- capturing and sequestering carbon dioxide emitted in major installations; and
- investing in non-fossil energy sources such as renewables or nuclear.

The European energy sector is likely to undergo major structural changes in the next 10-20 years. It is imperative that policy signals are sent which facilitate the take-up of climate-friendly technologies, many of which will provide benefits even in the absence of climate change. Otherwise, the capital stock on the sector could become locked into a structure which entails high emissions of greenhouse gases (*ibid.*). It is evident that these signals have to be of a cross-sectoral nature and require co-ordination among the various sectors, as well as among private stakeholders.

2.3 Transport

Transport accounts for 30 per cent of all energy consumption in the EU and is responsible for 26 per cent of total EU carbon dioxide emissions. Road transport in particular consumes over 80 per cent of transport-related energy and is responsible for 75 per cent of all transport-related CO₂ emissions. It is also responsible for congestion, noise, traffic deaths and injuries, land use, and energy dependence.

In the EU, CO₂ emissions from transport are estimated to increase by 39 per cent between 1990 and 2010 in the pre-Kyoto scenario, due to increases in travel, especially air travel and freight transport.

Transport is a sector in which any action to change the course of existing paths is difficult because of the long development times involved; the need for up-front investment in infrastructure, production facilities and maintenance and management systems; and the need to co-ordinate the policies and actions of

independent yet interdependent actors deeply committed to existing, climate unfriendly, technological trajectories. The complexity of transport infrastructures is a major obstacle to change, but it should be noted that much of the inertia is due to intransigence at the user level, especially amongst car owners with high mobility life styles (European Commission, 1998). Transformations in life-style closely interact with more institutional and economic-technological transformations, and can hardly be separated from them.

3 The workshops

3.1 Goal of the workshops

The workshops form the core of the COOL European Dialogue. It is in these series of four workshops, for each of the two sectors mentioned above, that the long term sector strategies (2012-2050) are connected with climate policy in a participatory process between policy-makers, scientists and various other stakeholder representatives. The dialogues on transport and energy production are supposed to lead to the elaboration of strategic visions on how an 80 per cent reduction of carbon dioxide emissions from these sectors could be achieved in 2050.

The addressees of the dialogue workshops are in fact twofold, one external to the COOL project and one internal to the COOL project. The strategic visions for long term climate policy are in the first place meant to contribute to EU climate policy, by indicating what kind of clusters of options are available for climate policy and which measures are necessary on the short and medium-long term to secure more radical emission reduction options on the long term. Secondly, the dialogue workshop will address the two other COOL dialogues. The ideas, strategic visions, and options generated in the EU dialogue will serve as input in especially the national dialogue.

3.2 Content and process

The working method for the dialogue workshops is back-casting (see below for an explanation). The sectoral groups will formulate future images on the basis of existing (sector) scenarios, a sketch of future societies prepared for the Dutch situation by the NRP Theme III project team and other relevant data provided by the project team, as well as the knowledge base of the participants themselves. These future images indicate how the sectoral groups imagine a society in 2050 looks like which has reached the -80% emission reduction goal. From that the group starts back-casting towards the present. In doing so the groups indicate what scientific information they would like to make use of, what kind of (economic, technological, environmental, socio-cultural) information, scenario studies, models, etc. they need for developing a path analysis from the future image to the short term (clusters of) options. In doing so the groups will identify relevant uncertainties in knowledge and direct specific question to the project team, following a demand driven input of science into the participatory policy-making process.

The project team will ensure that sufficient diversity and opposing views on visions, paths, clusters of options, and measures are available for the groups. Diversity of viewpoints on for instance technological versus behavioural alternatives, or - more likely - different mixes of technological and behavioural options/measures are possible, as long as the differences are explicated as well as the assumptions behind them. Consensus on different implementation trajectories is no requirement.

Together with Ecofys and the Environmental Strategies Research Group (Stockholm) the project team will elaborate distinct dimensions of the future images and the path analysis in a starting document for the first workshop. This starting document will also contain the basic rules of the game of the dialogue groups, among which the fact that the participants participate on personal title, the acceptance of the starting position of 80 per cent emission reduction in 2050, the commitment to participate in the four workshops, and the acknowledgement that climate change is a problem that needs to be solved.

The distinct phases of the back-casting process during and in between the four workshops are elaborated more in detail in section 3.3.

Back-casting

Back-casting will be the key methodology at the COOL Europe workshops. Back-casting can be operationalised in different ways (see, for example, Dreborg, 1996; Holmberg and Robert, 1999; Mulder and Biesiot, 1998; Rotmans, 1998; and World Bank, 1997). A useful definition of back-casting is provided by Rotmans (1998: 159): "Back-casting or anticipatory scenarios (...) are backward directed, i.e., they start from some assumed final state, and explore the preconditions that could lead to this state, including a palette of strategies to reach this situation."

The benefits of back-casting will be obvious when discussing some socio-technological alternatives such as the introduction of fuel cells and the organisational transformations that go along with that. Fuel cells can be introduced for automotive purposes if there are suitable fuels available, while it is much more difficult to introduce both fuel cells and a new fuel supply system in one step. For such radical transformations participation from various stakeholders is essential at different points in time. Back-casting thus focuses on the implications of the low GHG futures for the institutional strategies of public organisations and the business strategies of companies. In an exercise of the kind COOL Europe is preparing the dynamic interaction between the different actors may become very interesting as actors may be changing perspectives and move between alternative strategies during the process. Expertise of different kind will be available with the participants and from outside the groups. A demand-driven approach to the use of science will be followed.

According to the Environmental Strategies Research Group in Stockholm, back-casting involves the following steps: (1) Problem setting and criteria selection; (2) Elaboration of images of the future; (3) Path analysis of needs (magnitude of changes, lead-times for penetration of solutions and technological succession, obstacles etc.); (4) Short-term implications (institutional aspects, R&D priorities, choice of policy instruments etc.); (5) Formulation of an integrated strategy.

Demand driven scientific input.

The sectoral groups should indicate what scientific information they would like to make use of. They identify relevant uncertainties in knowledge and direct, if necessary, their specific questions to the project team.

General rules

1. The participants in the COOL Europe workshop should not question the assumption that climate change is a problem that needs to be solved.
2. The goal of 80 per cent reductions of the carbon dioxide emissions by 2050 should be generally accepted as a starting-point for the discussions.
3. The dialogue groups should aim at bringing to light diverging arguments and insights from the participants. Consensus on low GHG futures as well as implementation trajectories is no requirement. The participants hence can agree to disagree, as long as the assumptions that make them disagree are explicated.
4. The COOL Europe workshops should not be seen as a forum for negotiations but a forum for generation of new ideas and the manifestation of assumptions underlying the policy positions.

5. Participation in the dialogue group is based on personal title.
6. Chatham House rules will apply for the protocol. (The protocol will thus not link a specific statement to a specific participant.)
7. Participants are urged to participate in all four workshops. If this not possible for some reason, the project team will discuss substitutes. The substitutes could be proposed by the originally selected participant or by the project team. If there are no proposals, the COOL Europe project team will search for substitutes.

Cross-sectoral learning

A clear-cut added value of the COOL Europe workshops is the generation of new insights about cross-sectoral linkages. The project team will stimulate this learning process by (1) arranging for various forms of interaction between the sector groups (for example, the dialogue groups will be encouraged to consult each other); (2) continuously exchanging the minutes of the sectoral discussions between the sector groups; and (3) exchange with the other two COOL dialogues (see below).

Links with the global and national COOL dialogues

Various measures will be taken to enhance interaction between the European, national, and global dialogues. Firstly, Marcel Kok and Marleen van de Kerkhof of the national dialogue will participate in the COOL Europe workshops. They will appear as assistants to Magnus Andersson and Willemijn Tuinstra, who are the secretaries of the sector groups. Secondly, input will be provided from the COOL Global team, which also will provide the FCCC context. Thirdly, participants from the COOL Europe workshops will be invited to the COOL National interim workshop in 2000. Fourthly, the policy panel of workshop 4 will include global, European, and national policy-makers and stakeholders.

3.3 Phases and time schedule

The logic of back-casting as introduced in 3.2 forms also the background for the design of the four workshops.

Preparation for Workshop 1.

(Step I of the back-casting Process)

Project team together with Ecofys and FMS, Stockholm in October and November 1999: Prepare material on background for the future images and motivation of choices: energy production and industrial use, transport and back-casting. To be sent out to workshop participants not later than 19 November 1999.

Workshop 1. Future images.

(Step II of the back-casting process)

Input: Background information on the energy and transport sectors. Future images elaborated by the national dialogue. Background information on back-casting. Criteria to be met by images.

Expected outcome: Draft future images that meet the criteria for a solution to the carbon dioxide problem.

Process: The participants will outline images of the future in the following way:

- generate ideas (elements of a solution)
- cluster ideas
- identify links between clusters

- identify priorities
- combine clusters into one or several futures images

Homework for the project team:

1. The project team sends out clusters to participants for those who were not able to participate in the first workshop.
2. The project team elaborates future images and makes stories out of them. One important thing to be done is to sort out internal (sector-specific) and external events (not sector-specific, for example, enlargement of the European Union). One or two iteration steps.
3. The project team elaborates a tentative path analysis as an input for workshop 2.

Workshop 2. Path analysis (needs).

(Step III of the back-casting process + Exploring issues related to step IV)

Topics: Magnitude of changes. Lead-times for penetration of solutions and technological succession. Learning about time horizons for certain developments. Compatibility of options. Robustness and flexibility of options. Intermediate steps. Obstacles and uncertainties. Political and Institutional settings: conditions.

Input: Future images and tentative path analysis prepared by the project team.

Expected output: Revised future images, feedback on path analysis, general ideas about short-term policy implications.

Process:

Discussion on elaborated images.

Project team to present outline of a path from 2050 to 2000:

- Adjust the path in the workshop with participants + revise images
- Identify the gap between current trends and the path needed and analyse the results (gap analysis). The gap that emerges indicates what has to be changed. The identification of the gap constitutes a link to the next workshop.

Brainstorming and clustering of ideas about possibilities to close the gap and implications for action in the short term.

Homework for the project team:

1. Revise future images
2. Further work on path analysis
3. Elaboration of ideas about short-term implications.

Workshop 3 Short-term actions needed to reach long term goals

(Step IV of the back-casting process)

Topics: Policy implications of gap analysis, e.g. as regards institutional aspects (especially EU institutions) and R&D priorities. Policy instruments. Avoiding lock-in situations. Conditions conducive to learning. Creation of dynamics. Criteria for short-term decision-making and investments. Obstacles and uncertainties. Allocation of actions.

Input: Revised future images prepared by project team, path analysis prepared by project team, ideas about short-term policy changes.

Expected output: Criteria for decision-making. Suggestions for near term policy options, e.g. institutional innovations and directions for R&D.

Homework for the project team:

Elaborate draft strategic vision on paper

External feedback: present draft strategic vision to policy-makers and stakeholders who are not in the dialogue but could have relevant input.

Process external feedback and present it to the workshop participants.

Workshop 4. Strategic vision and policy panel

(Step V of the back-casting process)

Topics: Refinement of the whole strategic vision (future images, path analysis, short-term policy implications, policy recommendations)

Policy panel with key policy-makers in EU climate policy.

Input: Draft strategic vision and external feedback

Expected outcome: agreement on final strategic vision and robust options

Homework for the project team:

Final strategic vision/robust strategies on paper containing:

Future Images

Path analysis/conditions that have to be fulfilled

Short-term implications: criteria for short-term decision-making, priorities etc.

Recommendations

Appendix 1: Feedback from policy-makers and stakeholders outside the dialogue setting.

Appendix 2: Report from policy panel

Table: Phase 2 in steps

	Activity	Input Workshop	Output Workshop	Time schedule
1.	Project team: Prepare background material on - Back-casting - Long-term climate policy issues - Format/criteria for future images - Sectoral long term scenarios - Technological options			November 1999 (send to participants by November 19)
2.	Workshop 1: Future images Discussing and designing low GHG 2050 picture(s) for Europe by clustering of ideas, on: - Transport - Energy production and industrial energy use	- Background material on back-casting - Long-term climate policy ideas - Future images elaborated by the national dialogue - Format/criteria for future images - Sectoral long term scenarios - Technological options	- Draft future images agreed upon by participants - Proposals for coming workshops (scientific input, questions to be addressed etc.)	29 November, 1 day
3.	Project team: - send out clusters to participants for those who were not able to participate in the first workshop - elaborate future images (sort out internal and external events) - elaborate a tentative path analysis			
4.	Workshop 2: Path analysis (needs) - Identifying options	- Future images (elaborated by project team)	- Revised future images - Feedback on path analysis - General ideas about short-	March 2000, 2 days

	(technological and other) - Intermediate steps - Scanning the context: obstacles, uncertainties and opportunities - Short-term policy ideas	- Tentative path analysis including scientific assessment of options	term policy implications to be used as input for next workshop	
5.	Project team: Prepare contribution to Interim National Workshop on the basis of information requests from national Dialogue Prepare information requests to the National and Global Dialogues to be addressed at the Interim National Workshop			March 2000
6.	Project team: - Revise future images - Further work on Path analysis - Elaboration of ideas about short-term implications			
7.	Workshop 3: Short-term implications - Formulating short-term actions, measures, and major policy choices - Identifying conditions for implementation - Scanning the context: obstacles, uncertainties and opportunities	- Revised future images - Path analysis - Information on short-term policy strategies	- Criteria for decision-making and investments - Suggestions for R&D and institutional innovation	June 2000, 2 days
8.	Project team: Develop draft strategic visions including: (1) future images, (2) path analysis, (3) short-term implications and policy recommendations, based on: - Elaboration of workshop 3 - Comments from workshop participants			August 2000
9.	Project team: -Get feedback on Draft strategic vision from sectoral policy-makers and politicians via letter, email and phone - Prepare External 'evaluation' report based on this feedback			September 2000
10.	Workshop 4: strategic vision and policy panel Refinement of strategic visions Policy panel with representatives of EU institutions and national policy-makers	- Draft strategic visions - External feedback report	- Agreement on strategic visions for the energy and transport sectors	November 2000, 1 day.
11.	Project team: Finalise strategic visions based on discussions within workshop 4 Document outcome of policy panel - Draft strategic vision - Outcome of policy panel - Final strategic visions on paper			January 2001

3.4 Place of workshops

The four workshops will be held in Brussels. The first workshop will be organised with the support of the Centre for European Policy Studies (CEPS) and will be located at CEPS. Decisions about the location of the second workshop will be taken in the beginning of 2000.

3.5 Invitations to workshops

As a starting point the COOL Europe project team has identified a number of key stakeholders:

- National climate negotiators from countries that have a distinct position towards climate policies (e.g. the most active countries in the European Council's Ad Hoc Group for climate issues and representatives from southern European countries).
- National sectoral policy-makers, for example, representatives of ministries of transport and ministries of energy
- Representatives leading oil companies with strong interest in renewable energy sources (e.g. BP Amoco and Shell).
- Representatives from power generating companies in Europe (e.g. representative of EdF (F), considered to be one of the most interesting)
- Representatives of car manufacturers, (e.g. from Germany)
- Representatives of leading NGOs involved in climate policy (at the EU level)
- Representatives of local and regional authorities (e.g. those having close links with European transport policies because they locate a major airport or harbor)
- Investors, for example, European Investment Bank or major private banks
- Representatives of the European Commission (DGII, DGVII, DGXI, and DGXVII)
- Representatives of central and eastern Europe (both public and private actors)

At the end of August, the COOL Europe project team began to invite people to the workshops, taking these categories into account. By 27 October, 19 persons had agreed to participate.

List of invited persons to COOL Europe sectoral workgroup on energy (status 1999-10-26)

Chairman:

Name and organisation	Country	Reaction	Comments
Mr Rob Bradley, energy specialist Climate Network Europe, Brussels	UK	Yes	
Mr Bjorn-Olof Svanholm, strategic analyst, Birka Energy, Stockholm	S	Yes	
Dr Simon Minnet, Director Cogen Europe, Brussels	UK	Yes	
Mr Ewaryst Hille, Foundation for Effective Energy Use, Warsaw	PL	Yes	
Dr Paul Metz, Executive Director E5 – European Business Council for a Sustainable Energy Future	NL	Yes	Can attend 29 November. Will look for substitutes for WS 2,3, and 4
Mr Inigo Ascasibar, Ministry of Environment, Madrid, Spain	SP		
Mr Nicholas Christoforides, European Commission, DGXII – Research	H	Yes	
Prof. Maciej Sadowski, Executive Office for the Climate Convention, Warsaw	PL		
Prof. Diana Vorsatz, Central European University, Budapest	H	Yes	
Mr Anders Wijkman, Member of the European Parliament, Christdemocratic Party	S	Yes	
Mr Michael Wriglesworth, BP Amoco, Overijse, Belgium	UK		
Mr Jean-Yves Caneill, Direction des Etudes en Recherche, EdF, Chatou-Cedex	F		
Mr Hans-Jurgen Stehr, Head, Department for Energy Planning and Climate Issues, The Danish Energy Agency	DK	Yes	
Mr Peter Betts, Head, Global Atmosphere Division, Department of the Environment, Transport and the Regions, UK	UK		
Mr Jean-Jacques Becker, climate negotiator, Mission Interministerielle de l'Effet se Serre, France	FR		

Mrs Jan Corfee-Morlot, OECD

Mr Ken Guy, Technopolis, UK

Mr Jaime Garcia-Rodriguez, European Commission (DGXVII – Energy)

List of invited persons to COOL Europe sectoral workshops on transport (status 1999-10-26)

Chairman: Dr Tomas Kaberger, Institute of Physical Resource Theory, Chalmers Technical University, Goteborg,

Name and organisation	Country	Reaction	Comments
Mr Peter Larsson, Stockholm County Government Board	S	Yes	
Mrs Beatrice Schell, Director, European Federation for Transport and Environment, Brussels	Rom	Yes	
Mr Roger Torode, International Union for Public Transport (UITP), Brussels	UK	Yes	
Mr Jan-Peter Paul, Head, Unit for Policy Analysis, European Commission, DGVII – Transport	SF	Yes	
Mr Peter Wiederkehr, Directorate for pollution prevention, OECD.	CH	Yes	To be confirmed
Mr Paul Beeckmans, Community of European Railways (CER), Brussels	B	Yes	
Dr Andrzej Kassenberg, Institute for Sustainable Development. Warsaw	PL		Probably yes.
Dr Udo Hartmann, DaimlerChrysler, Stuttgart	D	Yes	Will be substituted by Mr Arnold van Zyl of the DaimlerChrysler representative office in Brussels at the first workshop
Mr Bart Thorborg, Directorate of Strategy and Co-ordination, Ministry of Transport and Waterways, The Hague	NL	Yes	
Mr Rudolf Petersen, Director, Transport Division, Wuppertahl Institute for Climate, Environment and Energy	D		
Dr Rene Kemp, Maastricht Economic Research Institute on Innovation and Technology, Maastricht University	NL	Yes	

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<http://ag.arizona.edu/futures/fut/semtech.html>

Chapter III: Work plan for the Second Phase of the COOL Global Dialogue

1 Introduction

During the second phase, three more global dialogue workshops are planned. In this section, we first analyse the consequences of the findings from the first phase for the design of the second phase. Next we give a description of the contents of the second, third and fourth workshop. The contents of the third and fourth workshop are only indicative since it will be subject to the requests resulting from the previous workshop.

2 Implications of the Findings of the First Phase

The evaluation of the first phase has indicated a number of (potential) problems that need further attention:

- the project has not enough focus, resulting in a risk of incoherence of results and no convergence on strategic thinking in the end;
- the link with other COOL sub-projects is weak; the COOL global dialogue may not serve as a background for the other COOL-subprojects;
- the methodology of global dialogue stands apart from other projects; this may complicate the evaluation of the overall COOL project.

From this it has been suggested to bring the Global Dialogue project more in line with the overall quest of COOL: to explore strategies for drastic long-term emission reductions. At the same time, there are a number of reasons why this is not so easy:

- the diversity of positions and interests at global level is larger than at the national and European level;
- at the global level (the long-term) climate goals cannot be easily accepted as being given since goal setting itself is one of the most essential items of international negotiations;
- there is still much uncertainty about the desirable level of emission reductions due to scientific uncertainty;
- Moreover, the global scale makes it difficult to gather and process information that is both comprehensive and detailed - that is covering all countries and/or sector oriented.

Therefore the global dialogue project cannot simply copy the approach of taking a certain reduction level (e. 80% by 2050) as a starting point for back casting like in the national and European sub-projects. At the same time, the need for a more focused and coherent agenda and the goal of arriving at the end of the workshop cycle at some shared results makes a re-structuring of the dialogue approach desirable.

This leads to the conclusion that the approach of the project has to be modified: not just a systematic exploration of possible international policy options and the development of flexible tools to evaluate them, but *narrowing the range of long-term climate goals, and pathways and strategies to the lower range of stabilisation levels.*

On the basis of this also the quest of the project is reformulated in "What emission reduction pathways to meet stringent long-term climate goals and strategies can meet particular environmental, economic, political requirements and what are its implications for the second and third commitment period?"

Using a *back casting approach* this would imply the following steps:

Step 1. Identification of a range of stringent long-term climate targets

- Step 2. The formulation of criteria for meeting these long-term climate targets, to be translated into conditions for acceptable pathways/strategies
- Step 3. The exploration of pathways and strategies that meet the conditions formulated
- Step 4. The identification of the range of medium term emissions and strategies that meet the conditions formulated and the formulation of the policy implications for the second and third commitment period

Ad 1) This includes both selection of indicators and indicator levels. A possible starting point could be a maximum global average temperature increase, such as a 2 degree celsius above pre-industrial levels. This target could be complemented with targets for sea level rise. On the basis of these targets a range of long-term stabilisation targets for CO₂ equivalent concentration levels could be identified that account for the level of scientific uncertainty (e.g. 450 - 650 ppmv). Alternatively, just a range of stabilisation levels could be used as starting point. In order to be able to select such a range it will be necessary to evaluate information on possible impacts of various levels of future global emission levels (emission scenarios).

Ad 2) The conditions for the pathways and strategies that have to be considered can be grouped into categories that are related to the elements of article 2 of the FCCC: Safe, Affordable, Fair and Efficient (together forming the SAFE-approach)

- *Safe*: conditions accounting for both limiting intermediate climate impacts as well as for impacts resulting from emission reduction strategies (e.g. the impacts of large-scale biomass production or sinks policies)
- *Affordable*: conditions accounting for the feasibility of emission reductions given their economic consequences. This indirectly also accounts for the technical feasibility of emission reduction strategies.
- *Fair*: conditions concerning both the sharing of the burden of emission reductions as well as the impacts of emission reduction policies (e.g. taking into account the interests of oil producing developing countries)
- *Efficient*: conditions accounting for the cost-effectiveness of strategies to achieve emission reductions. Here also ancillary benefits can be taken into account.

Ad 3) Next pathways and strategies have to be explored to find out how the conditions formulated can be met. There are three important dimensions to be investigated in that context:

- *When*: Pathways/timing: what are the implications of early versus delayed mitigation to meet the long-term climate targets? What are the implications of the uncertainty in the target level?
- *How*: Emission reduction options: what can be their contribution; what their costs; what are competing options; what are environmental and social implications? What is needed to develop them (in time)?
- *(paid) By whom*: Burden sharing: what are the implications of different burden sharing regimes? What will be the economic consequences?

In order to account for uncertainties and to identify robust strategies, the analysis should be based on a range of different assumptions for population and income developments (i.e. by using the set of new scenarios developed by IPCC-SRES).

Ad 4) On the basis of the evaluation under (3) the group should come to conclusions regarding the *range of acceptable short term emission paths and strategies* (including burden sharing approaches) that seems to best fulfil the conditions set out. During this step there is also a need for further development of the Safe Landing Analyses. This tool links short-term emissions to long-term climate targets. It will have to be extended with options for international burden sharing as it is likely that other countries than the present Annex-1 countries will take on commitments; secondly, there is a need for a better linking of the SLA to economic analyses. In this process, input will be used of similar approaches developed elsewhere, such as the Tolerable Window Approach, developed at PIK, in Germany. Finally, the most promising *short-term*

strategies that are consistent with the identified acceptable range of short term emission paths and (burden sharing) strategies and their implications for the design and contents of policies for the second and third commitment period need to be formulated. However, a full assessment of this would require much more time and means than available within the Global Dialogue project and can therefore only be dealt with to a limited extent.

The main *products* of the COOL Global dialogue project would than be:

- a strategy paper analysing the most promising strategies for meeting long-term climate policy targets, conditions to be met and implications for the second and third commitment period;
- (as a spin-off) flexible (interactive) decision support tools. It is expected that a renewed version of the Safe Landing Approach will be developed that included international burden sharing options. Moreover, also the FAIR model and the Inter Active Scenario Scanner are expected to be useful spin-off products.

Consequences for the remaining workshops

The remaining 3 workshops of the COOL Global Dialogue should be used to follow the back-casting steps of the more focussed approach. At the same time, the policy questions identified during the first workshop should be dealt with as much as possible. Moreover, previous experience with the Delft Dialogue workshops has learned that some iteration is needed for sufficient fine-tuning of policy analyses- and analytical tools used -to policy makers needs. For this reason it seems useful to review existing tools for linking the long to the short term already during the second workshop. The subsequent workshops will therefore not be dedicated to each of the identified steps in the back casting approach. Nevertheless, it is clear that the focus of the workshops will shift from long-term climate targets to short term policy options. This results in the following *focus* for each of the workshops:

- *second workshop*: focus on long-term and impacts; selection of climate targets and indicators (step 1); formulation of conditions (step 2), review of existing approaches of linking the long and short term, first evaluation of emission reduction pathways and strategies (step 3).
- *third workshop*: mixed focus on long and short-term; extensive evaluation of emission reduction pathways and strategies (step 3); first evaluation of short term implications of long-term targets and burden sharing approaches (step 4).
- *fourth workshop*: focus on short-term implications; revised evaluation of short term implications of long-term targets and burden sharing approaches; an exploration of promising short-term emission reduction strategies for meeting them, and the formulation of strategic conclusions. (step 4)

3 Second COOL Global Dialogue Workshop

The objectives of the second COOL Global Dialogue are:

- to start up the more focussed approach described above, to identify a range of acceptable (stringent) long-term climate targets and to begin formulating a set of criteria/conditions for meeting these long-term climate targets;
- to review methods for linking long targets and to short term/medium term climate policy evaluation;
- to provide a follow up to the first workshop by answering some of the priority policy questions raised (that fit in with the overall approach).

The following issues are planned:

Part I: Long-term climate targets

Long-term Climate Impacts, Climate Impact indicators and Long-term climate goals:

- Presentation of the latest insights from IPCC WG II in long-term impacts of climate change (pre-view of IPCC third assessment report)

- Special item: exploration of thresholds in the climate system - non-linear, abrupt climate change.
- An interactive exploration of the relationships between population and economic growth, emissions, concentrations and global climate impact indicators (using the Interactive Scenario Scanner).
- Formulation of an acceptable range of long-term climate targets

Pre-view of Linking Long-term Targets to Short-term Policies:

- Review of existing Approaches for linking long and short term climate policies: Presentation of the Safe Landing Approach (RIVM) and the Tolerable Windows Approach (ICLIPS Project, PIK).
- Discussion on criteria / conditions for pathways and strategies for meeting long-term climate targets : formulation of conditions and indicators

Part II: Exploring pathways/strategies and identifying conditions (while answering previous policy questions):

Land use, land-use change and forestry - the possible contribution of sequestration policies to stabilisation of atmospheric CO₂ concentrations:

- Presentation of IPCC-Special Report on LULUCF with respect to long-term implications of short-term choices
- Options and implication of large scale Global Carbon Sequestration

Exploring options for differentiating future commitments:

- Differentiating future commitments: a multi-stage - different target approach (using the FAIR model)
- Interactive session: exploring fairness between desirable and feasible futures (using FAIR)

Exploring emission strategies for stabilisation of GHG concentrations:

- Integrated economic and ecological analyses of impacts of different scenarios, as well as of the consequences of early versus delayed response, especially in relation to a possible future change of policy targets

Impacts of emission reduction strategies on oil exporting and developing regions:

- Economic impacts of Annex-I activities (Kyoto and post-Kyoto) on developing countries, with focus on oil-exporting countries
- Integrated analysis of economic and environmental impacts of mitigation scenarios on developing countries.

4 Third COOL Global Dialogue Workshop

The third COOL Global Dialogue Workshop is intended to gradually shift the focus from the long-term to the medium-term perspective, in that the second and third commitment period (2013 – 2020). What are the implications of the range of long-term climate targets and conditions for meeting these for analyses so far presented for decisions on the second and third commitment period?

The aim is first to continue the evaluation of various emission reduction pathways and strategies on the basis of the SAFE-concept. Second, it will start with the evaluation of short term implications of long-term targets and burden sharing approaches on the basis of a renewed version of the Safe Landing Analysis, which also integrates options for differentiating future commitments from the FAIR model. The following issues are expected to be dealt with at the third workshop (partly depending on the outcome of the second workshop):

Land use, land-use change and forestry

- Further analyses of possible contribution of carbon-sequestration to mitigation scenarios, integrated with and compared to other mitigation options

- Policy implications of the biosphere turning from a sink into a source
- Policy implications of decisions on LULUCF definitions and modalities, rules and guidelines on the first and subsequent commitment periods.

Mitigation scenarios - Evaluating strategies for reaching long-term climate targets

- Further exploration and evaluation of emission reduction pathways and strategies, on the basis of the SAFE-concept
- Special attention for the influence of technological learning and technology transfer and the use of policy instruments (flexible instruments)

Short-term implications of long-term climate targets and different regimes for differentiating commitments for the second and third commitment period

- Presentation of new results from the integration of the (new) Safe Landing Analysis / Tderable Windows Approach with the FAIR model

5 Fourth COOL Global Dialogue Workshop

The fourth COOL Global Dialogue Workshop is also intended to focus on the medium-term perspective (the second and third commitment period (2013 – 2020)). Based on results of the third workshop, it will present revised evaluations of short term implications of long-term targets and burden sharing approaches, and of the strategies for emission reduction. Moreover, it will pay attention to the identification of the most interesting medium-term emission reduction strategies for the second and third commitment period. An important outcome of the workshop should be the formulation of a number of strategic conclusions.

The following table gives an overview of planned activities and deliverables for the Second Phase.

Table: Overview of activities and output of the Second Phase of the COOL global dialogue sub-project

COOL Second Phase (month 10/99 –01/01)			
	<i>Description of activity</i>	<i>Date</i>	<i>Output</i>
1.	<ul style="list-style-type: none"> - Elaboration of request for further model analysis and scenario development - Elaboration of design of exercises for use of interactive model tools - Preparation of the facilitation of the workshops - Evaluation of contribution needed from other research groups for subsequent (scenario) analyses to address identified key policy issues for the Global Dialogue - Consolidating participation of invited people - Elaboration of Evaluation plan (based on overall COOL evaluation framework) 	10-11/99	<ul style="list-style-type: none"> - plan for model development/analyses and scenario development/analyses - arrangements for contributions by other research groups to second workshop - design for interactive sessions - arrangements for facilitation - evaluation plan
2.	<p>Preparation of input to the Second COOL Global Dialogue workshop:</p> <ul style="list-style-type: none"> - Exploration of long-term climate impacts and possible non-linear climate change - Interactive sessions with the ISS and FAIR - New BS-analyses with FAIR model (incl. model adjustments) - Scenario analyses with WorldScan model on the basis of the requests of the first workshop. - Steering and co-ordination of external presentations on Tolerable Window Approach, LULUCF/Sinks, Impacts on (oil producing) developing countries 	11/99 – 1/00	<ul style="list-style-type: none"> - Briefing book for Second COOL Global Dialogue Workshop
3.	<p>Second COOL Global Dialogue Workshop</p> <ul style="list-style-type: none"> - Exploration of long-term impacts of climate change including possible non-linear change - Selection of indicators, range of long-term climate targets and condition for pathways and emission reduction strategies (SAFE-concept) - Exploration of options to link long-term targets to short-term policy evaluation - Exploration of realistic contribution LULUCF (carbon 	02/00	<ul style="list-style-type: none"> - Workshop report - Range of long-term climate targets conditions for emission paths/emission reduction strategies - Requests for new policy analyses

	<ul style="list-style-type: none"> plantations) to stabilisation of CO₂ - Exploring options for differentiating future commitments - Economic and environmental impacts of different emission pathways and burden sharing regimes, with special attention for (oil producing) developing countries 		
4.	<p>Evaluation of Second Workshop:</p> <ul style="list-style-type: none"> - Elaboration of request for further model analysis and scenario development - An evaluation of the contributions needed from other research groups for subsequent (scenario) analyses to address identified key policy issues - Planning of model adjustments/development (renewal of Safe-Landing Approach) 	02/00	<ul style="list-style-type: none"> - plan for new model development/analyses and scenario development /analysis - arrangements for external input to third workshop
5.	<p>Preparation of contribution to interim national workshop on the basis of information requests from National and European Dialogue and results first and second workshop</p>	03/00	<ul style="list-style-type: none"> - Presentation of results at Interim national Workshop
6.	<p>Reporting to Advisory Board meeting</p>	03/00	<p>Report to Advisory Board / Presentation</p>
7.	<ul style="list-style-type: none"> - Preparation of the Third COOL Global Dialogue Workshop: - Further development/adjustments of modelling tools (SLA/FAIR, IMAGE/TIMER, WorldScan/WUSS) - Steering and co-ordination of external input - analyses of contribution of LULUCF (carbon plantations) in relation to other mitigation options (biomass, material use) - Exploring options for differentiating future commitments - with focus on 2nd and third commitment period - Analyses of economic and environmental impacts of different emission pathways and strategies for meeting long-term climate targets and burden sharing regimes, with special attention for (oil producing) developing countries 	02/00 – 06/00	<ul style="list-style-type: none"> - New model development/analyses and scenario development /analysis - Briefing book for Third COOL Global Dialogue Workshop
8.	<p>Presentation of results at SBSTA/SBI session</p>	06/00 09/00	<p>Presentation outcomes COOL</p>
9.	<p>Third COOL global dialogue workshop: Focus on linking long-term climate targets to medium-term (back-casting: second and third commitment period, 2013-2020)</p> <ul style="list-style-type: none"> - policy implications of the biosphere turning from a sink to a source - analyses of contribution of LULUCF (carbon plantations) in relation to other mitigation options 	07/00	<ul style="list-style-type: none"> - Workshop report; - Requests for new policy analyses and further scenario development /analysis

	(biomass, material use) <ul style="list-style-type: none"> - Short-term implications of long-term climate targets and burden sharing regimes - results from integrating renewed SLA (or TWA) with FAIR - Exploration and evaluation of different emission pathways and strategies for meeting long-term climate targets and burden sharing regimes on the basis of the SAFE concept 		
10.	Evaluation of Third Workshop: <ul style="list-style-type: none"> - Elaboration of request for further model analysis and scenario development - An evaluation of the contributions needed from other research groups for subsequent (scenario) analyses to address identified key policy issues - Planning of model adjustments/development 	08/00	<ul style="list-style-type: none"> - plan for new model development/analyses and scenario development /analysis - arrangements for external input to fourth workshop
11.	Reporting to Advisory Board Meeting	09/00	<ul style="list-style-type: none"> - Report to Advisory Board / Presentation
12.	Preparation of the Fourth COOL Global Dialogue Workshop: <ul style="list-style-type: none"> - Adjustment of modelling tools - Analyses of short-term implications of long-term climate targets and burden sharing regimes - Drafting of strategic papers of on emission reduction strategies and their short-term implications - Steering and co-ordination of external input 	08/00 – 11/00	<ul style="list-style-type: none"> - new model development/analyses and scenario development/analysis - Briefing book for Fourth COOL Global Dialogue Workshop
13.	Presentation of results at SBSTA/SBI session / COP 6 , The Hague	11/00	Presentation of <ul style="list-style-type: none"> - Strategic papers - New decision support tools
14.	Fourth COOL global dialogue workshop <ul style="list-style-type: none"> - Focus on second and third commitment period (2013-2020) - Short-term implications of long-term climate targets and burden sharing regimes - results from integrating renewed SLA with FAIR - Discussion of strategic papers on emission reduction strategies and their short-term implications 	12/00 or 01/01	<ul style="list-style-type: none"> - workshop report - strategic conclusions

15.	Presentation of the results of the global dialogue at the second overall COOL conference	1/03	Preliminary report second phase
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COOL Third Phase (month 02/01-06/01)			
	<i>Description of activity</i>	<i>Period</i>	<i>Output</i>
1.	Evaluation of the global dialogue	02/01-04/01	Contribution to syntheses report
2.	Reporting on overall outcome of Global Dialogue	03/01 - 05/01	Final report on global dialogue for Third Phase COOL
3.	Dissemination of results to FCCC	During third phase	short report, leaflets, software, scientific papers
4.	Preparation of input on the results of the global dialogue for the NOP Final conference	03/01 - 06/01	Paper /poster

6 Overview of Deliverables Second Phase

Working Documents:

- Working Document 1: Evaluation plan Global Dialogue
- Working Document 2: Briefing Book Second COOL Global Dialogue workshop
- Working Document 3: Report Second COOL Global Dialogue workshop
- Working Document 4: Briefing Book Third COOL Global Dialogue workshop
- Working Document 4: Report Third COOL Global Dialogue workshop
- Working Document 5: Briefing Book Fourth COOL Global Dialogue workshop
- Working Document 6: Report Fourth COOL Global Dialogue workshop
- Working Document 7: Strategic Papers on outcomes Global Dialogue

Others:

- Interactive Decision Support Tools (FAIR/new SLA) software
- Information material on Decision Support Tools (FAIR/new SLA) (posters, brochures, background documentation)

7 List of Participants - Policy makers and Stakeholders

- Mr. Anil AGARWAL / Ms. Sunita NARAIN, Centre for Science and Environment, India
- Mr. Jean-Jacques BECKER, Mission Interministérielle de l'Effet de Serre Ministère de L'aménagement du territoire et de L'environnement, France
- Mr. Yvo DE BOER / Mr. Leo MEYER, Ministry of Housing, Spatial Planning and the Environment, The Netherlands
- Mr. Harold DOVLAND, Ministry of Environment, Norway
- Mr. John DREXHAGE, Environment Canada, Canada
- Mr. Jesper GUNDERMANN, Danish Energy Agency, Denmark
- Mr. Bill HARE, Greenpeace International, The Netherlands
- Mr. Abraham HASPEL, US-Department of Energy, USA
- Mr. William HOHENSTEIN, US-Environmental Protection Agency, USA

- Ms. Patricia ITTURREGUI, Comisión Nacional de Cambio Climático
- Consejo Nacional de Ambiente, Peru
- Mr. Michael JEFFERSON, World Energy Council, UK
- Dr. S.J. LENNON, Eskom Engineering, South Africa
- Mr. Rezki LOUNNAS, OPEC-secretariat, Austria
- Mr. Luiz Gilvan MEIRA FILHO, Brazilian Space Agency AEB, Brazil
- Mr. Alexander METALNIKOV, Russian Federal Service for Hydrometeorology and Environmental Monitoring, Russian Federation
- Mr. David MORECROFT, World Business Council for Sustainable Development, Switzerland
- Mr. Aidan MURPHY, Shell International Ltd., UK
- Mr. Mark MWANDOSYA, Centre for Energy, Environment Science and Technology, Tanzania
- Mr. Shuzo NISHIOKA, National Institute for Environmental Studies, Japan
- Mr. Michael OPPENHEIMER, Environmental Defence Fund, USA
- Mr. Atiq RAHMAN, Bangladesh Centre for Advanced Studies, Bangladesh
- Mr. Espen RØNNENBERG / Leonard NURSE, AOSIS, Barbados
- Mr. Rolf SARTORIUS, Federal Environmental Agency, Germany
- Mr. Dennis TIRPAK, FCCC-secretariat, Germany
- Mr. Matti VAINIO, EU Climate Unit DGXI, Belgium
- Mr. David WARRILOW, UK Department of Environment, UK
- Mr. YE Ruqiu, State Environmental Protection Adm., China

Chapter IV: Work plan for the Second Phase of the COOL Core project

1 Introduction

The rationale of the Core project is to co-ordinate the activities of the sub-projects in order to better achieve the objectives of COOL. It tries to increase the efficiency and effectiveness of the three dialogue projects by providing a *common framework* for cross-level issues, the production and exchange of scientific information, participatory integrated assessment methods and evaluation methods across the scales.

2 Tasks of the Core project in Phase II

(a) *Co-ordination and regular exchange of information between the sub projects and between COOL, the NRP thematic assessments and external projects and programs*

- Regular meetings of the full project team including the project leaders of the thematic assessment projects
- Co-ordination of participation of project team members as observer in each other's dialogue sessions with special attention to (a) methodological aspects, and (b) key policy issues and research questions.
- Interactions with other ongoing IA projects and research and assessment programs (EFIEA, IPCC, ULYSSES, GEA etc.).

(b) *making available the COOL information base (COOL-box);*

- output of the NRP thematic assessments (developed parallel with COOL);
- tools that are being used
- scenarios that are being used
- a NRP/COOL web-site
- a roster of experts and related projects

The information basis (COOL-box) of which a first outline was produced during the first phase will be further improved and made available to the three dialogue sub projects. This will get major attention during the first months of the Phase II. The dialogue projects themselves will also contribute to the enlargement and improvement of the information base.

(c) *applying and further developing evaluation criteria and methodology*

The Core project is responsible for a systematic study of the three methodological issues distinguished in the project:

- 1) *methodologies for participatory integrated environmental assessment* - as a tool for policy-support,
- 2) *the supply and utilisation of scientific knowledge in these dialogues*, and
- 3) *having to take account of policy interactions between different geographic levels.*

In order to draw conclusions on this issues, research hypotheses and a specific research approach need to be formulated. With the conclusion of Phase 1 this work was not yet finalised. In the early stages of Phase 2, an extra effort will be made to prepare this research plan. The Core project will base its work on advice from the Advisory Board. It is foreseen that this work can be finalised by end November 1999, before the dialogues start. This includes a time schedule which indicates what aspects will be monitored how and when during the process.

(d) *Second national COOL Workshop*

Phase 2 will be concluded with a National COOL Workshop, in which the achievements of the three dialogue projects will be discussed.

3 Deliverables/products of Phase II, Core project

- *An updated and shared information basis*, including a working version of the NRP/COOL web-site;
- A research plan on methodology;
- *A second National COOL Workshop* presenting and discussing the achievements of Phase 2;
- *Report on phase 2* including *a synthesis of the most important findings from the policy dialogues* at the various levels;
- *A work plan for Phase 3* of the Core project *including a detailed plan for the evaluation of the full COOL project in Phase 3*

Table: Planning Core project Phase 2

Date	Dialogue meetings	COOL-Core meetings & Advisory board meetings	Activity/ Deliverable
10/1999		Core meeting	<i>First COOL Conference</i>
11/1999	<ul style="list-style-type: none"> ■ 1st European workshop ■ National Dialogue Step1: Exploring of context and questions 	Core meeting	First version COOL Box running Research Plan Methodology
12/1999		Core meeting	
1/2000			
2/2000	<ul style="list-style-type: none"> ■ 2nd Global workshop ■ National Dialogue Step 2: Receiving and selecting information 	Core meeting	
3/2000	<ul style="list-style-type: none"> ■ National Dialogue (European Dialogue, Global Dialogue) Step 3: Interim report + Workshop. Connecting dialogue groups and dialogue levels ■ 2nd European Workshop 	Advisory board meeting	<i>Interim Workshop: connecting the three dialogue levels</i>
4/2000	<ul style="list-style-type: none"> ■ National Dialogue Step 4: Exploring implementation pathways 	Core meeting	
5/2000			
6/2000	<ul style="list-style-type: none"> ■ 3rd European workshop 	Core meeting	
7/2000	<ul style="list-style-type: none"> ■ 3rd Global workshop 		
8/2000		Core meeting	
9/2000	<ul style="list-style-type: none"> ■ National Dialogue Step 5: receiving and selecting information 	Advisory board meeting	
10/2000		Core meeting	
11/2000	<ul style="list-style-type: none"> ■ National Dialogue Step 6: First concept strategic visions ■ 4th European Workshop 		
12/2000	<ul style="list-style-type: none"> ■ 4th Global workshop 	Core meeting	
1/2001	<ul style="list-style-type: none"> ■ National Dialogue Step 7: Comparing strategic visions of dialogue groups 		
2/2001		Core meeting	
3/2001	<ul style="list-style-type: none"> ■ Nat Dialogue Step 8: Second national Cool Conference: conclusions and 	Advisory board meeting	<ul style="list-style-type: none"> - Work plans for Phase 3 - Detailed Evaluation Plan - Synthesis of most important findings from the policy

	dissemination		dialogues - <i>Second COOL Conference</i>

4 Important Issues

The co-ordination and exchange of information between the sub projects will take place through Core meetings every 2 months and through regular conference calls.

At the Core meetings, in addition to progress reports of the sub-projects, three items will be always central on the agenda:

- Evaluation of dialogue meetings: The workshops which took place in between two core -meetings will be evaluated. The data gathered at the workshops and the insights resulting from the discussion will be input for the final evaluation of COOL
- Integration: what substantial input and information do the dialogues need from each other?
- COOL information basis: the further development and application of the Tool-box

4.1 Methodology and Evaluation

The evaluation framework and the questions for evaluation have to be developed further in an early stage of the 2nd Phase. Products include a paper on evaluation and detailed question lists to be used during and after the dialogue sessions.

4.2 Integration

Though the COOL-project has followed the advice of the NRP Steering Committee to follow the so-called "COOL-Light" concept (e.g. not a too heavy connection between the three dialogues), it is very important for each project team to keep track of what happens in the other dialogues. Also, expertise of the COOL project team members in one dialogue might be valuable for other dialogue levels. Within the Core-project the project team members will alert each other on cross-level issues.

4.3 COOL information basis

The further implementation of the COOL information basis (COOL box) will be taken care of by a small group existing of members of all sub-projects (National Dialogue: Onno Kuik, European Dialogue: Willemijn Tuinstra, Global Dialogue: Marcel Berk, NRP: Marcel Kok). The lines to the project teams will be short and decisions on what information should be presented through the COOL-box will be made by the project teams. The COOL box will foremost be an information exchange platform, accessible via internet. The main target group of the COOL box will be the policy makers and stakeholders involved in the dialogues. The contents of the COOL box will mainly consists of (information about) tools, scenarios reports etc. that are actually (planned to be) used within the dialogues or developed over time.

In the set-up of the COOL-box the emphasis should be on

- Background information for dialogue participants and outsiders about available tools (models/databases/scenarios)
- What can the tools be used for?

Elements of the COOL-box

- Catalogue of tools (models/databases) needed, description per item:

1. By whom developed
2. With which aim?

3. Short description
4. Functionality → What can it be used for?
5. In which way relevant for COOL
6. Contact person
7. Link web-site
- Catalogue of scenarios
 1. Global
 2. European
 3. National
- Roster of experts
 1. List per sub-project
 2. Ask experts per e-mail to be available
(For example, NRP project leaders, and people named in interviews of national dialogue)

Annex II

Report of the First COOL Conference, 7 October 1999, Ede, The Netherlands.