

*Climate OptiOns for the Long-term*

***COOL***

# **Project Overview and project proposals**

**Projectoverview  
Core Project  
National Dialogue  
European Dialogue  
Global Dialogue**

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**IVM  
RIVM  
WAU**

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## **Climate OptiOns for the Long-term (COOL):**

### **Assessment and Policy Analysis of Long-term Options for Emissions Reductions and Adaptation**

#### **Project Overview Document**

## **1. INTRODUCTION**

The Climate OptiOns for the Long term (COOL) project has been set up as an integrated assessment project, initiated by and to be implemented within the context of the NRP. Central to the COOL project is the generation of information on the climate issue relevant to decision making, making use of dialogues between scientists and decision makers from different levels of policy making and sectors of society, and using various methods and tools for scientific analysis and communication. A consortium of three institutions - Wageningen Agricultural University (WAU), the Institute of Environmental Studies of Amsterdam Free University (IVM) and the Netherlands National Institute of Public Health and Environment (RIVM) submitted proposals to the NRP in the spring of 1997. Based on comments by external reviewers and questions from the NRP itself, in the autumn of 1997 the project team was asked to adapt and elaborate the proposals in an interim phase. After this interim phase a revision of the original proposals was made.

This Project Overview intends to provide an overview of to the resulting four separate project proposals: three proposals for dialogues at the national, European and global level and one small core project for organising the methodological research on participatory integrated assessment and for co-ordination and information exchange between the three dialogue projects. It explains the background of the project and provides information on how its sub-projects are linked, both in substance and in scientific approach. Moreover, it provides information on how the project will be managed, what results can be expected and an overview of its budget.

## **2. OBJECTIVES AND GENERAL DESIGN**

### **The main - policy support - objective of the project is:**

*Supporting the development of long-term climate policy in the Netherlands in a European and global context.*

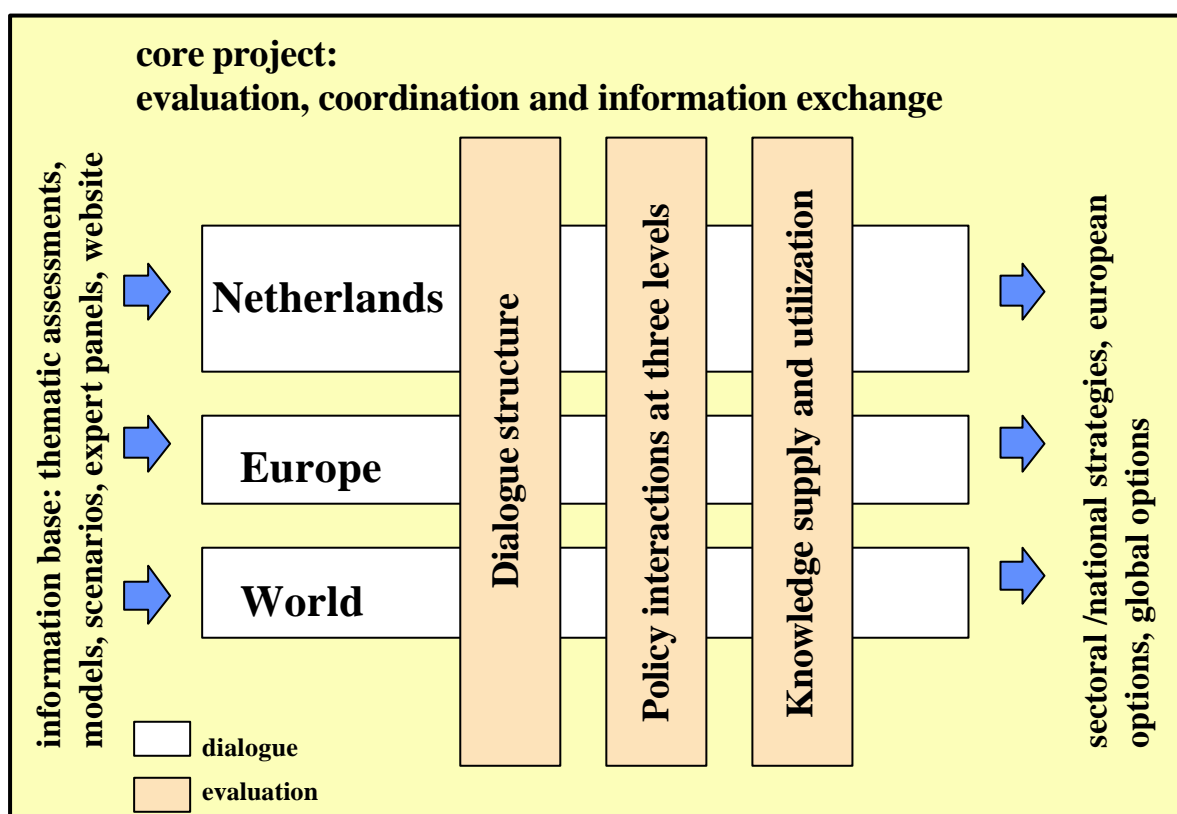
This will be achieved through an inventory and analysis of a wide range of national long-term policy options (roughly 2010-2050) in a dialogue with stakeholders, supported by an assessment of their technical and socio-economic feasibility and associated environmental and economic risks, and of sector national and international trade-offs. Focus will be significant national GHG emissions reductions (up to 80 %) before the middle of the next century.

### **A second - methodological - objective is:**

*Contributing to the development of methodologies for participatory approaches to integrated assessment in order to improve its effectiveness for decision making processes.*

This will be achieved through a systematic evaluation of three methodological aspects of COOL: (1) dialogue structure, (2) supply and utilisation of scientific knowledge, and (3) handling parallel processes at three interacting levels (national, European and global).

The two main COOL objectives have been translated into the project structure of Figure 1. The substance of the project is represented here by its three dialogue tracks (the rows), while across these dialogues, three main types of methodological issues for evaluation purposes are distinguished (the columns).



*Figure 1: Structure of COOL : the three dialogue tracks and three evaluation tracks*

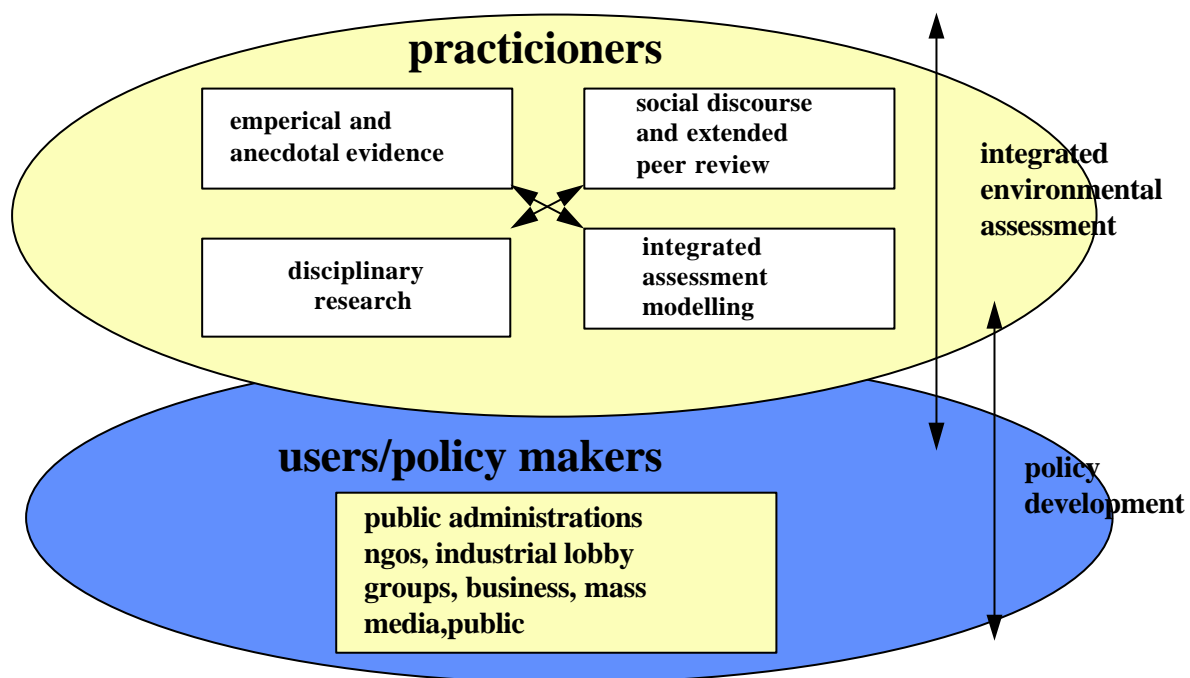
The three dialogue tracks are elaborated in the associated project proposals. The three methodological issues that will be focused on in the evaluation of COOL are addressed as part of the core-project.

### 3. BACKGROUND AND RATIONALE

In 1990, the Dutch National Research Programme on Global Air Pollution and Climate Change (NRP) started. In 1995, the first phase of the NRP ended and a second phase which will run until 2001 began.

One of the objectives of NRP is to provide support to the development of long-term climate policy. In order to gather available knowledge, one of the themes of the first phase of the NRP was dedicated to “Integration”. However, it was soon acknowledged that in addition to integration, science assessment and policy dialogue are needed to effectively link climate research and policy making. These activities can be called “integrated assessment”. Integrated assessment is dedicated to bridging the gap between the science and policy communities by integrating scientific knowledge and translating it into form and content relevant to policy makers and society at large. To this end, a dialogue between scientists and decision makers is essential.

In Figure 2 the contributions of various scientific approaches and disciplines to integrated assessment as well as its target groups are indicated (Bailey et al., 1996).



**Figure 2 :** *The contributions of various scientific approaches and disciplines to integrated assessment as well as its target groups (Bailey et al., 1996).*

COOL can be seen as a follow-up to a number of earlier NRP projects. At the national level, a policy dialogue was started with the “Policy Options” project (Klabbers et al., 1994). This exploratory project aimed at enhancing the dialogue between scientists of different disciplines, and between scientists, government policy makers and other stakeholders groups, focusing on the development of policy options. A follow-up to this project focused on the research priorities for the second phase of the NRP taking into account the diverse perspectives on priorities identified in the earlier project ( Hisschemöller et al., 1995). At the international level, subsequently, two NRP dialogue projects were initiated. The international project "Enhancing the Effectiveness of Research to Assist International Climate Change Policy Development" (Bernabo et al., Hisschemöller et al. and Klabbers, 1994/1995/1996) aimed at

establishing an international dialogue on national and international policy options between stakeholders of different sectors in a selected number of countries. Main purpose of this project was the identification and prioritisation of research topics as derived from international policy questions. The so-called “Delft-dialogue workshops” were set up for a different purpose: enhancing the application of RIVM's integrated assessment model IMAGE in support of the negotiations on a protocol to the Framework Convention on Climate Change (FCCC) (van Daalen et al., 1998).

While those earlier NRP dialogue projects focused on the establishment of a dialogue per se (new at that time in the Netherlands) or on the identification of priority research questions for programming reasons<sup>1</sup>, the focus of the COOL project will be on using scientific knowledge and methods in a dialogue with decision makers in order to explore long-term options for emission reduction and adaptation in the various sectors of society. Given the strong linkages between the levels of decision making, the COOL project will also be directed at the European and global level. In this way, COOL intends to provide a follow-up to earlier national and international dialogue projects, but now in an integrated fashion.

Internationally, in 1996 the publication of IPCC's Second Assessment Report has synthesised the state-of-the-art of the climate-related science and preparations for the 3rd Assessment Report have started. Nationally, in 1997 the 3rd tranche of the 2nd phase of the NRP was being planned. In the international policy arena, a protocol was agreed at the 3rd Conference of Parties of the Framework Convention on Climate Change in Kyoto by the end of 1997, while nationally, the 3rd National Environmental Policy Plan has been published. Both still have many open ends and are oriented towards achieving short-term goals, notably small emissions reductions by 2010 as compared to 1990. A clear long-term perspective is missing in these policy agreements. This sets the stage for the start of the COOL project.

***Policy context:***

Since the COOL project is a scientific project which intends to operate in a political context, it is useful to chart this context at the onset of the project. It can be summarised as follows:

***(a) Agreed policies***

Policies are determined by various national decisions (e.g. National Environmental Policy Plans (NEPPs), the Second Memorandum on Climate Change), the EU Environmental Action Plan (EAP) at the European level and the FCCC/Kyoto Protocol at the global level. Three important aspects should be mentioned in this respect:

- (1) the Dutch Government has made its position on future climate policies to a large extent dependent on international policy developments;
- (2) the Dutch Government has difficulty in meeting the 1992 FCCC targets for 2000, is currently developing plans for reaching the 2010 Kyoto target, but has not had the opportunity to provide a clear long-term perspective for possible further reductions after that;

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<sup>1</sup> The Delft workshops were an exception to this in that they attempted to directly support the international negotiations through the application of scientific tools and knowledge.

- (3) present emission reduction targets as agreed in Kyoto are insufficient to meet environmental quality targets, in terms of stabilising atmospheric greenhouse gas concentrations and preventing adverse impacts, such as the ones adopted by the Dutch government in its Second Memorandum on Climate Change. Kyoto has focused the climate debate on new international instruments to reach its targets rather than providing a long-term perspective.

(b) **Hot issues**

The elaboration of current and future commitments under the FCCC and the Kyoto Protocol is dependent on the outcome of discussions on a number of 'hot issues', including:

- (1) *the choice and design of policy options and instruments*: emission trading, joint implementation, "clean development mechanism"; "regulation vs. covenants vs. economic instruments (taxes/subsidies/tradable permits), technology transfer, side-payments;
- (2) *the treatment of sinks and non-CO<sub>2</sub> greenhouse gases* included in the Kyoto Protocol;
- (3) *assessment of long-term options*: technological potential vs. economic feasibility;
- (4) *the linkages with other issues*: not only environmental ones (biodiversity, acidification, resource depletion, etc.), but also economic and social issues (interregional and intertemporal equity, technology development and transfer, employment, etc.);
- (5) *burden sharing*: within the EU, within the Annex-I group, global: implementation of the Kyoto Protocol leaves various burden sharing options open, the US is making its position on the Kyoto Protocol dependent on meaningful participation by developing countries, while key developing countries continue to refuse discussing their participation ("graduation" of commitments, emissions rights problematique);
- (6) *the timing of action*: "delayed response vs. early action", "first mover" advantages vs. loss of competitiveness, "graduation" of commitments to developing country parties (non-Annex-1), adequacy of short term commitments (Kyoto) for reaching long term targets (e.g. EU 2° C temperature increase).
- (7) *technology versus lifestyles*: in seeking solutions, there are proponents of technological solutions and advocates of behavioural changes.

(c) **Different positions of stakeholders and controversy on type of measures:**

The controversy on the reality of the climate issue has diminished considerably in the Netherlands (see e.g. the contents and reception of the recent Parliamentary Commission report and the Second Memorandum on Climate Change), and to a lesser extent internationally (after the publication and acceptance of IPCC's Second Assessment Report). Nevertheless, many actors in society - especially those operating at some distance of the scientific research and assessment, and negotiations on climate change - have a different perception of the issue, e.g. are entering the discussion on response options from different perspectives, such as concern for resource scarcity, business opportunities for renewable energy sources, concern about sustainable development in a broader sense, and so on. The Policy Options project made this abundantly clear.

Rather than on the reality of the climate issue, the present controversy in the climate debate focuses on burden sharing and the type of policy measures, a/o. as a function of expected impacts,

and international policy co-ordination. The COOL project is especially directed at these issues. It does not aim at forging consensus between all parties involved. Instead, it takes into account differences in interests and perspective with regard to the way the climate issue is perceived when exploring and evaluating long-term policy options for climate protection from a scientific, technical and non-political perspective.

***(d) Insufficient utilisation of scientific knowledge***

Presently, it seems that not all actors involved in climate-related decision making processes are fully utilising available knowledge, including the knowledge generated by NRP research activities and the IPCC. Partly, this seems due to insufficient communication between scientists, societal actors and policy makers. As yet relatively little attention has been paid to dialogue activities within NRP. NRP wishes to enhance knowledge dissemination of 10 years of research in its conclusive stage. Also, earlier participatory integrated assessment projects have demonstrated that scientific knowledge is often either not available to answer policy-relevant questions, or is not offered in an adequate manner. Evidently, the availability of comprehensive and tailor-made scientific information doesn't mean that rationally optimal decisions are taken. Scientific information is just one of the many elements in climate policy making.

***(e) Regular policy-oriented assessments and outlooks***

COOL adds to or follows on several ongoing projects and programmes. These include e.g. the environmental outlooks by RIVM, the economic outlooks by CPB, the policy-driven research projects of the Ministry of Environment, such as the "2020 studies", and the DTO technology assessments. The COOL project intends to contribute to these policy-oriented assessments by adjusting its contents to supplement these assessments. In this way, the project results can contribute to regular policy development processes. Its policy orientation also will enhance the participation of sufficiently senior decision makers in COOL. During the interim phase, a number of meetings between the COOL project team and climate and energy policy makers at the Environment Ministry has helped to define the COOL niche more precisely. It is crucial that COOL follows its own path, avoiding interference with the above outlook projects. In contrast with the formal (sectorial) negotiations involved in implementing the 3rd NEPP and the Kyoto Protocol obligations, the COOL project offers room for a more open and creative dialogue process for assessing long term policy options. While the focus of many of the above outlooks is short to medium-term (2000-2010) and forward looking, COOL explicitly takes a long-term approach (2030-2050) and also looks backwards from the future to the present, evaluating what long-term risks and opportunities imply for short-term actions.

#### **4. RESEARCH QUESTIONS**

In the COOL interim phase, an initial inventory of specific policy-relevant research questions was made related to the COOL policy-support objective (Appendix 1). The following type of research questions will be addressed:

***Substance:***



## **General**

- Which national and sectorial long term options exist that may contribute to long-term climate policies for The Netherlands?
- What are important national, European or international conditions for implementing these options?
- What are the risks to the environment and to the economy of various policy strategies and which trade-offs exist at the sectorial, national and international level?
- What are the short-term policy implications of long-term policy targets and long term solutions?

## **National level**

At the national level, sub-questions related to the sectorial dialogue in The Netherlands are:

- What are the most important policy and research questions of the various sectors concerning the climate issue in the 2030-2050 time frame?
- What will be the impacts - both positive and negative - of climate change and/or climate policies for the various sectors (baseline scenario case)?
- How are the sectorial impacts of climate change and climate change policies related to economic and political / climate policy developments at the European and global level?
- What are the most important long-term climate policy options of the various sectors
- What are the short-term actions available to advance the long-term options and what are the (economic, institutional, legal, technical) barriers impairing their implementation?
- What are the most important policy instruments to implement options and for taking away barriers?
- What will be the social and economic consequences of various (sets of) policies and measures?

Note: The impact and socio-economic evaluations will draw upon the planned NRP Theme II and III Impact and Response Assessments.

## **European level**

At this intermediate level, sub-questions related to the assessment of possible European policy strategies and options, are:

- What will be the most important policy options at the European level over the next decades?
- What will be the implications of different global scenarios for socio-economic developments and environmental policy in Europe?
- What would be the climate impacts of these scenarios for Europe?
- What seem to be the most important long-term climate policy strategies and options at the European level?
- How are climate policies in Europe facilitated or constrained by the context of non-climate issues related to European integration?
- Which opportunities do the new Kyoto instruments provide in a European context (EU and beyond)?

Note: the impact and socio-economic evaluations will draw upon the planned NRP Theme II and III Impact and Response Assessments, parallel to COOL.

### **Global level**

At the highest level, sub-questions related to the exploration of international policy strategies are:

- What will be the main issues or factors determining global climate policy development in the coming decades?
- What are the main social, economic and environmental implications of the Kyoto Protocol?
- Which role can the new instruments included in the Kyoto Protocol play in future emissions control (emissions trading, joint implementation, clean development mechanism)?
- What are the implications of including sinks and a six gases approach in climate policies?
- What are the implications of stabilisation scenarios for emissions, environment and economy?
- What are the implications of various regimes for international burden sharing?
- How to involve developing countries in next steps towards stabilisation?

### ***Evaluation of Methodology:***

- What can be learned about different approaches towards the design of dialogue structures?
- What can be learned about knowledge supply and utilisation ?
- What can be learned about policy interactions at and between three different scales ?

## **5. SCIENTIFIC APPROACH**

The climate problem can be classified as a so-called “unstructured problem”(Hisschemöller and Hoppe, 1996). This type of problem is characterised by uncertainty about relevant knowledge as well as a lack of consensus about relevant norms and values. Consequently, the climate problem cannot be reduced to either a technical problem of selecting the most effective technologies to solve the problem nor as a matter of balancing economic costs and benefits.

In fact, in the case of unstructured problems there is no a priori single best analytical approach. Solving an unstructured problem requires first *problem structuring* by confronting, evaluating and integrating different and contradictory perceptions and knowledge (Hisschemöller, 1993; Hisschemöller and Hoppe, 1996). This implies two things. First it supposes an open dialogue between various stakeholders. For that reason the COOL project adopts a participatory approach. Secondly, it implies that there is a need for a diverse set of analytical tools able to represent different perceptions of and approaches to the climate issue (as has been advocated by others before, see e.g. Rotmans and Dowladabati, 1998).

### ***The COOL dialogues.***

In practice, a key element of COOL is formed by structured dialogue workshops with stakeholders and national and international experts: the contents and set up of the various workshops will be tailored to the interests and priorities of the various stakeholders at the different levels of scale. The dialogue workshops at the different levels of policy making will be held periodically (*e.g.* once during the first and third - definition, and synthesis and evaluation - phases, every three to six months for the second - assessment - phase) and supported by specialist expertise with respect to workshop design, facilitation of processes and communicative aspects. For these workshops, prioritisation and elaboration of the subject matter will be prepared through various techniques, using results of previous workshops, and enquires within the decision makers' and scientists' communities. In the COOL-interim phase report the background for the participatory integrated assessment approaches in COOL is described in more detail.

***Knowledge supply and utilisation facilitated by an information base : the “COOL-box”.***

For assessing the climate issue and policy options knowledge from various fields of expertise needs to be integrated. The integrated assessment of long-term policy options as aimed for in the COOL project implies not just the integration of knowledge across various scientific disciplines and other knowledge sources, but also between the various levels of policy making (sectoral-national, European and global).

For the integration of knowledge several IA tools and methods exist. However, it is not possible at forehand to select a defined set of IA tools and methods to support the dialogues with in COOL project. Cohen (1997) stresses that especially in participatory exercises as part of IA the issue at hand, rather than a particular analysis tool should be the guide. In addition, Downing experienced that stakeholders themselves like to be involved in the selecting of tools (Downing, EFIEA, 1998). This implies that the selection of the IA tools should at least be part of the participatory integrated assessment approach itself and determined on the basis of the type of issues and questions that are raised by the stakeholders. For this reason, it is only partially possible at the outset to define the set of assessment tools needed and sufficient flexibility in the design of the integration framework should be provided.

Therefore, in COOL an information base called the “*COOL-box*” will be used, consisting of tools and methods that are likely to be useful for both integrating scientific knowledge and other types of knowledge as well as linking the various levels of the analysis in the COOL project. In this way a broad range of knowledge sources is available. Also the COOL-box can help to ensure consistency in the knowledge used.

The COOL-box includes the following components: (1) thematic assessments on impacts and socio-economic aspects of response options<sup>2</sup>, (2) scenarios that are already available or that are developed specifically for COOL, (3) models and databases that are already available or are developed specifically for COOL, (4) a roster of experts that can be drawn on for COOL dialogue sessions, and

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<sup>2</sup> In phase 1, two thematic assessment projects will be embarked upon conducted parallel to and in support of COOL. The first thematic assessment deals with potential impacts of climatic changes on the Netherlands in a Western-European context. Preliminary results will be used in phase 1 to sensitize participants about the long-term risks of climate change. The second thematic assessment project addresses socio-economic issues of response options.

(5) a NRP-web site through which results of NRP and other research can be accessed by participants to dialogue sessions.

In the COOL- interim phase report, the COOL-box is described in more detail.

### ***Evaluation***

The COOL-process will be evaluated along three different, although closely related methodological tracks, two of which were mentioned above:

a) The contribution of stakeholder participation to integrated assessment: examining the added value of participatory approaches as part of Integrated Assessment and evaluating the approaches followed in the different dialogues

b) The aspect of knowledge utilization in integrated assessment: focussing both on the way which knowledge is brought in the dialogues (supply side) and on the way what knowledge is asked for and utilised by the participants (demand side).

c) Science-policy interactions on and between the three levels. It is obvious that the positions of policy makers and stakeholders on one negotiating level are dependent on processes at the other level. The experiences with the three levels in COOL can be used to further improve our understanding of the role of science-policy interactions in (multi-level) political processes and the contribution integrated assessment can make.

At the end of COOL, in the third phase a major task of the Core project will be to answer the operational question of how to design integrated assessment and especially dialogue processes, by integrating the outcomes of the above mentioned issues in a (further elaborated) methodology for integrated assessment which combines analytical and participatory methods.

COOL benefits from the fact that at the same time at the national, European and global level related dialogue processes will be established. The unique combination of three levels in one project, makes it possible to study and compare the different issues at the three levels in a systematic way and offers opportunities for cross-level methodological learning.

See for a more detailed description of the evaluation framework the COOL Core project and Interim phase report.

## **6. TARGET GROUPS OF COOL**

The main target group of the COOL-project are Dutch decision makers at both the sectorial and governmental level. However, given the strong interrelations between sectorial and national policy making, and international economic and political conditions and policy developments, the project will equally be directed at involving key decision makers at the European (EU plus associated countries) and global level (stakeholders in the FCCC process).

### ***National stakeholders:***

Relevant sectors include: (1) energy/industry; (2) agriculture, forestry, nature conservation, and water management; (3) traffic and transport; (4) services and finance; and (5) households/consumers

(including health). Within the national dialogue project a final selection of 4 sectors will be made, taking into account divisions used within current environmental policy making. For each sector, a science-policy dialogue will be set up with representatives of business, sectorial interest organisations, sectorial policy makers, environmental NGOs, sectorial experts and, if possible, Dutch members of interest groups at the European and global level. The COOL dialogue activities will be co-ordinated with ongoing discussions between the various sectors and policy departments, as organised by VROM and other Ministries. While the ongoing policy discussions focus on how to achieve the short-term emissions reductions required by the Kyoto protocol (1990->2008/2012), COOL focuses explicitly on the longer term (2030-2050).

### ***European stakeholders:***

At the European level, the COOL project is primarily directed at climate policy makers of the European Commission (DG-XI, DG-XVII) and key countries within the EU and the group of accession countries in Central Europe. The feasibility of participation of representatives of sectorial interest groups and NGOs at the European level will be considered during the first phase of the project. Ideally, representatives from both industry and environmental NGOs should be participating to allow for a balanced dialogue ensuring broad support for its outcome. In this way it will not only provide a policy context to the national dialogue, but also strengthen the Dutch position in negotiations at the European and global level.

COOL also intends to strengthen the position of Dutch scientists in European integrated assessment networks. From various sides it has been noticed that an effective science-policy interaction at the European level is presently impaired by a lack of an adequate framework (*e.g.* as developed in the case of the UN-ECE for transboundary air pollution). Presently, it is discussed how to arrange such a structure. A recent initiative of DGXII of the European Commission, the European Forum on Integrated Environmental Assessment - currently co-ordinated by IVM - could be used to support such a structure. It offers opportunities for framing the COOL project in a European context.

### ***Global stakeholders:***

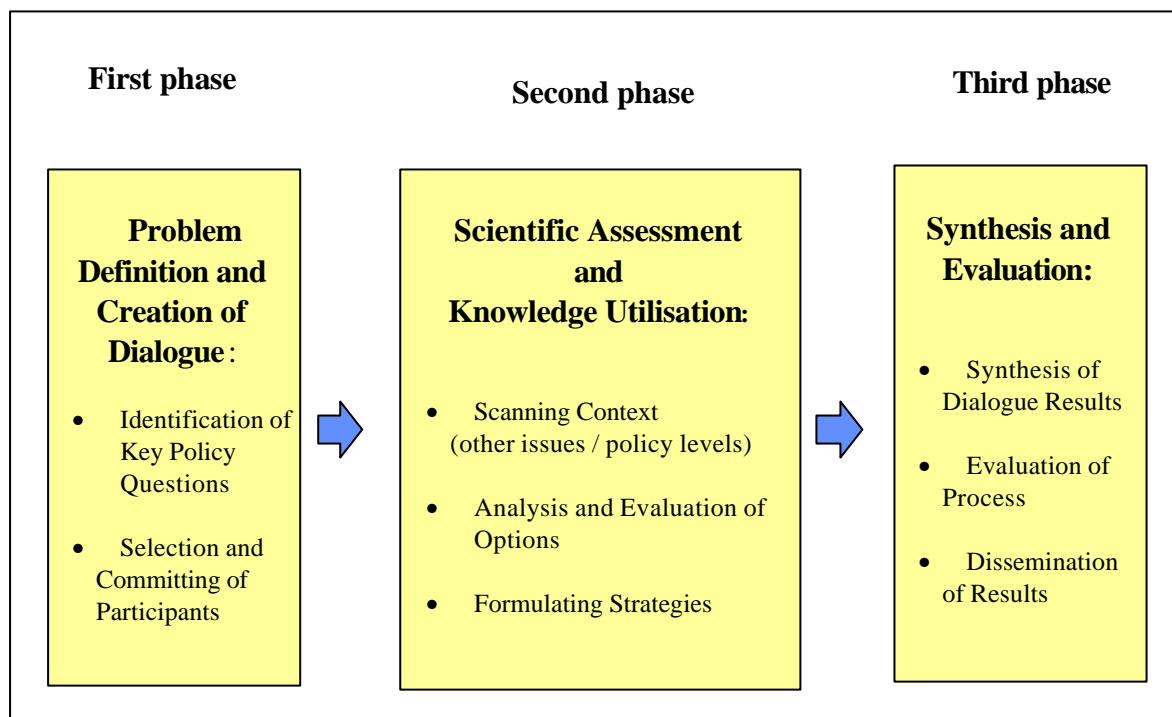
Globally, the COOL project is primarily directed at policy makers involved in the development of international climate policies within the context of the FCCC, supplemented with some representatives of NGOs and sectorial interest groups. Based on the experience with the Delft-workshops, the number of participants will have to be limited in order to have an effective dialogue. Therefore, a selection of countries and organisations will have to be made. This selection will include representatives from all parts of the world, in order to ensure a balanced dialogue. Building on networks and insights from both the SPA and IMAGE/Delft dialogue workshop series, the COOL project envisages a continuation and adaptation of the Delft workshops, in which the emphasis on the IMAGE-model will be less, more diversity of policy perspective will be pursued, and scientific support from other institutions will be included.

## **7. PHASING**

The project consists of three phases. These generally resemble the different phases of the policy development cycle used to structure the "Policy Options" project (Klabbers et al, 1994): problem

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definition, scientific assessment, and synthesis and evaluation. Figure 3 shows how the project is structured along the three phases.



**Figure 3. Overview of Phases of COOL**

During the first phase, a clear definition of the problem from the participants' perspective, and related policy-relevant research questions will be elaborated. Preliminary results from the NRP impacts assessment and rapid climate assessment tools like RIVM's Interactive Scenario Scanner will facilitate understanding the dynamics and inertia of the climate change problem at this stage. Research methods to address the policy relevant research questions will be evaluated, revised and further developed. A COOL information basis is developed.

In the second phase, these methods and tools are used to generate and make available scientific information tailored to the needs of the participants via the dialogue workshops. The planned parallel scientific NRP assessments of impacts and responses will contribute directly to the COOL project in this phase.

In the third and final phase, the results of the second phase at the different levels of scale and for the various sectors are integrated and evaluated.

### **Phase 1: Problem definition and Creation of Dialogues**

Main objectives of the first – scoping and definition - phase (6-8 months after start of project) are:

- (a) identifying stakeholder participants in the dialogue groups and if possible ensuring their commitment;
- (b) extending and refining the sets of policy-relevant research questions with stakeholders;
- (c) developing the information basis of the project;

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- (d) elaborating detailed plans for activities in the next phases of the project, for their organizational structure, and for developing and applying Participatory Integrated Assessment approaches; this includes supporting the development of the parallel NRP theme II and III assessments;

In phase 1, the *national dialogue* aims at the formation of 4 sector group dialogues. These will be formed on the basis of the results of interviews with key stakeholders in various sectors (energy, industry, agriculture and nature conservation, traffic and transport, services and finance, and consumers) from Ministries, business and environmental NGOs and the science community. These interviews will also yield information on stakeholder perspectives, information needs and views on long term climate policy. During first sector meetings participants will be sensitized to the climate issue by providing information on the nature and risks of global nature of climate change and its possible policy implications. During the first phase, the project team in cooperation with the Theme III assessment study also will develop two contrasting images of the future low GHG emission energy system. These will be elaborated and tailored to the specific sectoral situations (sectoral images) during the second phase and form the basis for a backcasting process.

The focus of the *European dialogue* in this phase will be ensuring the commitment of key decision makers in the project and discussing their perceptions on the problem and the options for its long-term solution in a European context. This anticipates the assessment of various European policy strategies and options, within the context of different global scenarios in the second phase.

The main function of the *global dialogue* within the COOL project is the assessment of the possible political and economic context and, thereby, the negotiation space for the various regions and economic sectors at the global level. This dialogue can build on existing networks established during earlier NRP-projects. A head start can be made because COOL can be seen as the follow-up to the 1995-1997 Delft workshops and the Kassel workshops organised in May and September 1998 (Onigkeit and Berk, 1998; RIVM, 1998).

Phase 1 will be concluded with the organization of a national workshop to discuss results, inform national participants about the progress in the European and global projects and to finalize the work plan for phase 2.

At the end of the first phase it will be decided whether to proceed with the national dialogue. This go/no-go decision will depend on criteria such as level of coverage (of sectors), quality of available participants, and level of commitment to the aim of the project. Then, also the consequences for the design and /or usefulness of the other COOL sub-projects will be discussed with and decided upon by the NRP Programme Office.

### ***Phase 2: Scientific assessment and Knowledge utilization***

Main objectives of the second - assessment and knowledge utilization - phase (16-18 months after the start of COOL) of the full project are:

- (a) addressing the research and policy questions as identified in phase 1
- (b) providing and using the information basis
- (c) if necessary, developing additional targeted tools or scenarios to support the dialogues
- (d) advising on the development of the thematic assessment projects



(e) in the dialogues, discussing long-term response options and their implications for short-term action

In the second phase, not only the dialogues will be fully implemented, but also two thematic scientific assessments will be performed in parallel to COOL addressing the questions formulated in phase 1. Information from the dialogues will provide policy guidance to these assessment projects through close interaction with the project team and the participants in the three dialogue projects. As such, interim results of the assessments will be used to support the ongoing policy development and implementation debate.

The project team will further finalize and maintain the information basis in collaboration with the NRP secretariat and modify/improve it on the basis of the experiences of the dialogues. Additional studies or analyses using NRP-modelling tools may be needed and external experts may need to be involved on ad hoc basis. Therefore, the dialogue projects will reserve some means for additional research by third parties. In the dialogues, the questions raised in the first phase are addressed and used as a starting point in identifying and assessing various policy options by the various sector groups (at the national level) and policy makers (at the European and international level), supported by NRP-scientists.

In the national dialogue sub-project the developed contrasting images of low GHG emission energy futures are discussed and translated in the sector groups to sectorial images. This process will be supported by information provided by the thematic assessment studies. Next, a process of back casting starts in which the sector groups explore options and strategies to realise the developed sectorial images what technological trajectories would have to be followed, what institutional / political conditions would have to be met, what policy instruments would be needed, and what short/medium term actions could contribute to their realisation. Also, this backcasting process will be supported by information provided by the thematic assessment studies. Moreover, interaction with the European and global dialogue projects will take place, a/o to provide context to the development of the sectorial strategic visions.

In the international dialogues, COOL intends to support the development of strategic visions and new insights with regards to international policy negotiations regarding climate change, taking into account new developments with the FCCC and EU context.

In phase 2, methods and criteria will be developed for the synthesis and evaluation in phase 3. Similar to COOL phase 1, phase 2 will be concluded with the organisation of a national workshop where the results of the various sub-projects will be brought together. Scenarios can play an important role in integrating sectorial visions and optimising their consistency.

### ***Phase 3: Synthesis and evaluation***

Main objectives of the third - synthesis and evaluation - phase (24-30 month after start COOL) are:

- (a) synthesizing the results of phases 1 and 2 by finalizing the analysis of long-term options and their short-term implications;
- (b) evaluating the COOL stakeholder dialogues;
- (c) final reporting on all projects.

In the third phase not only the results from the three dialogue projects and the envisaged assessment projects will be integrated and synthesized, but also the dialogue process will be analyzed and

evaluated to assess the project's effectiveness. The three methodological tracks (dialogue structure, supply and utilisation of scientific knowledge, and handling parallel processes at three interacting levels) will guide the evaluation. This does not only involve the integration of the findings of the dialogue projects at the three levels of analysis, but also the discussion of the findings in a broader social and political context. Phase 3 is planned to take place at the time that the 3rd IPCC Assessment report is approaching completion and 2-3 more Conferences of the Parties of the Convention will have been held since Kyoto. Because several researchers involved in COOL and the phase-2 assessment activities are likely to be involved in these processes, the knowledge and insights acquired during these activities can be introduced and tested in COOL-dialogue activities, closing an next loop in the policy development and science interaction cycle.

## **8. PRODUCTS**

The COOL-project has different types of products: those related to the contents, and those related to the methodological goals. They are discussed in detail in the three dialogue proposals and the core project proposal. Here they are summarised briefly below.

Products related to contents are aiming at being useful for both governmental policy-makers in different Ministries and other societal stakeholders. They include:

- "strategic sector views" concerning the implementation of long-term options at a sectorial level in the Netherlands;
- a report on long-term climate policy in the Netherlands in a European and global context.
- insights in long-term risks, long-term response options, and short-term action and their linkages, at three geographic levels (national, European and global);
- insights in policy linkages between three levels of decision makers in support of the Dutch position in international climate policies;
- a NRP information basis made more widely available through a NRP/COOL website;
- an assessment of possible impacts of climate change on the Netherlands in a Western-European context (parallel to COOL);
- an assessment of long-term options for the reduction of greenhouse gas emissions, which has benefited from a stakeholder dialogue (conducted in parallel, but co-ordinated by COOL);

Products related to methodological goals are aiming at being useful for enhancing the scientific basis of the new field of participatory integrated assessment. They include:

- insight in factors enhancing the effectiveness of the dialogue methods used in the three dialogues;
- insight in the way different knowledge sources (models and beyond) are used in the policy process;
- understanding of the way parallel processes are handled by decision makers at different levels;
- "side products" as spin-off of the dialogues (for example improved user-interfaces for models, new scenarios, new tools);
- intangibles such as: commitment, joint ownership, improved understanding, pooled/shared knowledge, shared frameworks, enhanced networks etc.

In addition the project will provide information on the project and its results to wider audience by means of:

## *Project overview*

- a COOL website
- information leaflets
- poster material
- a short brochure on the results of the project.

## **9. PROJECT ORGANISATION**

As indicated above, the COOL project will consist of the following **sub-projects** [leading institutes]:

1. **Core project** [WAU/RIVM/IVM in co-operation with organisations involved in the NRP theme III and II assessment studies (possibly ECN/RUU/Ecofys, and DLO/LUW respectively)];
2. **National dialogue** [IVM in co-operation with the project team / RIVM];
3. **European dialogue** [WAU in co-operation with the project team, RIVM, IIASA, PIK and others];
4. **Global dialogue** [RIVM in co-operation with the project team, CPB, Kassel University, CIRED, PIK and others];

Other institutes than those mentioned may be involved in the various sub-projects.

The Core project links the various dialogue sub-projects. Specific tasks of the core project include: (a) the co-ordination of the information exchange between the three dialogue projects, (b) the support of the development and design of participatory methodologies across the three dialogue projects, (c) the development and application of methods for synthesis and evaluation of the full project, (d) evaluation of the COOL-process along the three methodological tracks, and (e) the dissemination of information on the COOL project and its results to the general public.

Apart from meetings of the COOL project team, as part of the Core project, also two **National COOL workshops** are organised at the end of the first and second phase. These workshops together with a COOL website, will facilitate the exchange and dissemination of information between the various dialogues and to the general public.

### ***Project co-ordination***

The COOL project will be co-ordinated by a *core team*, consisting of representatives of WAU, RIVM and IVM. Together with the project leaders of the thematic assessments they will form the *project team*, responsible for the overall execution of the project and its sub-projects. *Project leaders* of the COOL project are Prof. Dr. Leen Hordijk (WAU) and Dr. Ir. Bert Metz (RIVM) (deputy project leader). Representatives or collaborating institutions will be involved on an ad-hoc basis. Regular meetings and frequent interaction between the members of the project team will guarantee co-ordination and coherence between all project activities and facilitate interdisciplinary communication and understanding.

### ***Advisory Structure***

Given the complexity of the project and its policy-oriented character there is a clear need for organising external guidance for the project management. The envisaged Advisory Structure will consist of a *general advisory board* for the whole of the COOL project and *sub-committees* for each of the dialogue projects.

## *Project overview*

The general board will consist of head of the NRP Office, 6 representatives of various ministries (notably Environment (3), Economic Affairs (1), and Transport (1), Agriculture/Nature conservation (1)), two members of the NRP Programming Group IV (Integration), two external scientists, and representatives of the business community, consumer organisations and the environmental organisations.

The general advisory board has both a guiding and oversight task. It will convene at important moments in the conduct of the project. The project management will ask its advise when important decisions have to be made such as a decision on the continuation of the (sub)project(s) at the end of the first phase.

Moreover, it will ask the board to review the results of the projects before finalisation.

It is envisaged that the (full) board will meet twice during the first phase of the project, twice or three times during the second phase and once during the third phase. Its sub-committees are likely to scheduled additional meetings. The first meeting of the board is planned shortly after the start of the project to give advise on the design and planning of the first phase. During a second meeting at the end of the first phase the committee will play an important role in providing guidance on the selection of sectors and more elaborated plans for the second phase of the project.

Due to policy-oriented character of the project and to co-ordinate activities within the project with those undertaken by the various Ministries in support of the development of Dutch climate policy, the Ministry of Environment (VROM) has indicated the need for establishing sub-committees within the general advisory board that will follow each dialogue sub project more closely (e.g. by consulting more often and by its members functioning as “resource persons” in the preparation of or during project meetings). The sub-committees will consist of members of the general advisory board. The Ministry of Environment has already nominated representatives for each of the sub-committees (Ester Jaarsma and Ruud van de Wijngaard for the national dialogue, Henk Merkus for the European dialogue and Leo Meyer for the global dialogue sub-project). It is expected that also representatives of other Ministries will participate, especially in the sub-committee for the national dialogue.

## 10. PROJECT BUDGET BREAK DOWN

With regard to the distribution of activities and funds over the different levels of analysis, a share of roughly 35 % would be devoted to the national dialogue - provided that 4 sectors are motivated to participate - and 25 % to the European and global dialogues, with 15 % for core activities supporting all levels. The distribution of efforts and funds over the three phases is envisaged to be about 20-60-20%. An overview of the finance of the project and its constituting sub-projects is given in the tables below.

### a) Total costs (in kf incl. Vat)

	Nat	Eur	Global	Core	Total
Personnel	1659	516	897	611	3682
Material	159	280	232	110	781
Vat	0	0	0	0	0
<b>Total</b>	<b>1818</b>	<b>796</b>	<b>1129</b>	<b>721</b>	<b>4463</b>

### b) Contributions (incl. Vat.)

#### National programme

	Nat	Eur	Global	Core	Total
Personnel	922	307	356	240	1825
Material	155	280	232	110	777
<b>Total</b>	<b>1077</b>	<b>587</b>	<b>588</b>	<b>350</b>	<b>2602</b>

#### Own contributions

	Nat	Eur	Global	Core	Total
Personnel	737	269	541	371	1917
Material	4				4
<b>Total</b>	<b>741</b>	<b>269</b>	<b>541</b>	<b>371</b>	<b>1921</b>

#### Total contributions:

	Contributions of Institutes	Contribution of NRP	Total
IVM	446	968 (*)	1415
RIVM	1028	766	1794
WAU	388	866 (**)	1254
<b>Total</b>	<b>1921</b>	<b>2602</b>	<b>4463</b>

(\*\*): incl. contribution to Spanjersberg (kf 106)

(\*): incl. contribution to IIASA (kf 60)

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## **Appendix I Policy relevant research questions to be addressed in COOL**

The list of questions below provides a preliminary overview of policy-relevant research questions in the era after Kyoto. They have been derived from a number of exercises and policy. Notably, they are based on the results of a national workshop on the implications of the Kyoto Protocol on research priorities, organized by NRP in February 1998, and on the outcome of the policy dialogue workshop held in May 1998 in Kassel as a follow-up to the “Delft workshops” focused on soliciting new policy question for modellers after Kyoto. The questions can be used as starting points for the various dialogue projects. They will be reformulated and added on in the first phase of the COOL project. It can be noted that many questions are related to elements of the Kyoto Protocol, notably the new flexible instruments, sinks, the new basket of 6 gases, and burden sharing (cf. the “meaningful participation” of developing countries). The questions may be relatively short-term, being on the agenda for COP-4 in Buenos Aires, although these issues are unlikely to be solved there. Although adaptation could be considered in COOL, in the inventory of policy-relevant research questions the emphasis is on mitigation. For the national and European dialogues, the long-term nature of the discussion in COOL coupled to the need for eventual global emissions reductions implies that “mitigation” can be translated into significant reductions of GHG emissions in industrialised countries (up to 80 % before the middle of the next century).

### ***National dialogue***

#### *Examples of cross-sectoral questions:*

- How do a number of recent, pervasive technological, economical and political developments - such as the 24-hour economy, trade liberalization and economic globalization, information technology, dematerialization - influence the climate problem and which opportunities and risks do they offer?
- What are the possibilities for delinking GHG emissions from economic growth (in absolute rather than relative terms: increasing incomes combined with decreasing emissions) and how can such a break in trends be realized in the various economic sectors?
- Which opportunities do significant GHG emissions reductions (8 % of Kyoto possibly followed by increasingly stringent reductions in the coming decades) offer to Dutch economic sectors?
- What mechanisms can be used in long-term planning and major government projects to account for the costs of CO<sub>2</sub> in the decision making process
- Which part of the Dutch target of Kyoto can be achieved in the Netherlands domestically against what costs, which part can be achieved in the Netherlands through policy agreements at the European level, and which part can be achieved outside the Netherlands through the new instruments allowed in the Kyoto Protocol?

#### *Examples of questions in the energy and industry sectors:*

- When planning infrastructure, housing, etc., how can one build in flexibility with respect to future energy supplies?
- What sort of energy infrastructure will be needed to reach future far-reaching emission reductions
- How can one take account of the effects of the liberalisation of the energy market?
- What are the possibilities for and costs of reducing emissions of HFCs, PFCs and SF<sub>6</sub> and what compounds can be used to replace HFCs, PFCs and SF<sub>6</sub>?



### *Project overview*

- What mix of policy instruments is most effective for the various target groups?

#### *Examples of questions in the household sector:*

- What are the options in the households to achieve significant reductions in energy demand and/or GHG emissions in the future?
- What new policy instruments may be possible, for instance to better utilise the preparedness of the citizenry to make a direct contribution?
- What are the options to achieve significant GHG emissions reductions through physical planning activities?

#### *Examples of questions in the transport sector:*

- What are the options for a sustainable transport system and what are its costs?
- What are the options to reduce GHG emissions per person-kilometer and per ton-kilometer significantly on the long-term?
- Under which conditions can the mobility demand be limited?

#### *Examples of questions in the agriculture/forestry sector:*

- What are the possibilities to make use of the possibilities to enhance carbon sequestration in the Netherlands and - e.g. through joint implementation - abroad?
- How does one monitor and evaluate carbon sink capacity?
- How can the Dutch agricultural sector contribute to significant long-term reductions in GHG emissions?

### ***European dialogue***

#### *Questions related to Kyoto flexible instruments in relation to burden sharing:*

- What are the long-term perspectives for burden sharing in EU climate policy, particularly in relation to the further enlargement of the EU?
- What is the potential for the use of Kyoto flexible instruments (emission trading, Joint Implementation) in the context of the EU, i.e. both within the EU and in relation to third countries?
- What are the implications of Joint Implementation for central and Eastern European countries in view of future emissions reductions?

#### *Questions related to European priority issues other than climate:*

- What are the consequences of Central and Eastern European countries entering the European Union for long-term European climate policy?
- Which sectors require a European rather than a national approach when seeking significant GHG reductions on the longer-term?
- What are the barriers and opportunities to climate policy provided by priority European policy issues, such as the common monetary market, common social, economic and environmental issues other than climate change?

## *Project overview*

- What are the perspectives for the development of competences and instruments in EU climate policy in relation to the future development of the Union (further steps in the integration process after the Amsterdam Treaty, developments in specific policy fields such as European Monetary Union (EMU) and tax policy, European Political Union (EPU), agricultural and other sectoral policies)?
- What are the perspectives for the delimitation of EU competences and activities vs. national and global climate policy, particularly in relation to debates about subsidiarity and flexibility in the EU?
- What is the need and potential for European rather than national climate policies for key sectors, such as the energy sector (electricity generation, oil companies/refineries), the ‘sustainable energy’ sector (wind, CHP, etc.), car industry, building industry, agriculture?

## *Global dialogue*

### *Questions related to sinks and the basket of gases:*

- What are the possibilities for incorporating all sinks, i.e. natural ones as well as those that are human-induced in future global climate treaties?
- How great is the risk that this agreement will involve stable, natural forest (which in all probability does not take up much carbon any more, but which does enjoy a great degree of biodiversity) being replaced by monocultural production forests?
- What is the relationship between agreements on these points and international trading policy, and other international agreements on social, economic and environmental issues?
- What are the options to reduce the emissions of the non-CO<sub>2</sub> GHGs, notably the “new” gases HFCs, PFCs and SF<sub>6</sub>?
- Are there other gases that may have to be included in the future?
- What role is landuse change and forestry likely to play in the task of atmospheric stabilization and what are the implications of policy proposals for this?

### *Questions related to the Kyoto flexible instruments:*

- What are the options (with pros and cons) to gradually broaden the limited (Annex-I) trade in emissions reductions units with other parties?
- What are the advantages and disadvantages of including the “hot air” of the emissions decreases since 1990 in the Russian Federation and the Ukraine in this trade?
- What is the relationship of joint implementation, trade in emissions reduction units, and the clean development mechanism to each other, and how do they influence each other in specific cases, both positively and negatively?
- What are the consequent possibilities of developing a common framework for the three instruments)

### *Questions related to the role of developing countries/burden sharing:*

- Are the flexible mechanisms set out above sufficient to involve all developing countries in the longer term and to achieve technology transfer?
- What are likely directions for technology transfer, especially in view of local interests, which may not be climate related?

*Project overview*

- How can historical contributions to climate forcing be taken into account when evaluating different burden sharing regimes?
- What are the implications of annex-I measures to reduce emissions on developing countries' economies?
- What are the implications of developing countries taking on commitments (or entering Annex-I) for current Annex-I countries possibilities of reaching their targets?
- What information can be provided as to the timing and character of the involvement of developing countries in global efforts to reduce emissions?
- What are the implications of various burden sharing regimes for different stabilisation scenarios?
  - a) What are the costs and environmental effects of different stabilisation pathways/targets?

*Questions related to long-term risk management:*

- Under which conditions with respect to post-2010 policies are the Kyoto commitments sufficient to achieve long-term climate goals (c.f. European Union's goals, FCCC's ultimate objective)?
- What are the ecological and economic impacts associated with different levels and timing of stabilization of GHG concentrations in the atmosphere?
- How can scientific information on different ecological limits and rates of change be synthesized to help operationalise Article 2 of the Convention?
- What is the appropriate timing of future emissions controls in Annex-I countries in order to meet long term climate goals (e.g. various stabilization levels), or, more specifically, what are "safe" emissions limits in the second budget period (after 2001/2003)?
- How do different implementations of the "safe landing analysis" or "tolerable windows approach" compare in this respect?

## Climate OptiOns for the Long-term (COOL):

### CORE-project

#### 1. General information

Project title: Climate OptiOns for the Long-term (COOL)  
Sub-project: Core project  
NRP theme: IV  
Duration: 2.5 years

#### 2. Contracting organization

Name organization: Wageningen Agricultural University, Dept. of Environmental Sciences, Chair of Environmental Systems Analysis  
Abbreviation : WAU/WIMEK  
Postal Address : P.O. Box 9101  
Postal Code/City : 6700 HB Wageningen  
Telephone number : 0317-484919  
Telefax number : 0317-484839  
E-mail address : leen.hordijk@wimek.cmkw.wau.nl

#### 3. Project leader

Name: : Prof. Dr L. Hordijk  
Function : Director  
Address, etc. : see above

#### 4. Subcontracted institutes

	<i>Organisation</i>	<i>Responsible scientist</i>
1.	Chair of Environmental Sociology and Social Methodology, Wageningen Agricultural University (WAU/MSSM, see address above)	dr.ir. A. Mol
2.	National Institute of Public Health and the Environment, Bureau of Environmental Assessment (RIVM/MNV) P.O. Box 1 3720 BA Bilthoven	dr. ir. B. Metz, drs. M. Berk
3.	Institute for Environmental Studies, Vrije Universiteit (IVM/VU) De Boelelaan 1115 1081 HV Amsterdam	dr. M. Hisschemöller, prof. dr. H Verbruggen

4.	pm	project leader NRP socio-economic assessment
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### 5. Introduction and abstract of project

COOL is an integrated assessment project, aiming at providing information to decision makers by synthesising and utilising available scientific knowledge from different disciplines, methodologies and data. Main goal of the COOL-project is to support the development of long-term climate policy in the Netherlands in a European and global context. COOL intends to contribute to the development and analysis of long-term policy options at the European and global level. Next to this policy-oriented objective, COOL also has three methodological objectives for evaluation purposes: (a) the testing and further development of methodologies for participatory approaches in integrated assessment - a social dialogue with stakeholders - as a tool for policy-support (“dialogue structure”), (b) the evaluation of the supply and utilization of scientific knowledge in these dialogues, and (c) the analysis of policy interactions between the three geographic levels. COOL consists of three dialogue projects at the national, European, and global level, and a core project. The three dialogue projects are described in separate proposals by IVM, WAU and RIVM, respectively. Figure 1 shows the project structure.

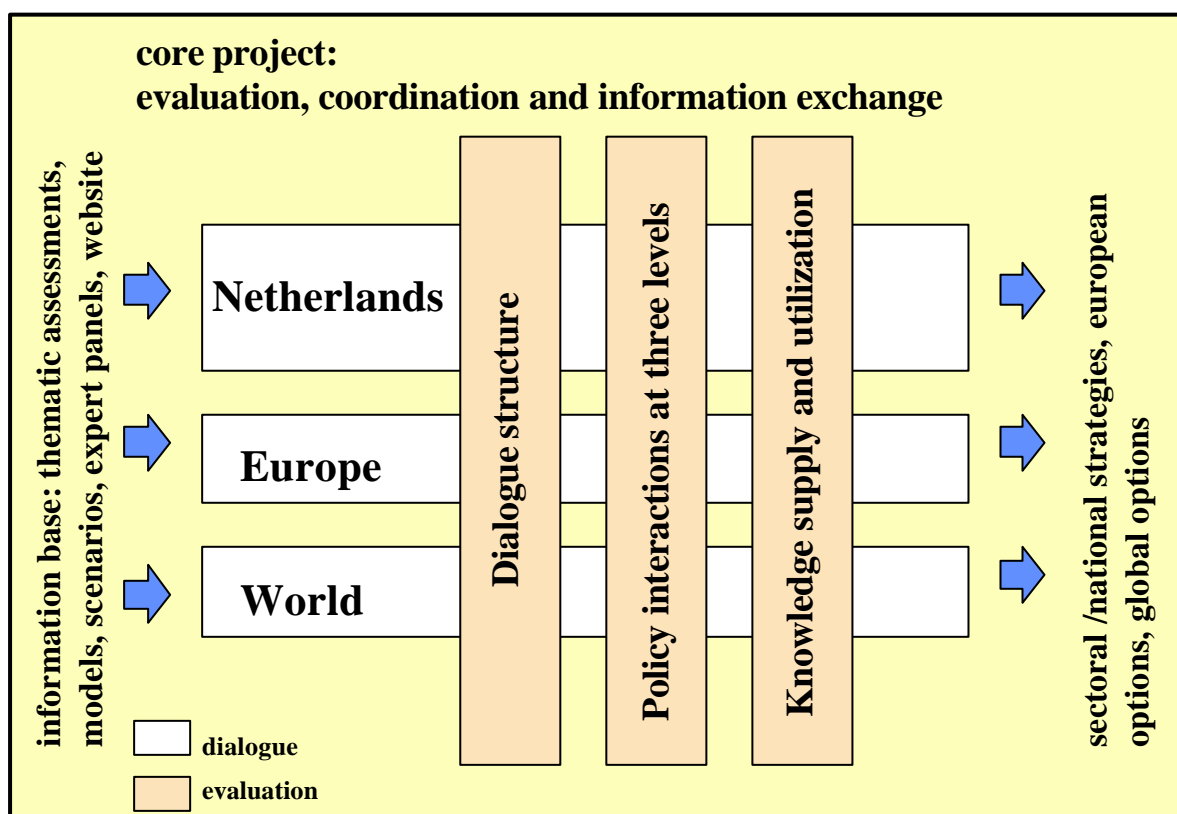


Figure 1: The three dialogue tracks and three evaluation tracks of COOL

### *Core project*

The accompanying “Project Overview” gives overarching information over the full project. It describes in more detail

- (a) the major objectives and focus of COOL,
- (b) a three-phase work plan,
- (c) the methods used.

An interim report has been prepared at the request of the NRP in an interim phase from January to April 1998. In the project proposal for the interim phase, four activities were planned: (a) a literature-based analysis of participatory integrated assessment approaches (b) analysis of knowledge utilization and integration framework, (c) methods development for COOL and (d) planning the coordination between the three levels. In the report, (c) and the knowledge utilization aspect of (b) have been combined with (a).

Concrete additional components of the project that have been elaborated during the interim phase are an inventory of policy-relevant research questions at the global level and an overview of the information basis of the project (the “Cool-box”). This information basis includes the two thematic NRP assessments, sets of scenarios, (integrated assessment) models, an NRP website and a roster of experts to draw on earlier NRP and other research.

The current proposal concerns the core project (Figure 1). The three phases of the entire COOL project are the following:

- (1) setting the stage: elaboration of policy-relevant research questions, building the information basis and setting up dialogue networks,
- (2) dialogue, scientific assessment and knowledge utilization, and
- (3) synthesis and evaluation.

The core project follows these phases in a supportive and coordinating fashion. Specific tasks of the core project include: (a) the coordination of the information exchange between the three dialogue projects, (b) the support of the development, and design of participatory methodologies across the three dialogue projects, and (c) the development and application of methods for synthesis and evaluation of the full project. Evaluation of the COOL-process along the three methodological tracks is a major task for the Core project.

## **6. Objectives and Rationale**

This COOL-project proposal has been developed at the request of NRP, which provided Terms of Reference. In the Project Overview, the historical background, the current and future policy context, the main research and policy questions, and objectives are elaborated for the full project. The main objective of the overall (three-phase, multi-level) project is:

*Supporting the development of long-term climate policy in the Netherlands in a European and global context.*

A second - methodological - objective is:

## *Core project*

*Contributing to the development of methodologies for participatory approaches to integrated assessment in order to improve its effectiveness for decision making processes.*

The questions raised by recent policy developments (NEPP3, Kyoto Protocol) coupled to the desire for capitalising on the first two phases of NRP Research provide the main rationale for developing the COOL project in order to meet the above objectives.

The rationale of the *core project* is that there is a need to increase the efficiency and effectiveness of the three dialogue projects by providing a common framework for the production and exchange of scientific information, for the development and application of methods of participatory integrated assessment and for developing and application of evaluation methods across the scales.

## **7. Description and planning of deliverables**

### ***Phase 1: Problem definition and creation of dialogues***

Main objectives of the first phase (six months after start of project) of the COOL project are: identifying stakeholder participants in the dialogue groups and if possible ensuring their commitment; extending and refining the sets of policy-relevant research questions with stakeholders; developing the information basis of the project; elaborating detailed plans for activities in the next phases of the project, for their organizational structure, and for developing and applying participatory approaches (this includes supporting the development of the parallel NRP theme II and III assessments).

In the following, the role of the Core project in Phase 1 is further elaborated.

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

The exchange of information will be primarily organized through regular meetings of the full project team including the project leaders or their representatives of the thematic assessment projects (provisionally every six weeks, more frequent if deemed necessary, e.g. when preparing for joint workshops). It is envisaged that the impact assessment will be most important during the first phase and initial stage of the second phase of the project, while the socio-economic assessment becomes most important during the second phase. Especially the latter assessment will only be fully relevant to COOL if its project leader reports directly to the COOL project team. Further more, members of the project teams of the different Dialogue projects will participate selectively in each other's dialogue sessions in various roles (chairing or facilitating sessions, rapporteurs, resource persons, etc.). Special attention will be paid to (a) methodological aspects of the dialogue sessions, and (b) key policy issues and research questions that emerge during the dialogues. Interactions with other ongoing IA projects and research and assessment programs (EFIEA, IPCC, ULYSSES, GEA)<sup>3</sup> have been established and will be further expanded to help developing the information basis.

#### *(b) developing the information basis*

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<sup>3</sup> European Forum on Integrated Environmental Assessment, DG XII project led by Inst. For Environmental Studies, Amsterdam; ULYSSES, DG XII project led by University of Darmstadt, Global Environmental Assessment, US-NSF project, led by John F. Kennedy School of Government, Harvard University.

### *Core project*

In order to facilitate the information exchange between the dialogue projects and facilitate the use of scientific knowledge from the NRP and from elsewhere, within the Core project, the information basis proposed in the interim phase will be developed. This information basis will consist of five components:

- *the NRP thematic assessments* (developed parallel with COOL);
- *a catalogue of tools*, some of which are available directly through the project team, or indirectly through their results or through invitations to their developers/owners; new tools may be developed in the dialogue projects that will be added to the information basis;
- *a catalogue of scenarios*, some of which are directly available, while new scenarios may have to be developed in the dialogue projects to address specific questions and subsequently added to the information basis;
- *a NRP/COOL website* through which the above information can be accessed by COOL-participants and others, and
- *a roster of experts* - primarily from NRP research - that can be invited to participate in the dialogue on an ad hoc basis to address particular issues.

Some of this information has been inventoried in the interim phase and needs further development and updating. Further, major task of the Core project is the development of a test version of a website. Since the key issues in the dialogues will evolve over time, the information basis will provide a dynamic linkage between the various tools and fields of expertise, and the policy and research topics. In Phase 1, the information basis serves the role of supporting the development of “strategic visions” in the national and European dialogue projects: rough descriptions of possible futures for setting the stage for backcasting exercises. More detail can be found in the interim report. The COOL project will not translate this system into a computer-aided framework that would facilitate instant access to the main results of NRP and other research to researchers and others, beyond their “static” availability through the proposed website. Although proposed by some members of the NRP Programming Group, it is found that this would require resources and time that go beyond those available for COOL, while the (cost-) effectiveness may be questioned.

#### *(c) developing evaluation criteria and methodology*

The Core project is responsible for a systematic evaluation of the three methodological issues distinguished in the project: (a) the testing and further development of methodologies for participatory integrated environmental assessment - a social dialogue with stakeholders - as a tool for policy-support, (b) the evaluation of the supply and utilization of scientific knowledge in these dialogues, and (c) the analysis of policy interactions between the three geographic levels. In Phase 1, methodologies and criteria for doing this evaluation will be developed, based on preliminary work in the interim phase.

#### *(d) concluding Phase 1 and planning Phase 2*

The first phase will be completed with a synthesis of the findings, and a detailed work plan for the second phase of the project. At the end of Phase 1 (i.e. 6 months after the start of COOL), a First COOL National Workshop with representatives of the stakeholders, policy makers and scientists envisaged to participate in Phase 2 will be organized. Purpose of this meeting is to exchange findings and comments on and coordinate the work plans of the dialogue projects for the second phase. Not only can stakeholders and government representatives refine their research questions, also the scientific participants can propose their view on the issues. Results of the European and global dialogue projects will be an input to the conference. Because the Phase 2 assessment projects are proposed to be implemented under the responsibility of and funded by the themes 2 and 3 of the NRP,



## *Core project*

(members of) the Programming Groups as well as the NRP Steering Group will be invited to participate in this conference.

### ***Deliverables/products of Phase 1, Core project:***

- *An information basis*, including a test version of a NRP/COOL website;
- *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;
- *A synthesis of the most important policy and research questions* for the policy dialogues at the various levels;
- *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”)<sup>4</sup>
- *Report* on the first phase.

### ***Phase 2: Assessment and knowledge utilization***

Main objectives of the second phase (7-24 months after start COOL) of the COOL project include addressing the research and policy questions as identified in Phase 1; providing and using the information basis; if necessary, developing additional targeted tools or scenarios to support the dialogues; in the dialogues, discussing long-term response options and their implications for short-term action.

The role of the Core project in Phase 2, is similar to that in Phase 1:

*(a) regular exchange of information between the projects, and between COOL, the NRP thematic assessments and other research projects and programs;*

In Phase 2, the Core project continues to ensure an adequate information exchange within the project through regular progress evaluation meetings (at least once every six weeks), and outside the project by representing COOL in other relevant research and assessment programs and conferences. Guidance is provided to the thematic studies and preliminary results fed back into the dialogues.

*(b) making available the COOL information basis (including the NRP-COOL website);*

The information basis developed during the first phase will be further improved and made available to the three dialogue sub projects. 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*

In Phase 2, methodologies and criteria for performing this evaluation will be further developed, on the basis of new insights from within and outside the project.

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<sup>4</sup> In consultation with KNMI, it was decided not to include an assessment of the climate system science in a COOL-context, because of the acceptance of climate change as a serious problem in the Netherlands. Currently, main interest with decision makers is in the potential impacts of climate change and in response options. Evidently, the state-of-the-art knowledge in climate science will be available to the project, primarily through liaison with KNMI.

## *Core project*

### *(d) concluding Phase 2 and planning Phase 3*

Similarly to Phase 1, Phase 2 will be concluded with a National COOL Workshop, in which not only the achievements of the dialogue projects will be discussed, but also the plans for the third phase finalized. In this Workshop, input from the European and global dialogues will be given to provide international context.

### ***Deliverables/products of Phase 2, Core project:***

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

### ***Phase 3: Synthesis and evaluation***

Main objectives of the third phase (25-30 months after the start of COOL) include: synthesising the results of phases 1 and 2 through the analysis of long-term options and their short-term implications; evaluating the COOL -process along three methodological tracks; and final reporting on all projects.

In the third phase not only the results from the three dialogue projects and the assessment projects will be integrated and synthesized, but also the dialogue process will be analyzed and evaluated to assess the project's effectiveness. Thus, in Phase 3, the role of the Core project becomes more prominent in COOL, because a final synthesis of the three dialogue projects is taking place, including an evaluation of the project's effectiveness in reaching its dual scientific and policy-relevance goals.

### *Evaluation*

In this evaluation phase we will learn from the experiences in COOL focusing on the methodological goal of COOL: contributing to the development of methodologies for participatory approaches to integrated assessment in order to improve its effectiveness for decision making processes. This will be done by evaluating the COOL-process along three different, although closely related methodological tracks:

- a) The contribution of stakeholder participation to integrated assessment: examining the added value of participatory approaches as part of Integrated Assessment and evaluating the approaches followed in the different dialogues
- b) The aspect of knowledge utilization in integrated assessment: focusing both on the way which knowledge is brought in the dialogues (supply side) and on the way what knowledge is asked for and utilised by the participants (demand side).
- c) Science-policy interactions on and between the three levels. It is obvious that the positions of policy makers and stakeholders on one negotiating level are dependent on processes at the other level. The experiences with the three levels in COOL can be used to further improve our understanding of the role of science-policy interactions in (multi-level) political processes and the contribution integrated assessment can make.

## *Core project*

At the end of COOL, the outcomes of the above mentioned issues will be used to answer the operational question how to design effective and efficient integrated assessment, and especially dialogue processes. The insights gained will be used to further elaborate on a methodology for integrated assessment which combines analytical and participatory methods.

COOL benefits from the fact that at the same time at the national, European and global level related dialogue processes will be established. The unique combination of three levels in one project, makes it possible to study and compare the different issues at the three levels in a systematic way and offers opportunities for cross-level methodological learning. This makes the design of COOL an quasi-experimental setting, with ample opportunities to compare outcomes on the different levels and to be able to come to more generalised findings.

See for a more detailed description of the evaluation framework the COOL Interim phase report.

### *Key-Questions for evaluation*

Key questions for evaluation of the contribution of stakeholder participants as part of integrated assessment in the three dialogue projects will be:

- To what extent did the dialogues realise the outcomes as were foreseen at the beginning of the projects? What has been the added value of stakeholder involvement in COOL?
- What are the pro's and cons of the different approaches used to facilitate dialogue processes in COOL? Were the processes fair and effective?
- What were the key factors influencing the outcomes of the dialogues and how should they be taken in account in designing the dialogue process?
- Which problems emerged during the processes and how can they be handled in the design of future dialogue processes?

With COOL we will try to get a better understanding of the role scientific knowledge plays in the dialogue and in what ways, under what conditions the utilization of knowledge can be enhanced both on the demand and supply side. Key questions are:

- Has the knowledge input in the dialogues been adequate and effective? What have been the key factors on the supply- and demand side influencing the input and use of knowledge?
- How do the specific characteristics of the policy context determine the type of scientific knowledge needed or desired by policy makers and other stakeholders? How did this change over time?
- What role played the scientific inputs in the framing of the issues at hand in the dialogue? And how did the role and sort of knowledge used evolve during the process?
- How are the uncertainties in science presented and handled in the process?
- To what extent did the participants share a common knowledge framework? Which perspectives did participants have and how did this influence the way knowledge was used in the process?

The experiences on the three levels in COOL can be used to further improve our understanding of the role of science-policy interactions in multi-level political processes. The following questions need then to be answered:

### *Core project*

- What is the character of the policy game played at each level (bargaining/problem-solving, consensual/conflictual, ‘rules of the game’, etc.) and what role played the COOL-dialogues and its outcomes on the interface between science and policy (answering immediate or long term questions, reframing of issues, consensus building etc.)?
- How are the outcomes of COOL the process integrated into the policy process, which factors influence the use of the outcomes of COOL?
- To what extent plays information about climate change policy on other levels a role on a particular level and has played it in a particular dialogue process?
- How and by whom is scientific knowledge used as a resource in political processes , particularly across levels?
- What are the consequences of the above mentioned questions for designing integrated assessment processes?

In Phase 3 the Core project will execute the following tasks:

(a) *exchange of information between the sub-projects and between COOL and the scientists who carried out the NRP thematic assessments*

In the final stage of the dialogues, the information exchange through the Core project focuses on experiences during the earlier phases.

(b) *evaluating the COOL stakeholder dialogues*

Evaluation will take place by addressing the questions for evaluation mentioned above;

(c) *Final report on the full COOL project;*

In Phase 3, a final report will be written in which both the policy-supporting and methodological components of COOL will be synthesised and evaluated. Because of budget constraints, an international conference on (participatory) integrated assessment of climate change, where the scientific and policy-related aspects of COOL would be presented, is not covered by the project.

#### ***Deliverables/products of Phase 3, Core project:***

- (a) *Report on the scientific evaluation* of the three-level, participatory integrated assessment approaches;
- (b) *Final reporting on the full COOL project;*
- (c) *Journal publications and conference papers;*
- (d) if additional funds can be found: *organization of an international conference* on participatory integrated assessment of climate change;

In addition the core project will provide information on the project and its results to wider audience by means of:

- a COOL website
- information leaflets
- poster materials
- a short brochure on the results of the project.

## Organisational structure of Cool

The Core project links the various dialogue sub-projects. Specific tasks of the core project include:

- (a) the co-ordination of the information exchange between the three dialogue projects,
- (b) the support of the development and design of participatory methodologies across the three dialogue projects,
- (c) the development and application of methods for synthesis and evaluation of the full project,
- (d) evaluation of the COOL-process along the three methodological tracks,
- (e) the dissemination of information on the COOL project and its results to the general public.

Apart from meetings of the COOL project team, as part of the Core project, also two **National COOL workshops** are organised at the end of the first and second phase. These workshops together with a COOL website, will facilitate the exchange and dissemination of information between the various dialogues and to the general public.

### *Project co-ordination*

The COOL project will be co-ordinated by a *core team*, consisting of representatives of WAU, RIVM and IVM. Together with the project leaders of the thematic assessments they will form the *project team*, responsible for the overall execution of the project and its sub-projects. *Project leaders* of the COOL project are Prof. Dr. Leen Hordijk (WAU) and Dr. Ir. Bert Metz (RIVM) (deputy project leader). Representatives or collaborating institutions will be involved on an ad-hoc basis. Regular meetings and frequent interaction between the members of the project team will guarantee co-ordination and coherence between all project activities and facilitate interdisciplinary communication and understanding.

### Advisory Structure

Given the complexity of the project and its policy-oriented character there is a clear need for organising external guidance for the project management. The envisaged Advisory Structure will consist of a *general advisory board* for the whole of the COOL, as part of the core project, and *sub-committees* for each of the dialogue projects.

The general board will consist of head of the NRP Office, 6 representatives of various ministries (notably Environment (3), Economic Affairs (1), and Transport (1), Agriculture/Nature conservation (1)), two members of the NRP Programming Group IV (Integration), two external scientists, and representatives of the business community, consumer organisations and the environmental organisations.

The general advisory board has both a guiding and oversight task. It will convene at important moments in the conduct of the project. The project management will ask its advice when important decisions have to be made such as a decision on the continuation of the (sub)project(s) at the end of the first phase.

Moreover, it will ask the board to review the results of the projects before finalisation.

It is envisaged that the (full) board will meet twice during the first phase of the project, twice or three times during the second phase and once during the third phase. Its sub-committees are likely to

scheduled additional meetings. The first meeting of the board is planned shortly after the start of the project to give advise on the design and planning of the first phase. During a second meeting at the end of the first phase the committee will play an important role in providing guidance on the selection of sectors and more elaborated plans for the second phase of the project.

Due to policy-oriented character of the project and to co-ordinate activities within the project with those undertaken by the various Ministries in support of the development of Dutch climate policy, the Ministry of Environment (VROM) has indicated the need for establishing sub-committees within the general advisory board that will follow each dialogue sub project more closely (e.g. by consulting more often and by its members functioning as “resource persons” in the preparation of or during project meetings). The sub-committees will consist of members of the general advisory board. The Ministry of Environment has already nominated representatives for each of the sub-committees (Ester Jaarsma and Ruud van de Wijngaard for the national dialogue, Henk Merkus for the European dialogue and Leo Meyer for the global dialogue sub-project). It is expected that also representatives of other Ministries will participate, especially in the sub-committee for the national dialogue.

## **8. Scientific approach and innovative aspects, short description of the research plan**

There is a very extensive literature on how participatory integrated assessment should be done, and on tools that could be used to support it (like integrated assessment models).<sup>5</sup> Our assessment of the literature however suggests that there has been very little factual experience with this kind of approach (see COOL Interim report), certainly in the area of climate change. Part of the innovation of COOL lies in the three dialogue projects themselves (see dialogue proposals), part in the fact that the three are linked through the activities of the Core project. In the Core project, innovative features are the following.

*Merging policy and scientific goals.* First, one of the most salient innovations in the project is the explicit balance between a policy-driven and science-driven approach with scientific as well as policy-advisory goals. Stakeholders in the climate debate will be involved in the assessment activities and the implications and effectiveness of this for science as well as for policy will be evaluated.

*Multiple stakeholder involvement.* Second, stakeholders will not only be involved in determining the starting point of the assessment activities (policy-relevant research questions), they will also be involved in the assessment itself, making use of stakeholder knowledge beyond the purely scientific domain.

The COOL project attempts to keep a proper balance between a user-oriented approach and the wish to enhance the utilisation of available scientific and technical knowledge. The project team is aware of the fact that there is a potential source for conflict in this respect. However, the search for this balance is one of the methodological challenges for integrated assessment and it was one of the

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<sup>5</sup> The few practical examples are of a very different nature, have different purposes, and can hardly be compared. The Mackenzie Basin study is very much focused on impacts and adaptation at the local level, the Delft-workshops aim at supporting the formal global negotiation process, the Ulysses project at the study of individual motives in responding to climate change, and the Policy Options projects at understanding stakeholders' positions and supporting research programming.

starting points for the design of the project. Special care will be taken that technical information will not dominate the dialogue sessions and that there will be room for requests and input from all participants involved. In the three different dialogues the focus of this balance will be different because of the different settings and therefore different kinds of participation.

*Cross-scale interaction and evaluation.* The unique feature of COOL that it considers three geographic levels offers the possibility to examine the interactions between these levels. Both for scientific assessment and policy development the levels are closely related in the area of climate change. Dutch policy makers operate at all three levels in parallel. Throughout the project, the commonalities and differences between the scales will be systematically reviewed: what are the priority policy-relevant research questions, how is the climate change issue framed at different levels, which information is channelled from one level to another by the policy makers, who are the stakeholders, how do they act, which forms of participatory integrated assessment are most appropriate, how is scientific information used?

## **9. Relevance and potential use of the expected results for science and policy**

Integrated assessment has been widely accepted as a tool for supporting climate policy development, amongst others by IPCC. Traditional IA relies on scientific analyses through the use of integrated models and other analytical tools to assess the relevant information. Participatory methods add to that the involvement of stakeholders in the assessment process, including the selection of relevant information, the type of analysis performed and the form in which the results are presented. This participatory approach is supposed to result in better communication to stakeholders of the relevant information and enhanced policy development support.

Scientifically, the Core project hopes to be able to contribute to the scientific debate about methodologies of participatory integrated assessment, by publications in the scientific literature, and through participation in international fora, such as the European Forum on Integrated Environmental Assessment coordinated by one of the project partners (IVM) and the integrated assessment activities in support of the Third Assessment Report of IPCC.

## **10. Description of how the project fits in long-term research strategy of the institute**

The strategy of all three institutions represented in the Core project (WAU, RIVM, IVM) includes the execution of scientific research in support of the development of environmental policy. COOL can not only draw on on-going research in these institutions, it also provides a challenging new opportunity to enhance the policy relevance of this on-going research by getting feedback from stakeholders and developing a better understanding of policy interactions at different levels of scale. For example, for RIVM COOL can contribute to the institute's environmental planning bureau function, notably by providing a long-term stakeholder perspective to the periodic Environmental Outlooks. IVM/VU has been involved in a series of dialogue projects; it has recently taken on a lead role in a new DG XII initiative, the European Forum on Integrated Environmental Assessment. WIMEK/WAU includes a major part of WAU's climate change research; together with DLO and WAU's Production Ecology Institute, a joint research program on Climate Change and Biosphere (CCB) has been established.

## 11. Description of how the project research fits in and contributes to ongoing projects from NRP and other Dutch and international programs

The overall project has been developed at the request of and according to the terms of reference of theme IV of the National Research Program. It intends to capitalize on the climate change research of the participating institutions, part of which has been funded through the NRP. While the dialogue projects intend to involve a wider set of experts and research institutions that benefited from NRP funding, the Core project activities are limited to the project team, including the project leader of the socio-economic assessment (theme III). It is intended that the output of the project will effectively support the development of Dutch climate policy, hence a coordination with the development of national economic and environmental outlooks (CPB and RIVM, respectively) will be pursued. Internationally, the project not only intends to support the debate regarding the FCCC implementation and further IPCC work, at the European level also a contribution to the European Forum on Integrated Environmental Assessment (EFIEA) is envisaged..

## 12. Expertise/experience of the researchers

The overall project leaders of the COOL project are Prof. dr. Leen Hordijk and Dr. Ir. Bert Metz. Hordijk and Metz will be resp. project leader and deputy project leader of the COOL Core project, as the Core project has a co-ordinating role for the entire project. Hordijk is the first contact for all organizational matters as well as issues concerning content. He will be assisted by Willemijn Tuinstra. In absence of Hordijk Metz will take over responsibilities. Because of their simultaneous project leadership of the European Dialogue (Hordijk) and the Global Dialogue (Metz) feeling with those parts of the project is ensured.

**Leen Hordijk** has been leader of the acid rain project of IIASA (Austria) and has been closely collaborating with policy makers negotiating various international agreements on acidification in Europe. Recently he was leader of a World Bank sponsored regional study on acid rain in Asia. He has published various papers on the use of scientific results in environmental negotiations.

### *Selected publications:*

L. Hordijk (1995) Integrated assessment models as a basis for air pollution negotiations, *Water, Air, and Soil Pollution* 85, 249-260.

J.M. Bloemhof-Ruwaard, P. van Beek, L. Hordijk, L.N. van Wassenhove (1995) Interactions between operational research and environmental management, *European journal of Operational Research* 85, 229-243.

Amann, M., L. Hordijk, G. Klaassen, W. Schöpp, L. Sorensen (1992) Economic restructuring in Eastern Europe and acid rain abatement strategies, *Energy Policy* 20, 1186-1197.

**Bert Metz** headed the Dutch delegation in the negotiations for the Kyoto Protocol, including in the period of the Netherlands Chairmanship of the European Union. Dr. Metz also played a key role in the development of IPCC's Second Assessment Report and is currently Co-chair of IPCC's Working Group III on Mitigation.

### *Selected reference:*

- Phylipsen, G.J.M., J.W. Bode, K. Blok, H. Merkus, B. Metz, "A triptych sectoral approach to burden sharing; GHG emissions in the European Bubble", (submitted to Energy Policy), Department of Science, technology and Society, Utrecht University, Utrecht.



*Core project*

Ir. **Willemijn Tuinstra** studied Environmental Systems Science at Wageningen Agricultural University. During internships she has worked with the IMAGE-group at RIVM, assisting in scenario development and with the Transboundary Air Pollution (TAP) group at the International Institute for Applied Systems Analysis (IIASA) in Austria, investigating the role of the RAINS-model in negotiations on the Second Sulphur Protocol (UN-ECE LRTAP). After finishing her studies (1996), she worked as a guest researcher with Dr Jill Jäger at IIASA. This included studying various aspects of Integrated Assessment in international environmental policy, especially with regard to climate change and the use of models. She was involved in the ULYSSES project, an EU-DG XII project which explores the interface between Integrated Assessment Models and citizens as part of an integrated assessment approach focusing on issues of urban life styles and sustainability in the context of climate change. Her main research interests concern the diverse aspects of the interactions between science and policy in international environmental issues.

Information about other COOL participants can be found in the proposals of the national, European and Global Dialogue projects.

### 13. Budget breakdown

#### a) Total costs (in kf)

	Total
Personnel	600.7
Material cost	110
VAT	10.5
Total	721.2

#### b) Contributions

##### National programme

	Total
Personnel	229.2
Material costs	110
VAT	10.5
Total	349.7

##### Own contributions

	Total
Personnel	371.5
Material costs	-
VAT	-
Total	371.5

##### Total contributions:

	Total
NRP	349.7
WAU	178.9
RIVM	177.6
IVM	15
Total	721.2

**14. Labour costs (in kf, excl. VAT to charge to NRP by Institution)**

Inst.	Name	Function	Tariff (kf/my)	MY	Total	NRP	Inst
WAU	Vacancy	Senior researcher	108	0.21	22.5	22.5	39.4 139.5
	W. Tuinstra	Junior reseacher	80	1.83	146.7	146.7	
	A. Mol	Senior reseacher	189	0.21	39.4		
	L. Hordijk	Project-leader	279	0.5	139.5		
IVM	M. Hisschemöller	Senior researcher	300	0.2	60	60	15
	H. Verbruggen	Senior researcher	400	0.04	15		
RIVM	B. Metz	Co project-leader	313	0.4	125.2		125.2
	M. Berk	Senior reseacher	178	0.29	52.4		52.4
<b>Total</b>				3.68	600.7	229.2	371.5

**15. Material costs (in kf excl. VAT to charge to NRP by Institution)**

**National programme**

<i>Item</i>	<i>Amount</i>
workshops	40
web site	55
reporting	15
<b>Total</b>	110

## Climate OptiOns for the Long-term (COOL):

### National Dialogue

#### 1. General information

Project title: Climate OptiOns for the Long-term (COOL)  
Sub-project: National Dialogue  
Sub-project: Nationale Dialoog  
NRP theme: IV  
Duration: 2.5 year

#### 2. Contracting organisation

Name organisation : Institute for Environmental Studies, Vrije Universiteit para-univ.: yes  
Abbreviation : IVM / VU  
Postal Address : De Boelelaan 1115  
Postal Code/City : 1081 HV Amsterdam  
Telephone number : +31 (0)20 444 9555  
Fax number : +31 (0)20 444 9553  
E-mail address : secr@ivm.vu.nl

#### 3. Project leader

Name : Matthijs Hisschemöller Title : Dr  
Function : Senior researcher Department : IVM/ETS  
Postal address : De Boelelaan 1115  
Postal Code/City : 1081 HV Amsterdam  
Visiting address : idem  
Telephone number : +31 (0)20 444 9523  
Fax number : +31 (0)20 444 9553  
E-mail address : matthijs.hisschemöller@ivm.vu.nl

#### 4. Subcontracted institutes

<i>nr</i>	<i>Organisation</i>	<i>scientists</i>
1	RIVM	1. Head Energy Laboratory of Emissions and Waste (Vacancy)
2	project leader NRP Theme III Assessment Study	to be decided (by NRP)

3	Spanjersberg en Pe Consultants	Dr. Marijke Spanjersberg
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## 5. Abstract of project

The National Dialogue aims at developing strategic visions for long term climate policy (2012 - 2050) in The Netherlands in a European and global context. Stakeholders from sectors of the Dutch economy will be invited to participate in sector group dialogues. The dialogues will concentrate on delinking GHG emissions and economic growth, which should enable emission reductions up to 80% by the middle of the 21st century. The questions being addressed in the dialogue relate to (technological) opportunities and political choices with respect to the future structure of the Dutch economy. The dialogue will be based on a backcasting approach. The approach will enable sector groups to develop strategic visions and to identify the conditions that should be met and the major choices to be made in order to turn these visions into reality.

The project focuses on the interaction between policy stakeholders and science. The character of the dialogue is demand-driven in that it will be steered by information needs as formulated by the sector groups. While addressing specific information needs articulated by the sector groups, the project will also give sufficient attention to communicating the scientific state of the art on technological innovations and their potential for emission reduction to the stakeholders in the dialogue. The project will therefore continuously interact with the NRP Theme III technological and socio-economic assessment study. Where needed, sector groups will interact with the NRP Theme II assessment study of climate change impacts.

The project National Dialogue is divided into three phases.

- Phase I will, first, establish four sector groups, based on an exploration of the following sectors: (a) energy, (b) industry, (c) agriculture and forestry, nature protection and water management, (d) traffic and transport, (e) services and finances and (f) households / consumers (including health). Secondly, the project team in co-operation with the NRP Theme III assessment will develop two hypothetical futures with the delinking of GHG emissions and economic growth as their common characteristic. The project team will simultaneously produce an information package on technological options for drastic emission reductions. Thirdly, the project team will fine-tune the methodology for the sector group dialogues, presented below. During a first meeting sector groups will be informed and sensitised about the climate problem and its possible impacts to enhance their commitment to participate in the project. The main Phase I product will be a Work Plan, which will include final choices with regard to the formation of sector groups and the recruitment of participants. *If Phase I findings raise reasonable doubt as to whether the sector group dialogue will yield the intended results, the project team, in consultation with the advisory board, may decide not to continue the project.*
- In Phase II, the actual development of strategic visions by sector groups will take place in four stages: (1) *Identifying the issues*: The sector groups will discuss the two hypothetical futures and the information package developed in Phase I. They are invited to develop a strategic vision for their specific sector, which builds on either one of the futures with an 80% emission reduction in 2050 as the major given. They are requested to thereby take into account expectations related to non sector specific developments that may shape the conditions for the Dutch economy. The first step is to identify the major ingredients for further discussion and questions to be addressed by

science (the experts involved in the assessment studies or other experts). (2) *Scanning the contexts*: Sector groups identify the main barriers and opportunities for acceleration at a cross-sectoral level. They also will take into account the international (European and global) context, on the basis of information from the other COOL sub-projects. (3) *Identifying options*: Sector groups identify major options for emission reductions, supported by information and feed back provided by scientists, hereby taking into account the when and how. They specify the conditions for choices to be made and assess the effectiveness of certain interventions. (4) *Finalising the strategic visions*: The strategic visions are put on paper. The sector groups are offered an opportunity to get feed-back from a wider audience at a plenary national COOL-Workshop.

- Phase III will synthesise and evaluate the National Dialogue results and other COOL projects regarding substance and process (see also the COOL project overview).

The overall budget for the project National Dialogue is estimated at about fl 1.8 Million, which sum excludes the budget of the NRP Theme III technological and socio-economic assessment. The NRP contribution applied for is about fl 1 million. The division of the budget over the three phases will be 35% for Phase I, 55% for Phase II and 10% for Phase III.

## 6. Rationale

Two main observations constitute the idea behind this proposal. First, the Kyoto protocol reflects the increasing international recognition of the climate change problem and the shared perception that emission reductions are necessary. It is expected that major emission reductions in the long-term for industrialised countries like the Netherlands will become unavoidable. As the international agreements will become more demanding, the actions at the national level will be more stringent.

Second, there is a tendency towards a broader acceptance of the climate change issue in the Netherlands, at least among policymakers and policy stakeholders (see for this point also the project overview). Earlier dialogue projects carried out in the context of NRP illustrate this development. The first projects focused on rather broadly defined policy options (Klabbers et al., 1994; Vellinga et al., 1995; Hisschemöller et al., 1995). These projects have contributed a great deal to the understanding of the complex nature of the climate change issue, especially different ways of approaching the problem and the relations between problem approaches and stakeholder information needs. A stakeholder conference, organised in January 1996 to communicate the IPCC Second Assessment Report to Dutch society and to discuss impressions and comments, already revealed that there is much less doubt than in the early nineties about the quality of scientific argument with respect to the problem (Akkerman et al., 1996). However, different views on how to address the problem have remained a barrier for political consensus.

At present, DGM is preparing for the implementation of the Kyoto protocol in national climate policy. For the short term, a number of activities and projects have been planned and are co-ordinated by DGM. On the long term, it is likely that more drastic emission reductions will be needed. Therefore, larger adaptations of the energy systems are needed than are considered for the short term. A long term approach is necessary because changes in for instance the energy infrastructure will take several decades to implement. The National Dialogue, which is scheduled to take 2,5 years and will include intense policy-science interaction, is meant to suit policy makers' information needs regarding the long term perspectives for Dutch climate policy. Many long-term studies have been carried out so far, but

most of these studies focused on technological opportunities only, lacking interactions with policy-makers and stakeholders on issues of strategic choice. Other studies focus on the period up to the year 2020 which is too nearby to explore drastic changes in the energy systems.

From these observations it follows that the focus of the National Dialogue in the present context will be somewhat different from that in earlier dialogue projects carried out in the context of NRP. To serve its purpose, the dialogue will have to focus on developing strategic visions for the long term, i.e. well beyond the first budget period of the Kyoto protocol (2008- 2012) and will be looking as far as the year 2050. Major emission reductions will be at the core of the problem definition of this project. In this context, a variety of policy questions will be addressed.

## **7. Objectives, expected results, project design and deliverables**

### **7a. Objectives and expected results**

#### *Objectives*

The overall purpose of the National Dialogue is to support the development of long term climate change policies in the Netherlands in a European and global context. The project specifically aims to develop strategic visions for addressing the climate change issue in the Netherlands by delinking economic growth and GHG emissions on the long term, up to the year 2050. Delinking GHG emissions and economic growth should enable emission reductions up to 80% by the middle of the 21st century. This implies that the project focus is on a level of emission reductions of GHGs that cannot be obtained by extrapolating current practices and policies. The project also intends to tentatively explore to what extent the strategic visions developed in the National Dialogue meet with support among target groups.

Apart from this overall focus the project aims

- to improve the interaction between researchers, working from different disciplinary perspectives, and policy stakeholders with diverging views and interests
- to increase the utilisation of scientific knowledge by policy stakeholders
- to increase the production of usable knowledge by scientists
- to contribute to the development of participatory approaches for integrated assessment.

#### *Expected results*

The National Dialogue aims at arriving at results that have a primary relevance for long-term climate policy and results that are of special relevance for participatory integrated assessment.

Among the results of the first kind are strategic visions on a sustainable future with low emissions.

These visions articulate

- (1) (factual) expectations with regard to feasible technological innovations, the adoption of technological innovations by economic actors (industry, energy sector, transport sector, consumers etc.) and the costs and benefits related to adoption;
- (2) notions and assumptions (both factual and normative) with regard to the desirability of major policy choices, objectives and targets that are relevant in order to facilitate or accelerate the technological shift. These notions may relate to a variation of issues, such as stimulating energy

intensive industry, the reconsideration of nuclear energy or the reliance of Dutch economy on services and transport;

- (3) socio-economic paradigms which constitute the normative and often implicit cornerstones of expectations with regard to future developments. The articulation of these paradigms may imply a focus on issues such as international economic orientation (Atlantic or continental) and institutional issues such as the integration into a European political entity and -more fundamentally- the future role of 'the state' and other institutions vis-à-vis rights and responsibilities of citizens and other economic actors;
- (4) expectations with regard to cross-sectoral and inter/transnational contexts;
- (5) specific interventions and the instrumentation of policy and their impacts both on economy and emissions, taking into account the possible time-frames and schedules to bring about change. This item includes the question whether trade-offs are possible between the short and the long term;
- (6) a set of criteria based on long-term needs to evaluate short-term policies.

It should be stressed that consensus among stakeholders in the sector groups is not expected to be a result of the dialogue, in so far this consensus would relate to the desirability or feasibility of certain interventions or even the overall goal of 80% emission reduction. However, the dialogue will be successful to the extent that stakeholders reach consensus at a meta level, that is the increasing awareness about the relevance or irrelevance of certain contexts, goals, interventions, institutions or instruments in the light of the development towards 80% reduction and the delinking of GHG emissions and economic growth. In a similar vein, the dialogue will clarify the degree of consensus on the reliability of expert knowledge. In this respect, it is expected that the dialogue will produce insights about the kinds of research questions that really matter for designing long-term climate policy. In that sense, the dialogue may have an impact on science.

#### *Sector groups*

In order to facilitate the development of long term strategic visions and to improve the utilisation of scientific knowledge the development of long-term strategic visions will take place in sector groups, e.g. stakeholder groups which focus on the specific implications of major reduction strategies for their sector. The sector groups will identify opportunities for a structural delinking of economic growth and GHG emissions for the long term.

The projects aims at the formation of *4 sector group dialogues*. These will be formed on the basis of the results of interviews with key stakeholders in various sectors, from Ministries, business and environmental NGOs and the science community. For the definition and selection of four sectors, initially representatives from the following sectors will be approached: (a) energy, (b) industry, (c) agriculture and forestry, nature and water (d) traffic and transport (e) services and finances and (f) households / consumers (including health).

A sector group will include *non-government* stakeholders from business, industry, environmental and consumer NGOs (thus pluralistic groups that reflect different positions) who operate within the same sector. Sector group participants will be recruited from sector organisations, private firms, environmental NGOs and consumer organisations, but they will preferably not be the people who negotiate with government agencies on a regular basis. Participants are experts on their own sectoral issues vis-à-vis the climate issue. Each group will include about 8-10 persons. Representatives from government agencies, science and other sectors that have a major impact will be available as 'resource persons'. The sector groups will be heterogeneous in perspectives on the climate issue with



this one important restraint that all participants feel motivated to discuss a drastic (80%) emission reduction by the middle of the 21st century.

Examples of long-term policy questions that will be addressed, are<sup>6</sup>:

- What are the opportunities for delinking economic growth and GHG emissions? How to realise such a rupture in the various sectoral trends?
- How do dominant technological, economic and political trends and developments in the 21st century interfere with climatic changes (negative and positive interferences)? One can think of information-technology, dematerialisation, '24-hour economy', liberalisation of markets, mobility and the role of national and EU-government. What kind of major political choices are to be made because of these interferences, such as: Must The Netherlands keep its major position in traffic and transport (Netherlands distribution land)?
- What risks, niches and opportunities does a far going emission reduction strategy offer for different sectors of economy? Would The Netherlands benefit from a forerunner position?
- What combination of technologies can lead to substantial GHG reductions?
- What technologies should be focused on in Dutch R&D programmes in order to realise substantial reductions?
- How can technology change be linked with behaviour change?
- How can investment patterns be used to speed-up emission reductions?

The questions listed here are illustrations of the kind of questions that we expect will be brought up by dialogue participants, but the list is not at all meant to be exhaustive. Apart from the general questions, the sector groups address specific sector relevant questions. Also adaptation questions may be considered in the dialogue, especially issues related to the sector agriculture, nature and water, but the overall emphasis is on mitigation.

#### *Dialogue approach and the role of expertise*

The main methodological approach to structure the national dialogue will be backcasting. The stakeholders in the sector groups start focusing on hypothetical futures which show drastic emission reductions (80 % by 2050). Then they look backwards as to identify which conditions should be met for turning these futures into reality, to identify technological, economic and political/institutional obstacles, opportunities and major policy choices.

In order to stimulate and focus the discussions, the groups will be provided with two images of hypothetical futures, which include scientific insights on how 80% emission reductions could be realised. The two futures represent different perceptions on issues as the availability of fossil energy sources, the potential and speed of technological changes, the structure of economy and possibilities of behavioural and cultural changes. One vision may highlight the assumption that 80% emission reduction supposes the avoidance of fossil energy. In this vision process-efficiency, behavioural changes and a maximum use of renewables are the key factors. The other vision may work out the assumption that technological innovations will enable a route to 80% emission reduction. This vision may highlight the potential for clean fossil energy (CO<sub>2</sub>-removal) and (other) technical reduction options. So, what is presented to the sector groups are strategic visions in an immature state. The reason for providing the

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<sup>6</sup> The general questions and examples of sector related policy questions below are derived from NRP, 1995 and 1997; Hisschemöller et al. (1995) and Kok and Verweij (1998).

sector groups with two visions instead of one is to do justice to the plurality of thought and to provide examples of the dynamic relation between expectations and assumptions about sustainable energy, technology change, the structure of economy and variables related to legal and political institutions such as the role of government. The sector group participants are invited not to feel restrained to the two visions but to use these in order to interactively develop a strategic vision for their own sector. Thus, the sector groups will continue to draw and colour the picture that the project team has only begun to design. The sector groups will have ample opportunity to question the information provided by the project team.

The two futures will be constructed by the project team supported by input provided by the NRP Theme III technological assessment study. The project team will further draw upon existing research data and findings from modelling and scenario studies, such as the DTO programme and its follow-ups, the NOVEM Syrene programmes and its follow-ups, the ECN / RIVM and CPB 2020 studies, Matter/Markal, the Nationale Energieverkenningen, Ecofys (1996) and the ICES programme Clean Energy. If available, the project will also use upcoming results from current VROM studies and the scenario study to be carried out by the Bezinninggroep Energiebeleid. Insights from these studies will be linked with insights on different approaches of the climate issue from earlier dialogue projects (Klabbers et al., 1994; Vellinga et al., 1995 and Hisschemöller et al., 1995) as well as outcomes of the interviews in Phase I of this project (see below).

The presentation of the two futures is accompanied by providing and communicating an information package which includes the state of the art on technological options for drastic emission reductions. The rationale for providing this package is the expectation that, at the start of the dialogue, not all sector group participants have the same level of knowledge on issues related to technological options. Therefore, there is an obvious need to communicate existing knowledge and prominent publications in a transparent manner. An other argument for providing the information package is that a substantial part of the stakeholder information needs related to energy technology can be inventorised and communicated to the relevant experts.

Together, the presentation of hypothetical futures and the information package form the start of an intense process of policy-science interaction. The importance of an effective contribution of experts in the fields of energy technology and economics in all stages of the sector group dialogues can hardly be overestimated. The communication of available knowledge through papers and presentations requires the active involvement of experts from the major institutes in the project. Experts need to be available during the sessions to directly respond to questions raised. On the other hand, the experts involved in the project will receive the minutes of all sector group meetings, which will enable them to intervene with information or suggestions for further research or discussion. In Phase I, the project team will in co-ordination with the Core Project, explore the opportunities for the COOL website to serve a function in this interaction process.

However, the attention given to the preparation and communication of scientific state of the art knowledge to the sector groups may not be interpreted as to contradict the demand driven character of the dialogue. The presentation of futures and an information package are meant to help dialogue participants focus on the subject matter of the dialogue, the 80 % emission reduction on the long term, and to bring them to an equal level of information. The project will still provide ample opportunity for the sector groups to identify their own specific questions and to invite scientists to address these. A related issue is that the project does not intend to present the scientific community as a homogeneous

### *National Dialogue*

group. It is a key factor for the project's success to acknowledge different views not only among stakeholders but also among experts. The sector groups will therefore be informed about different scientific opinions where these are considered relevant for the sector groups discussions. This will happen by the involvement of experts from different institutes in the project (through the Theme III assessment or otherwise).

From the demand-driven character of the dialogue it follows that not all information needs identified in the sector groups may be addressed immediately. An exchange of minutes, the Web-site and a good and well-timed preparation of meetings are needed to make the interaction as effective as possible.

The contribution of scientific experts to the project will require specific attention by the project team (see under 12 a, *Project Organisation*).

## 7b. Project phasing and design

The project National Dialogue is divided into three phases. Roughly, phase I includes the preparation of the stakeholder dialogue, phase II includes the dialogue itself and phase III the synthesis and report of the joint projects.

### *Phase I*

Phase I of the National Dialogue project will include the following activities:

1. The project team will assess the opportunities for a national dialogue for each of the sectors listed above. First, about 30 interviews will be held with key stakeholders at the Ministries, business and environmental NGOs and the science community. These interviews will yield information on (1) stakeholder views on long term climate policy, (2) potential dialogue participants are identified via a so-called snowball technique and (3) related activities and studies already ongoing in the sector. Interviewees will have the opportunity to discuss the objectives and activities as scheduled for the national dialogue.
2. The project team will create two hypothetical futures for the year 2050 in which the GHG emissions are 80% below the 1990 level and an information package which includes a state of the art of technical options for emission reduction (see above). As mentioned, the futures and information package will function as guiding devices for the sector group dialogue in Phase II. Its focus will be on the Netherlands and Europe.
3. The project team will fine-tune the methodology for sector group dialogue. The interviews under 1) will provide necessary information to structure the dialogue process for each sector. Variables that are relevant in this context are the time frame that the sector and its stakeholders usually take into account. Three sessions will be held to discuss project methodology in collaboration with the Core Project. The discussion will build on the findings in the Interim Phase (see Interim Phase Report).
4. The project team will establish 4 sector groups and identify, invite and commit participants. It is of utmost importance that the mutual expectations, tasks and responsibilities of both the project team and the potential participants are clearly defined. Therefore, a document will be drafted, which will, after discussion with invited participants, function as a 'gentlemen's' agreement'.
4. The project team will organise a first half-day meeting for each sector group. The meeting intends to achieve commitment of stakeholders to take part in the phase II dialogue activities. Participants are updated as to the most recent scientific findings and the political context of the climate issue and sensitised 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. For information on impacts and adaptation use will be made of IPCC materials and input from the NRP Impact Assessment Study (if available). As part of this meeting the Interactive Scenario Scanner developed during the earlier NRP-funded Delft-workshops will be used to illustrate the inertia of the climate system and the need to delink GHG emissions from economic growth to achieve the targeted stabilisation of GHG concentrations. Moreover, the implications of various international future regimes for burden sharing will be shown and discussed.
5. The project team will develop a Working Plan for Phase II (Plan van Aanpak). This working plan will also include a fine tuning of the contribution of the Theme II and III assessment studies to the national dialogue during the second phase.
7. The project team will deliver a contribution to the "plenary" National COOL Workshop (see Core project). At this workshops in which the four projects of COOL come together, the various projects will be presented and discussed.

At this stage, a *go / no go decision* is taken as to whether to go ahead with four sector groups. In case there is reasonable doubt as to whether the project will arrive at the results of the kind listed above the team may decide not to continue the project. Criteria will be a.o. the level of coverage of sectors relevant for the control of GHG emissions, the quality of the sectoral representatives available for participating in the dialogue, and the level of commitment to the aims of the project.

### ***Phase II***

Phase II relates to the actual sector group dialogue. As a result of phase I and discussions in the sector groups phase II as described below might change. For each step of the process we indicate how many one day sector group meetings will be needed. For each step in the process, the project team will offer specific scientific information that is relevant for the subject matter of that specific meeting. The preparation of the sector group meetings will therefore be carried out in careful co-ordination with scientific experts who work on the issues at stake. The sector groups, on their part, will use their meetings to articulate specific information needs that may either be addressed immediately or will be communicated to and addressed by experts later on.

#### *Identifying the issues*

1. The two futures and the information package as prepared in Phase I are presented and extensively discussed by the sector groups. Participants comment on these two visions and (if they wish) develop their own preferred 2050 vision. Subsequently they will start to create a vision with the emphasis on their own sector. They are requested to take into account expectations related to non sector specific developments that may shape the conditions for the Dutch economy and their own sectors. The first step is to identify the major ingredients for further discussion and questions to be addressed by science (the experts involved in the assessment studies or other experts). If they so require, the participants may revisit in more depth than in Phase I the implications of climate change impacts for their sector in consultation with the NRP theme II assessment. This may not be necessary for some sectors, but very valuable for others. Notably the agriculture/forestry/ nature sector may want to discuss adaptation policies which are dependent on expected impacts..

This step will probably take two one day meetings.

#### *Scanning the contexts*

2. Sector groups start backcasting. They interactively explore the expected linkages between climate policy and other policy areas not limited to their own sector. They hereby take into account expectations about long-term socio-economic and political developments at a national, European and global scale. This exploration is expected to yield information on (1) major barriers and necessary policy choices that need to be made between 2012 and 2050 in order to keep the emission reduction targets in reach and (2) possible synergies for emission reduction. Here we think of two-way linkages: First, climate policies may be linked to and benefit from policies in other areas, a strategy referred to as 'hitch-hiking' (actief meeliften) with other issues (Klabbers et al., 1994; Vellinga et al., 1995). Second, policies in other areas maybe linked to and benefit from climate policies. As the attention for the climate change issue is likely to grow, it will become more likely that issues will be linked to climate policy. It is important to notice that the contexts discussed in the sector groups may very well be cross-sectoral. A comparison of results in the different sector groups may be a part of step 3.

Step 2 will probably take one meeting.

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3. The sector groups compare the separate results of step 2 and address the question how the strategic vision to develop would relate to European and global socio-economic and political developments, including climate change policies. Here, they will get support from the projects European and Global Dialogues. The sector groups will discuss their results so far and the international context at a one day joint Interim Workshop.

### *Identifying options*

4. As the next step in the backcasting process, the sector groups identify directions for action and make choices necessary to realise the low emission future that is their point of departure. The stakeholders in the sector groups are not asked to strive for consensus. They may develop different options. Options and related actions will be assessed with respect to their technological, economic and political / institutional feasibility and impacts and effects on emissions and economy. Again, they actively interact with the NRP III Assessment study as well as with economic sector studies (Verbruggen, 1996).

This step will take two meetings of one day each. After the first meeting, the project team will evaluate the options identified in terms of emission reductions and other impacts. It will also start to compare and evaluate the options identified and assumptions across the sector groups. These evaluations will serve as the major input for the second meeting.

5. The sector groups investigate the relations between the long and the short term. They discuss opportunities for trade-offs. Besides, they identify who are expected to be responsible for specific future actions, measures or major policy choices. They hereby take into account the various stakes including their own as related to implementing the future climate strategy, given their current position vis-à-vis the issue. Rather than looking backward, this step includes forward-looking by the sector group participants.

This step will take one sector group meeting.

Together, these steps enable the elaboration by amendments of the visions provided by the project team and the development of a long-term sectoral vision for delinking economic growth and GHG emissions. As the above shows, each step includes a specific policy-science interaction and hence, the linking of the sector group stakeholder dialogue with NRP research projects and / or other COOL dialogue projects.

At this stage, the sector groups have a clear picture for themselves about the options available and actions needed. The sector groups have also specified preferences and choices. The project team has, in close co-ordination with the Theme III Assessment Study, assessed and quantified what the various options under consideration imply in terms of emission reductions. It has also evaluated and where possible quantified economic and other impacts. Moreover, it has provisionally assessed the compatibility and cross sectoral implications of various sectoral options. All findings are fed back to the sector groups.

### *Finalising visions*

6. Sector groups put their strategic visions on paper. In line with what was mentioned under *Expected Results* above they especially point out how they have come to consider certain choices and actions with regard to the development of Dutch economy and infrastructure or technological innovation as relevant or irrelevant for the 80% reduction of GHGs in 2050 and the delinking of

economic growth and GHG emissions. They also specify what science information they have used and how their strategic choices have been influenced by scientific uncertainty or ambiguity.

This step will probably take two sector group meetings.

7. The final step in the actual dialogue is to compare the separate sector group reports and to discuss them a wider audience. The purpose of this step is to get feed-back from a variety of stakeholders, such as participants in other sector groups, policy makers from various government Ministries, Members of Parliament, scientists and the target groups. The visions will be discussed at the “plenary” National COOL Workshop. This Workshop is organised by the Core Project (See Core Project Proposal). As a major input for this workshop, the project team, supported by analysis from the Theme III assessment study, will draft a synthesis report, which evaluates as to whether the sectoral strategies are compatible and consistent in terms of assumptions, options, emission reduction and other impacts. The synthesis report may also include proposals on how to improve the compatibility and consistency of the sectoral strategies. Apart from this, the National COOL Workshop will also discuss the national findings in the light of outcomes of the European and Global Dialogue projects.

Table I summarises the various steps and the indicative number of one day meetings per sector group.

Step 1	Discussing the low GHG 2050 visions	2 days
Step 2	Exploring linkages between climate and other areas	1 day
Step 3	European and Global context	1 day (joint workshop)
Step 4	Strategic choices	2 days
Step 5	Stakes and responsibilities	1 day
Step 6	Strategic visions on paper	2 days
Step 7	Feed-back on plenary COOL-Workshop	1 day
TOTAL OF SECTOR GROUP MEETINGS		10 days

**Table I: Phase II steps and indicative sector group meetings.**

### Phase III

This phase is meant to integrate the findings of the several COOL sub-projects, as described in the Project Overview. For the National Dialogue, the reporting in Phase III will include the following steps:

1. The plenary COOL-Workshop feedback to the sector group visions will be included in the reports on strategy.
2. Finalisation of synthesis report
3. The dialogue process in the sector groups will be evaluated.
4. The overall project will be evaluated, including its approach, the functioning of the project team, the co-ordination with other COOL-related activities and budgetary aspects.

The project team will involve sector group participants in steps 1 and 2 that are of their primary concern.





## 7c. Description and planning of deliverables (products)

### *Deliverables*

#### *Phase I*

Working Document 1:	Report of interviews with sector stakeholders
Working Document 2: Theme III assessment)	Low GHG Futures (input for sector groups) and information package (with the NRP)
Working Document 3:	Fine-tuning and evaluating methodology of National Dialogue and COOL project (in collaboration with Core Project).
Working Document 4:	Report on first meeting sector groups.
Working Document 5:	Phase II Working Plan (including list of sector group participants)
Working Document 6:	Report on plenary COOL-Workshop: Input for sector groups in collaboration with Core Project)

#### *Phase II*

Working Document 7:	Interim Report Sector Groups
Working Document 8:	Workshop on Sector Groups Interim Reports
Working Document 9:	Strategic Visions Sector Groups
Working Document 10:	COOL Dialogue Conference on Sector Group Strategic Visions (including draft Synthesis Report: comparison / linking of sectoral visions)

#### *Phase III*

Working Document 11:	Evaluation National Dialogue: Synthesis report
Working Document 12 :	Overall Evaluation National Dialogue: Process, Approach and organisation aspects.

### *Planning*

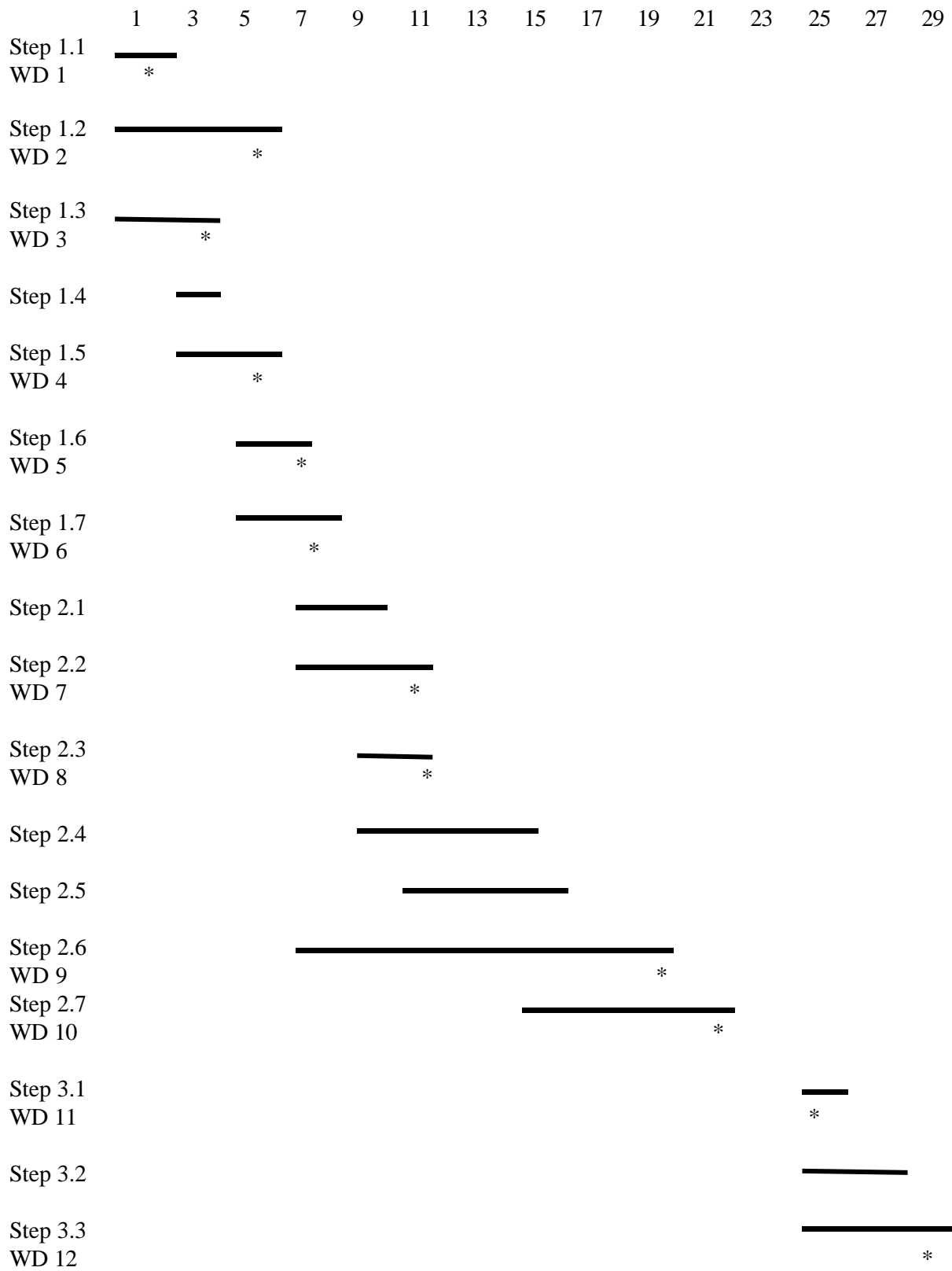
An overview of the planning of activities and deliverables is given in Table II. The division of time between the three project phases is 8 - 16 - 6. The project team has considered the feasibility of a six months first phase. It has chosen for extending the first phase to an eight month period. The arguments to take somewhat more time for the first phase can be summarised as follows:

- The success of the National Dialogue will be very dependant on a careful preparation. The establishment of sector groups may meet with unexpected difficulties. There should be time to take the go / no go decision.
- Invited participants may need time to consider their participation and /or to discuss their specific concerns with the project management.
- Preparing the dialogue includes a lot of diverse activities that should be carefully co-ordinated (see the high number of deliverables as compared to Phase II).
- The Phase I plenary COOL-Workshop needs not to interfere with the preparation of activities for the sector group dialogue.

*National Dialogue*

**MONTH**

*National Dialogue*



**Table II. Project National Dialogue Working Plan (Total = 30 months)**

### **8a. Scientific approach: the methodological challenge**

National dialogue projects carried out in the context of NRP 1 (Klabbers et al., 1994; Hisschemöller et al., 1995; Vellinga et al., 1995; Akkerman et al., 1996) have provided several findings that are of relevance for the methodological choices made in the current project proposal.

- \* Among policy stakeholders in the Netherlands, five major policy options can be observed to address global climate change. These options represent authentic views on the climate change problem and corresponding solution strategies. Although consensus among stakeholders cannot be expected, agreement on specific actions is very well possible.
- \* Only one policy option, referred to as the Least Regrets option, immediately focuses on climate change. The other options put the climate issue in a broader perspective and, thereby, indicate that climate related policy objectives cannot be dealt with separately.
- \* Policy stakeholders, whatever policy option they prefer, feel motivated to take action by themselves or support government action only if they expect that their effort will yield visible results.

These findings partly coincide with the lessons learnt from other participatory projects.

International research findings point to similar observations on the characteristics of the climate change issue that form the point of departure for the approach (theory and method) taken in the project. Firstly, climate change constitutes a so-called *unstructured* problem for public policy. Unstructured problems are characterised by a huge uncertainty about what knowledge is relevant for understanding and addressing the issue and by uncertainty and conflict about the values at stake. Stakeholder dialogue is an instrument for problem structuring, i.e. to bring about new insights about the climate issue and opportunities for addressing it (Hisschemöller and Hoppe, 1996; Funtowicz and Ravetz, 1991).

Secondly, while the commitment and participation of stakeholders in the process of addressing the climate issue is absolutely essential, many stakeholders perceive the issue as remote in time, space and personal experience, and hence not really as an issue of direct concern (Gupta and Hisschemöller, 1996). Stakeholder involvement methodology should bring the issue close by to those who are supposed to 'implement' measures for solution.

The third observation relates to differences in scale and levels of abstractness. The conceptualisation of the climate problem and solutions from a global perspective do not easily match with the priority problems and solutions at the local level. It is questionable whether scientific knowledge which meets policymakers' information needs at the global level (policy making in the context of climate negotiations) fits in with the information needs at the level of practitioners who ask whether it really matters what they do (Yearly, 1996).

Taken together, the observations related to the character of climate issue point to a major barrier for effective policy making. The combination of the *unstructuredness*, *remoteness* and the *differences in scale and levels of abstractness* have far-reaching implications for choices in project methodology. On the one hand, we may conclude that in order to address the unstructured nature of the problem, we

must establish heterogeneous stakeholder groups per sector. If possible, all approaches to the climate issue will be involved in all sector groups. In line with this approach, stakeholder groups will probably incline to interactively frame 'their own' compromise view of the climate issue. They will define their own sectoral priority problems and policy objectives and develop issue linkages to the climate problem. This is a valuable thing in so far as justice is done to the diversity of views and the climate issue is brought closer to stakeholders. However, on the other hand, a too permissive approach will not be able to keep the focus of the dialogue on the climate change phenomenon. There is a serious risk that the issue will broaden to other issues such as sustainable development in general, which not necessarily coincide with the climate change problem. Therefore, the dialogue should be designed in such a way that the participants have sufficient freedom to address their own policy questions and information needs, but at the same time should produce the strategic visions that concentrate on reducing GHG emissions.

There is also another issue which needs serious attention. In order to decrease the remoteness of the climate issue, actions and measures identified must have relevance for the here and now of the stakeholders, even as they have a long-term impact. As the dialogue should focus on the very long term, there is the risk that the participants do not really feel involved and, hence, the results of the dialogue will not be very reliable.

The following steps in the dialogue are considered vital for realising the necessary balance between these demands that may not look reconcilable:

- \* A very careful preparation of the dialogue in Phase I must guarantee that the stakeholder groups are sufficiently heterogeneous and still committed to focus on strategies for 80% emission reductions.
- \* Especially the first sector meeting is meant to commit invitees to the focus of the dialogue without asking them to give up their personal feelings and ideas about the issue.
- \* Session(s) on the climate change problem, its scientific aspects and its impacts in Phase I and II are meant to confront participants with the issue and to increase their personal involvement.
- \* The personal involvement is further enhanced by putting forward the question of actor's stakes and responsibilities for future choices and the implications for the here and now.
- \* We hope that this will increase the reliability of the dialogue's results and its usefulness for long-term climate change policies.

The project will design and facilitate the stakeholder dialogue on climate change in the light of contributing to the development of *methodologies* for participatory approaches in Integrated Assessment.

## **9. Relevance and potential use of the expected results for science and policy, based on TOR**

The project will make a concrete contribution to Dutch long-term climate policies (Lange Termijn verkenningen). The project will contribute to the development of *methodologies* for participatory approaches in Integrated Assessment.

## **10. Description of how the project fits in long term research strategy of the institute(s)**

### *National Dialogue*

Since 1993 onwards, IVM has worked together with other institutes, RIVM in particular, in dialogue projects to assess the usability of science knowledge. Prof. Vellinga is currently chair of the European Integrated Assessment Forum. The IVM Programme Environmental Policy Analysis has a priority focus on developing and testing methodologies for stakeholder involvement. The IVM vacancy (junior researcher) will write a PhD dissertation on Participatory Integrated Assessment methodology, using the national Dialogue as key data.

## **11. Description of how the proposed research fits in and contributes to ongoing projects from NRP and other Dutch and international research programmes**

The overall project has been developed at the request of and according to the terms of reference of theme IV of the National Research Program. It intends to capitalise on the climate change research of the participating institutions, part of which has been funded through the NRP. It is intended that the output of the project will effectively support the development of Dutch climate policy, hence a co-ordination with the development of national economic and environmental outlooks will be pursued.

## **12. Project organisation and project team**

### **12 a. Project organisation**

The National Dialogue is an integral part of the COOL-project. In consequence, the project leader will consult with the COOL project management about the project progress and the strategic decisions to be made. The COOL project manager(s) are in the exclusive position to carry the ultimate responsibility and, hence, to give direction to the project.

The project team will be responsible for the organisation, co-ordination, facilitation and reporting of the sector group dialogues, the input of expert knowledge in the dialogue and the communication of specific information needs from the sector groups to scientific experts. The scientific work that concentrates on the identification and evaluation of (technological) options for emission reduction is also an integral part of the project. Within the project team RIVM will have the prime responsibility for the organisation of the technological scientific input, IVM for the economic scientific input. It is intended to integrate the Theme III assessment as much as possible into the National Dialogue project. The full participation of the project leader of this assessment study in the project team, as proposed here, is considered to be a prerequisite in this respect. The co-ordination of the input from the assessment study, as well as other third parties remains with the COOL-project team. The precise mode of co-operation between the two projects will be elaborated during the first phase as soon as NRP has approved the assessment study and its project team.

#### *Advisory structure*

Given the complexity of the project and its policy-oriented character there is a clear need for organising external guidance for the project management. The envisaged Advisory Structure will consist of a *general advisory board* for the whole of the COOL project and *sub-committees* for each of the dialogue projects (for a full description see the COOL core project).

Due to policy-oriented character of the project and to co-ordinate activities within the project with those undertaken by the various Ministries in support of the development of Dutch climate policy, the Ministry of Environment (VROM) has indicated the need for establishing sub-committees within the general advisory board that will follow each dialogue sub project more closely (e.g. by consulting more often and by its members functioning as “resource persons” in the preparation of or during project meetings). The sub-committees will consist of members of the general advisory board. The Ministry of Environment has already nominated representatives for each of the sub-committees: for the national dialogue these are Ester Jaarsma (climate change department) and Ruud van de Wijngaard. (energy department). It is expected that also representatives of other Ministries will participate.

It is envisaged that the (full) board will meet twice during the first phase of the project, twice or three times during the second phase and once during the third phase. Its sub-committees are likely to schedule additional meetings. The first meeting of the board is planned shortly after the start of the project to give advice on the design and planning of the first phase. During a second meeting at the end of the first phase the committee will play an important role in providing guidance on the selection of sectors and more elaborated plans for the second phase of the project. The advice of the advisory board will play a major role in the decision about the continuation of the project after the first phase and the desirability of changes in the work plan as described in this proposal.

#### *Project team members*

The project team consists of the following members:

#### **For IVM:**

Dr Matthijs Hisschemöller will be project manager. He will be responsible for the project progress and the quality of its outputs, reporting, the well-functioning of the project team, the relations with dialogue participants and the co-ordination with the Core Project and other COOL-related projects. He will also share responsibility for evaluating project methodology in the Core Project. More specifically, IVM responsibilities in the project include

- stakeholder interviews (working document 1),
- finetuning and evaluation of project methodology together with Spanjersberg (working document 3),
- Phase II Working Plan (working document 5),
- Plenary COOL Workshop, together with Core Project and with input from RIVM (working document 6),
- Interim Report sector groups (working document 7),
- Interim Workshop (working document 8),
- Strategic Visions sector groups, together with RIVM (working document 9),
- National COOL workshop, with input from RIVM (working document 10),
- Report on National Dialogue substance, together with RIVM (working document 11),
- Overall evaluation National Dialogue, with input from others (working document 12).

Prof.dr.ir. Pier Vellinga will be involved as project supervisor. He is responsible for the IVM contribution to the project. He will consult with project management on a regular basis and he will especially be involved in strategic matters such as stakeholder-participants recruitment and the collaboration between the project with other projects of strategic importance (e.g. DTO, Bezinningsgroep).

Together, Hisschemöller and Vellinga constitute the project management National Dialogue.

Prof. Dr. Harmen Verbruggen will be involved in matters related to the utilisation of research on economics and economic scenarios.

Ir. Onno Kuik will be involved as senior staff in the project team with an overall responsibility for the project progress. He will be especially responsible for the project interim reports. He will also have special responsibilities for a proper presentation in the sector groups of research related to the costs and benefits of climate change and climate change policies for the sectors and for the community at large.



Vacancy (IVM) will be especially involved in the recruitment of dialogue participants, organising and reporting of interim meetings and workshops and the secretariat of the sector groups. The researcher will further evaluate project methodology on a daily basis. For this evaluation, (s)he will develop and use a conceptual framework that builds on the chapter on participatory integrated assessment approaches in the report from the Interim Phase. This activity will lead to a dissertation four years after start of the project.

**For RIVM:**

Energy Co-ordinator LAE (vacancy). NB: The recruitment procedure for this vacancy is in its final stage. It is expected to be finalised before the project starts as. This senior researcher will be involved in the project as senior staff with an overall responsibility for the RIVM input in the project. This input includes:

- primary responsibility for the scientific input related to technological options, including the co-ordination with the Theme III Assessment Study and possible External Expert which is to be covered by the project budget (External Expert Advice), all in so far as it relates to technology,
- the design of low GHG futures and an information package for the sector groups (working document 2),
- first meeting sector groups (getting acquainted with global climate issue) (working document 4),
- to co-ordinate the COOL National Dialogue with other RIVM projects, such as the framework for evaluating burden sharing options to be developed in the NRP project 'Braziliaans Voorstel' and the project 'Databestand Schone Energievoorziening 2050', initiated by VROM, which aims at developing an instrument for the construction and quantitative evaluation of energy visions for the long term,
- input on energy futures and information package in National COOL-conference (working document 6),
- to provide scientific input to be discussed by the sector groups as mentioned under Phase II step 1, 4, 6, and 7 and a shared responsibility for scientific input for the other meetings,
- to evaluate and calculate the consequences of sector group options for emission reduction, evaluating the internal consistency of the four sector group visions and to communicate the findings to the sector groups (working document 9, and input (synthesis report) for working documents 10),
- Report on National Dialogue substance, together with RIVM (working document 11),
- all other matters relevant for project progress, such as establishing sector groups, the permanent evaluation of the sector group process and reporting (input for working document 12),

Ms. Ir. Mirjam Harmelink. As a senior scientist she will also be a source person for the sector group meetings. She will be involved in the design of low GHG futures and the development of the information package for the sector groups (working document 2), as well as in the evaluation of the developed sectoral strategies (in close co-operation with the Theme III assessment study).

Ms. Dominique Stein. She will serve as a secretary for one of the sector group. Moreover, she will support the Energy Co-ordinator and Harmelink in the preparation of input for the sector groups.

Vacancy. Junior researcher who will provide support to the Energy Co-ordinator and Harmelink in the preparation of input for the sector groups.

Dr. ir. Bert Metz and Marcel Berk are responsible for providing information to the sector groups on the present state of science on climate change and will prepare and conduct the sessions with the Interactive Scenario Scanner. They will make a contribution to the project, but will not make part of the national dialogue project team.

#### **For the Theme III Assessment Study**

The project leader of the NRP Theme III assessment study (yet unknown) will be daily responsible for the co-ordination of the project with the NRP Assessment studies (Theme II and III) and a proper presentation of research findings on climate change impacts and technological and socio-economic options in the sector groups.

#### **For Spanjersberg en Pe Consultants**

Dr Marijke Spanjersberg will be responsible for a smooth dialogue process in the various sector groups in Phase II and contribute to the evaluation of project methodology (working document 3, 12). She will also fine-tune project methodology and adjust the approach to specific sector group needs (Phase I).

### **12 b. Expertise / experience of the senior researchers from the contracting organisation**

**Dr. Matthijs Hisschemöller** is senior researcher in the field of policy sciences at the Institute for Environmental Studies (IVM) at the Free University of Amsterdam (VU). The main focus in his work is on stakeholder analysis and the structuring of global environmental problems, knowledge use in environmental policy and the effectiveness of international environmental agreements. He has been involved in earlier NOP sponsored national dialogue projects (as a project manager) and in the international dialogue project ‘Enhancing the effectiveness of research to assist international climate change policy development’. He is currently chair of the Study Group 34 of the International Political Science Association (IPSA): *Global Environmental Problems, a challenge to political science*, and he is involved in various (inter)national activities on research programming.

#### *Selected publications*

Hisschemöller, M., R. Hoppe, W.N. Dunn and J.R. Ravetz (editors) (forthcoming). Knowledge, Power and Participation in Environmental Policy. Issue of the Policy Studies Annual Review.

Hisschemöller, M., P. Groenewegen, R. Hoppe and C.J.H. Midden (forthcoming). Knowledge use and the policy process in Dutch environmental policy. Analysing nine cases. In M. Hisschemöller, R. Hoppe, W.N. Dunn and J.R. Ravetz (editors) (forthcoming). Knowledge, Power and Participation in Environmental Policy. Issue of the Policy Studies Annual Review.

Hisschemöller, M. and R. Hoppe (1996), Coping with intractable controversies: the case for problem structuring in policy design and analysis, *Knowledge and Policy, the International Journal of Knowledge Transfer and Utilization*, Vol. 8 no 4: 40-61.

Hisschemöller, M. J. Klabbers, M. Berk, R. Swart, A. van Ulden en P. Vellinga (1995), *Opties voor klimaatbeleid en hun implicaties voor beleidswetenschappelijk onderzoek*. Instituut voor Milieuvraagstukken, VU, Amsterdam.

**Prof.dr. Pier Vellinga** (1950), director of the Institute for Environmental Studies (IVM) at the Vrije Universiteit, Amsterdam, the Netherlands; professor in Environmental Sciences and Global Change at Faculty of Earth Sciences of the Vrije Universiteit Amsterdam, and scientific director of the SENSE Research School (Socio-Economic and Natural Sciences of the Environment), a consortium of

environmental research institutes of the Universities of Amsterdam (2), Wageningen, Utrecht and Leiden, comprising 300 academic researchers in the field of environment.

He received his Ph.D. in Technical Sciences (coastal dynamics) from Delft University of Technology in 1986. After receiving his MsC. at Delft University and a number of years of studies and practical experience in the USA and Africa he joined Delft Hydraulics as researcher, international consultant and deputy division director. After 14 years of international experience in coastal research and consultancy he accepted a post at the Netherlands' Ministry of Housing, Planning and the Environment. As an advisor to the Minister he helped to shape (inter)national policies in the field of air pollution and climate change (1988-1991). Since 1991 he is director of the Institute for Environmental Studies at the Vrije Universiteit, Amsterdam.

Prof.dr. Vellinga has broad international experience in global change science and government policy. For more than 8 years he was Bureau Member of the Intergovernmental Panel on Climate Change (IPCC), since 1995 he is Chairman of STAP, the Science and Technical Advisory Panel of the Global Environment Facility (GEF) of UNEP, UNDP and World Bank. Since 1997 he is chairman of the EU-sponsored European Forum on Integrated Environmental Assessment. He is also initiator and coordinator of the International Human Dimensions Programme (IHDP) on Industrial Transformation. He is a board member/advisory member of a number of international and national councils and institutes in the field of environment, energy, and coastal zone management.

### ***Selected Publications***

Beukering, P. van, and P. Vellinga (1996). Climate Change: From Science to Global Politics. In: Sloep, P., and A. Blowers, *Environmental Policy in an International Context: Environmental Problems as Conflicts of Interest*, Open Universiteit, The Netherlands, and Open University, UK, John Wiley & Sons Inc., New York-Toronto, Book 2, Chapter 7, pp. 187-217.

Klabbers, J, R.J. Swart, R. Janssen and P. Vellinga (1996). Climate Science and Climate Policy: Improving the Science/Policy Interface. *Mitigation and Adaptation Strategies for Global Change*. Kluwer Academic Publishers, Dordrecht, The Netherlands, Vol. 1, pp. 73-93.

Dorland, C., W.J. Maunder, A.A. Olsthoorn, R.S.J. Tol, P.E. van der Werff and P. Vellinga (1995). Socio-economic and policy aspects of changes in incidence and intensity of extreme weather events. In: Zwerver, S., R.S.A.R. van Rompaey, M.T.J. Kok and M.M. Berk (eds.), *Climate Change Research. Evaluation and Policy Implications*. ISBN 0-444-82143-0, Studies in Environmental Science 65A, Elsevier Science B.V., Amsterdam, pp. 1377-1380.

Vellinga, P., R.S. de Groot, and R.J.T. Klein (1994). An Ecologically Sustainable Biosphere. In: Committee for Long-Term Environmental Policy (ed.), *The Environment: Towards a Sustainable Future*. Kluwer Academic Publishers, Dordrecht/Boston/London, p. 317-346.

Vellinga, P., R.S.J. Tol (1993). Climate Change: Extreme Events and Society's Response. *Journal of Reinsurance*, Claude C. Lilly (ed.), Vol. 1, No. 2, pp. 59 - 72.

**Prof. dr. Harmen Verbruggen** (1950) is head of the department of Economics, Technology and Social Sciences of the Institute for Environmental Studies, Vrije Universiteit Amsterdam. Since 1990 he has also been dept. director of this Institute. In 1994 he became professor of International Environmental Economics. His major field of specialization is the interplay between development economics, international economic relations and environmental studies. Recent research interests include the interrelationships between environment and international trade, the international coordination of environmental policies, environmental policy instruments and clean technology.

*Selected Publications*

- Verbruggen, H. and O. Kuik (1996). Environmental Standards in International Trade in: P. van Dijk and G. Faber (eds), *Challenges to the New World Trade Organisation*, Kluwer Law International, The Hague/London., p. 265-290.
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- Verbruggen, H. (1992). Contours of a sustainable trading system. In: J. Arntzen, I. Hemmer and O. Kuik (eds). *International trade and sustainable development*, VU University Press, Amsterdam, p. 59-65.
- Kuik, O. and H. Verbruggen (eds) (1991). *In search of indicators of sustainable development*, Kluwer Academic Publishers, Dordrecht, 126 p.

**O.J. Kuik** studied economics at the Agricultural University of Wageningen. In 1985, he joined the Institute of Environmental Studies of the Vrije Universiteit in Amsterdam. He is project leader and he carries out research within the department of Economics, Technology and Social Sciences. In 1996 he was assistant of the Temporal Commission on Climate Change of the Second Chamber of Parliament. His main interests are international trade and environment, the monetary valuation of environmental change, market-based instruments of (international) environmental policy and economic aspects of interactions between agriculture and the environment.



*Selected publications on Climate Change:*

- Kuik, O.J., R.S.J. Tol, H. Verbruggen (1997) *The Impacts of Climate Change Policies of Annex I Countries on the Economies of Developing Countries - A Critical Review*. Paper presented at the 2nd Seminar on Environmental and Resource Economics, Girona, Spain, May 19-20, 1997. 11 pages.
- Lammers, P.E.M., O.J.Kuik, R.Heintz (1997) *Background paper on Climate Change*. Paper prepared for the Conference Climate Change and Environmental Policy: a Challenge for Energy Conservation, Amsterdam, 23- 24 January 1997.
- Kuik, O.J. & J.Gupta (1996) 'Perspectives on Africa and the Global Debate on Joint Implementation'. In: R.S.Maya and J.Gupta, *Joint Implementation: Carbon Colonies or Business Opportunities?* Southern Centre for Energy & Environment, Harare. pp. 2-19.
- Bollen, J.C., O.J. Kuik, J.G. van Minnen, A.M.C. Toet, M. Bennis (1995) *A Framework for the Assessment of the Global Potential of Joint Implementation*, Report nr. 481507011, RIVM/IVM, Bilthoven/Amsterdam.
- Kuik, O.J., P. Peters, N. Schrijver (eds.) (1994), *Joint Implementation to Curb Climate Change: Legal and Economic Aspects*, Kluwer Academic Publishers, Dordrecht
- Kuik, O.J., H.M.A. Jansen, C.K. Spiegel (1991) "Impacts of sea level rise: an economic approach". in: *Climate Change: evaluating socio-economic impacts*. OECD, Paris.
- Kuik, O.J., J.B. Opschoor, K. Blok (1990) *Economic aspects of CO2 reduction: a view from the Netherlands*, Paper prepared for the White House conference on Climate Change, Washington, 16-18 April 1990.

**Dr. Marijke Spanjersberg** (1958) is consultant. Her clients are non-profit organisations like Ministries as well as profit organisations like Dutch multinationals. The main focus in her work is on facilitating groups in various settings: creative problem resolution, conflict resolution, complex decision making, etc. She studied psychology and wrote a doctoral theses on these themes. As consultant she also works on research projects. For the Ministry of Environment (VROM). She evaluated a national communication campaign on the greenhouse-effect, she did a scoping study on the main problems of sustainable water management and evaluated opportunities for interactive policy-making.

*Selected Publications*

- Spanjersberg, M. (1998), Eerlijk zeggen, Over het bevorderen van onderlinge open heid in werksituaties, in: *Opleiders in Organisaties*, Capita Selecta (verschijnt in juli 1998), Kluwer Bedrijfswetenschappen, Deventer.
- Pe, M.O. en M. Spanjersberg (1997), De inzet van Sociaal Instrumentarium in het milieubeleid in: *Openbaar Bestuur 1997*, nummer 6/7, p.27-32.
- Spanjersberg, M. (1997), [case studie MGR, Bos International]
- Spanjersberg, M., *Open beleidsprocessen over de verdeling van milieuvorraden. Ervaringen uit vijf case-studies*, VROM-publicatie 1997.
- Spanjersberg, M. *Bos duurzaam verdelen. Leringen uit een praktijkstudie*, VROM-publicatie 1996.
- Iersel, A.H.M. van en M. Spanjersberg (1993), *Peace education in the church*, Kok, Kampen (diss.)

**Ir. Miriam Harmelink** (1965) is senior energy policy analyst at the Laboratory of Waste and Emissions of RIVM. She studied Technology and Society at the Technical University Eindhoven and

specialised in Technology Assessment and Energy Technologies. At RIVM she has been involved in the assessment of energy related emissions and emission reduction options. As an energy expert she participated in the production of RIVM's Environmental Balances and Forecasting reports.

*Selective publications:*

Harmelink, MGM, RMM van den Brink, D. Stein, 1998. Verdergaande CO<sub>2</sub>-reducties; effecten op de emissies van Nox, SO<sub>2</sub>, fijn stof en VOS. Rijksinstituut voor Volksgezondheid en Milieu, Bilthoven, rapportnummer 773001012.

ECN/RIVM (1998) Optiedocument voor emissiereductie van Broeikasgassen - Inventarisatie in het kader van de Uitvoeringsnota Klimatbeleid, Petten.

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RIVM (1997) Nationale Milieuverkenning 1997-2020, Tjeenk Willink bv, Alphen aan de Rijn.

**Dominique Stein** (1970) is junior energy policy analyst at the Laboratory of Waste and Emissions of RIVM. She studied Business Economics (Hogeschool voor Economische Studies Rotterdam) and Environmental Sciences (Open University). At RIVM she has been involved in cost analysis of energy related CO<sub>2</sub> emission reduction options, analysis of energy policy measures, as well as other issues in the area of economy and environment.

*Selective publications:*

Harmelink, MGM, RMM van den Brink, D. Stein, 1998. Verdergaande CO<sub>2</sub>-reducties; effecten op de emissies van Nox, SO<sub>2</sub>, fijn stof en VOS. Rijksinstituut voor Volksgezondheid en Milieu, Bilthoven, rapportnummer 773001012

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Otto, F en D. Stein 1996. Kosten klasse II zoute baggerspecie, Een verkenning van de kosten bij Uitvoering van huidig verspreidingsbeleid en varianten. Rijksinstituut voor Kust en Zee.

**Dr. ir Bert Metz**, has a background in chemical engineering and environmental diplomacy and is now head of RIVM's Global Environmental Assessment Division and co-chair of working group III of IPCC. He recently joined RIVM after serving as climate co-ordinator at the Ministry of Housing, Physical Planning and the Environment and principle climate negotiator for the Netherlands since 1990. Apart from his immense experience with international climate policy making, he also has broad experience with science - policy interactions. Amongst others, he participated in all previous NRP science-policy dialogue projects - including the Delft dialogue - as well as in two IMAGE 2 advisory board meetings aimed at steering global modelling activities.

*Selected reference:*

- Phylipsen, G.J.M., J.W. Bode, K. Blok, H. Merkus, B. Metz, "A triptych sectoral approach to burden sharing; GHG emissions in the European Bubble", (submitted to Energy Policy), Department of Science, technology and Society, Utrecht University, Utrecht.

**Drs. Marcel Berk** (1963) studies political sciences. He was formerly affiliated with the Programming Bureau of NRP as integrated assessment expert and is currently working at RIVM as a policy analyst in the field of climate and global change. He was involved in the earlier NRP - Policy Options and PORA dialogue projects, and more recently in the set up and preparation of the subsequent Delft-

Dialogue workshops. He was involved in the development of both the Safe Landing Analysis and the Interactive Scenario Scanner.

*Selected references:*

- Swart, R., Berk, M. M., Janssen, M., Kreileman, E. and Leemans, R., The safe landing analysis: risks and trade-offs in climate change. In: Alcamo, J., Leemans, R. and Kreileman, E., 1998. Global change scenarios of the 21st century. Results from the IMAGE 2.1 model. Elsevier Science, London, (in press) pp.
- van Daalen, C. E., Thissen, W.A.H. and Berk, M. M., The Delft process: Experiences with a dialogue between policy makers and global modellers. In: Alcamo, J., Leemans, R. and Kreileman, E., 1998. Global change scenarios of the 21st century. Results from the IMAGE 2.1 model. Elsevier Science, London, (in press) pp.
- Berk, M. M. and M. A. Janssen (1997): The Interactive Scenario Scanner, a tool to support the Dialogue between Science and Policy on Scenario Development version 1.0, RIVM-report no. 481508005, RIVM, Bilthoven, the Netherlands
- Alcamo, J., R. Swart, J. Onigkeit, M. Berk, E. Kreileman (1997): Climate Protocols and Climate Protection: An evaluation of proposals leading up to Kyoto, Center for Environmental Systems Research, University of Kassel,/ RIVM, 1997.



### 13. Budget breakdown

#### a) Total costs (in kf)

personnel	1548.1
material	159.0
VAT	110.8
TOTAL	1817.9

\* assuming 50% matching

#### b) Contributions

##### National programme (in kf, incl. VAT)

personnel	922.2
materials	155
Total	1077.2

##### Own contributions (in kf)

personnel	736.7
materials	4
Total	740.7

##### Total contributions (personnel + material in kf)

NRP	1077.2
IVM	430.6
RIVM	310.1
Total	1817.9

**14. Labour costs ( in kf, incl. VAT to charge to NRP by Institution)**

The following table provides an overview of personnel costs:

	year	costs per year	kf for institute	kf for NRP	VAT NRP	TOTAL NRP
junior IVM(*)	1.87	180000	336600			
Vellinga	0.15	500000	75000			
Verbruggen	0.04	400000	15000			
Hisschemöller	1.00	300000		300000	52500	352500
Kuik	0.50	305500		130000	22750	152750
junior NRP(*)	0.63	211500		113400	19845	133245
Spanjersberg (consultant)	0.23	470000		90000	15750	105750
Energy co-ord. RIVM (vac.)	0.36	240006	87532			
Harmelink	0.32	177990	57585			
Stein	0.76	177990	136110			
Berk	0.06	177990	10470			
Metz	0.06	313004	18412			
Junior (vac.)	1.00	177990		177990		177990
<b>TOTAL</b>	<b>4.86</b>		<b>736709</b>		<b>110845</b>	<b>922235</b>

(\*) same person: 0,63 year will be covered by NRP, 1.87 by IVM

**15. Material costs ( in kf, excl. VAT to charge to NRP by Institution)**

Inst.	Description	Total	NRP	Inst.
IVM	travel and subsistence	17.5	17.5	
	Documentation	2	2	
	Accommodations workshops	24	20	4*
	Organising workshops	10	10	
	Print, copying, phone, fax etc.	5.5	5.5	
	External expertise	100	100	
			-	
	<b>Total material costs</b>	<b>159</b>	<b>155</b>	<b>4</b>

\* = hosting sector group meetings by participants

As a clarification to the budget break-down, the following comments can be made.

1. The Theme III assessment study has not been included and should be taken into account for a complete picture of the input of scientific expertise in the project, most of which is related to energy technology expertise.

*National Dialogue*

2. The item External Expertise relates to all kinds of expert advice (on law, economics, politics, consumer behaviour etc.) that will not be covered by the Theme III assessment study.
3. Note that the budget break-down cannot yet be complete in so far as contributions by the participating institutions are concerned. For example, IVM has only calculated the immediate personnel contribution to this project, but the real contribution by IVM is much higher (about *kfl* 300), as the COOL project interacts with many other projects underway. Also personnel contribution by sector group participation have not been estimated. Only their material contribution has been estimated in a conservative manner (*fl* 4000) This is meant to imply that to the extent that participants show a willingness to host sector group meetings, the material budget for NRP *fl* 20.000 will go down.
4. The proposal assumes that the main material costs for activities organised in collaboration with the Core Project are covered by the Core Project. However, the personnel contribution from the project National Dialogue has been covered by the project's budget.

## REFERENCES

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- Hisschemöller, M. and R. Hoppe (1996), Coping with intractable controversies: the case for problem structuring in policy design and analysis, *Knowledge and Policy, the International Journal of Knowledge Transfer and Utilization*, Vol. 8 no 4: 40-61.
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- Klabbers, J.H.G, P. Vellinga, R.J. Swart, A.P. van Ulden, and R. Jansen (1994). Policy Options addressing the Greenhouse Effect. NOP-RIVM. Bilthoven.
- Novem / Videm Communicatie (1996). Communicatiestrategie NOP. Eindrapport. Utrecht.
- Vellinga P., J.H.G. Klabbers, R.J. Swart, A.P. van Ulden, M. Hisschemöller and M.M. Berk (1995). Climate change, policy options and research implications. In S. Zwerver, R.S.A.R van Rompeay, M.T.J. Kok and M.M. Berk: *Climate Change Research, Evaluation and Policy Implications. Proceedings of the Internatiuonal Climate Change Research Conference, Maastricht, The Netherlands, Maastricht* (pps 119 - 135). Elsevier, Amsterdam.
- Verbruggen, H. (project leader) (1996) *Duurzame Economische OntwikkelingsScenario's (DEOS) voor Nederland in 2030*, Publikatiereeks Milieubeheer 96/1, Ministerie van VROM, Den Haag.
- Yearly, S. (1996). *Sociology, environmentalism, globalization, reinventing the globe*. Sage, London.

## Climate OptiOns for the Long-term (COOL):

### European Dialogue

#### 1. General information

Project title: Climate OptiOns for the Long-term (COOL)  
Sub-project: European Dialogue  
NRP theme: IV  
Duration: 2.5 years

#### 2. Contracting organisation

Name organisation : Wageningen Agricultural University, Dept. of Environmental Sciences, Chair of Environmental Systems Analysis  
Abbreviation : WAU/WIMEK  
Postal Address : P.O. Box 9101  
Postal Code/City : 6700 HB Wageningen  
Telephone number : 0317-484919  
Telefax number : 0317-484839  
E-mail address : leen.hordijk@wimek.cmkw.wau.nl

#### 3. Project leader

Name : prof. dr. L. Hordijk  
Function : Director  
Address, etc. : see above

#### 4. Subcontracted institutes

	<i>Organisation</i>	<i>Responsible scientist</i>
1.	Chair of Environmental Sociology and Social Methodology, Wageningen Agricultural University (WAU/MSSM, see address above)	dr.ir. A. Mol
2.	International Institute for Applied Systems Analysis 2361 Laxenburg Austria	dr. G. Klaassen
3.	Jäger Int. Birneckergasse 10/1 1210 Vienna, Austria	Dr. J. Jäger

4.	Potsdam Institute for Climate Impact Research (PIK) Telegrafenberg PO Box 6012 03 14412 Potsdam Germany	Prof. dr. F. Toth
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## 5. Abstract of project

Major goal of the COOL project (see Core project proposal) is to support the development of long-term climate policy in the Netherlands in a European and global context. This sub-project proposal deals with the European component of the project.

The project serves three objectives. Firstly, the sub-project aims at providing useful insights into long-term policy options at the European level through stimulating and enhancing the interaction between researchers and policy makers in order to support the development of Dutch and European climate policies (policy goal). Secondly, it aims at providing input to the projects at the national and global levels. Thirdly, the project seeks to contribute to the further development of methodologies of participatory approaches in integrated assessment at the European policy level (scientific goal). For this purpose, it will build on the achievements of earlier NRP projects.

The focus will be on the European Union and its member states, although the broader European context (EU candidate member states and other European countries) will be taken into account.

With regard to climate policy and the exchange between science and policy in this field, we will take into account that the EU constitutes an intermediate policy level. On the one hand, EU activities regarding climate change depend on information given by member states and on policy measures taken by these states (subsidiarity). On the other hand, an important aspect of a European climate policy is the co-ordination of the member states' positions in global climate negotiations. Both the EU and the Member States are signatories of the Kyoto Protocol and are thus responsible for jointly delivering the required emission reductions. Furthermore, the Protocol contains a special provision for the so called EU bubble. The political and institutional settings for playing this intermediate role are in constant evolution due to the dynamic character of the European integration process (further enlargement, treaty revisions, Agenda 2000, introduction of the Euro). The latter aspect is particularly relevant for this project, which will focus on policy development in the medium term (5-15 years).

Phase 1 of the present sub-project (months 1-6) will essentially be a scoping phase. This phase consists of assessing the potential role of a science-policy dialogue at the EU-level, assessing the appropriate structure and institutional context as well as identifying the relevant issues and key stakeholders for a European science-policy dialogue with a focus on medium-term policy development. Phase 1 will be concluded with the first of a series of dialogue workshops. Findings of this workshop will also serve as an input to the first COOL National Workshop at the end of phase 1. During phase 2 (months 7-24), three more dialogue workshops will be held, focusing on the issues selected in phase 1. The findings of this phase will flow into the second COOL National Workshop scheduled for the end of phase 2 and into phase 3. Phase 3 (months no. 25-30) will be devoted to the synthesis, reporting, dissemination and evaluation of the European dialogue in close connection with the national and global dialogues and the Core project.

## 6. Rationale

The EU constitutes an intermediate policy level in relation to climate change. At the same time, however, the EU can be considered the most important forum for international environmental co-operation for its member states, not least because of the close connection with the EU's encompassing Internal Market policy. Particularly before and at the Third Conference of Parties (CoP3) to the Framework Convention on Climate Change (FCCC) in Kyoto in December 1997, efforts to develop a coherent climate policy at the EU level, co-ordinating and guiding member state policies in this field, have considerably increased. It is becoming increasingly clear that due to the completion of the internal market further co-ordination in climate policies is needed to enhance effectiveness and cost-efficiency as well as to avoid distortion of competition among the member states. This co-ordination pertains both to internal EU policies and to external efforts.

Regarding internal policy making within the EU, two broad topics have emerged: common and co-ordinated policies and measures, and burden sharing under the EU bubble. Regarding common measures the focus was first on the introduction of a generic, EU-wide energy or CO<sub>2</sub> tax in the first half of the 1990s. This evolved in a proposal for increased minimum tax rates for energy products. The focus has now shifted to the development of more elaborate, sector-specific strategies for the achievement of the Kyoto commitment. Technical and economic possibilities for measures within key sectors have for instance been evaluated in studies for the Council's Ad Hoc Group on Policies and Measures. Simultaneously, the Commission has developed a number of Communications and Directives in the field of climate, energy and transport policy. Whereas these efforts form an increasingly firm scientific basis for the implementation of reduction targets in the EU and by the member states, as of yet no stable agreement has been reached on which measures should be taken in common or in a co-ordinated way. This is becoming a problem particularly for Member States with an open economy. In addition, uncertainty still exists regarding the distribution of emission reductions among the EU member states to meet the overall EU target. This is also referred to as burden sharing. So far, the costs and benefits of burden sharing have not been explicitly dealt with. On the longer term, the issue of burden sharing will remain highly topical in relation to the accession of new member states to the EU. One of the most interesting questions to be answered in the near future is the accommodation of the Kyoto targets and flexible instruments - emissions trading, Joint Implementation and the Clean Development Mechanism - into the existing system of burden sharing..

Externally, the EU climate debate is closely related to the work done in the framework of the FCCC. At the political level, this implies that the EU climate policies are directly linked to the need to arrive at a common position for the negotiations at the global level (CoPs in Kyoto, Buenos Aires, etc.). The EU will have to start to play an important intermediate role in the development of concrete policies and their actual implementation.

At the scientific level, the EU partly relies on information and expertise from IPCC. For the formulation and implementation of concrete policy measures, the EU depends on information from the member states as well as research carried out under guidance of the European Commission (DG XII, but also DGs XI, XVII, VI).

Politically, the evolution of EU climate policies depends on institutional developments and related uncertainties. Major uncertainties are the EU's institutional framework, the accession of new countries as well as the evolution of the EU's competencies and decision-making procedures such as majority voting on issues such as (CO<sub>2</sub>-) tax policy. This is in particular important because every policy issue will inevitably become bound up with strategic questions regarding the future of the European integration. The climate issue is not an exception to this. Notwithstanding these complications, it remains clear that the EU is one of the leaders in climate policy.

The analysis made above leads to the conclusion that the EU can only maintain a leadership position if it delivers its own commitment in 2008-2012 and makes progress on substance in the international debate. Because of the internal market the commitment can only be delivered if common policies and

measures are agreed, which proved difficult in the past, and a credible and enforceable burden sharing is agreed on. In the international debate the EU will have to be able to present a view on the Kyoto flexibility instruments in order to balance the influence of the other players. In this respect scientific support through integrated assessment is a useful tool, provided this tool is used at the appropriate political level.

The far-reaching influence of the EU on national policies as well as its role as an important player in global climate policies justifies a specifically focused effort on the part of the COOL project. The relevance of such an effort is further emphasised by the fact that a science-policy dialogue at the European level is as yet poorly developed. In the framework of the NRP, no European equivalent to the national 'Policy options' project and the globally oriented 'Delft workshops' (using the IMAGE-model) exists. So far, some dialogue sessions primarily focusing on short term policies have been held, notably the Policy-Research Interface Workshops organised by DG XII in collaboration with the University of Versailles/C3ED, and the series of workshops organised by the WWF Climate Change Campaign in collaboration with the Centre for European Policy Studies (CEPS). These workshops have had hardly a more than ad-hoc character, were not linked to the decision-making centres and have not made systematic use of integrated assessment models. In this context also the recently established European Forum on Integrated Environmental Assessment (EFIEA) should be mentioned. The EFIEA plans to organise a policy workshop regarding climate change in January 1999. Members of the project team participate in EFIEA and intend to play a particularly active part in this workshop. The early stage of development of a science-policy dialogue at the European level, in sum, offers opportunities for the COOL project to make a substantial contribution to the establishment of such a dialogue.

## **7. Description and planning of activities and deliverables**

### ***Phase 1 (months no. 1-6)***

The main task in the first phase will be to identify the issues that are likely to prevail in EU climate policy on the medium term (5-15 years) as well as the key stakeholders to be involved in the dialogues. Examples are: distribution issues (burden sharing); which policies and measures should be common and which should be selected; what is (and should be) the role of the Community vis-à-vis the member states; which options are cost-effective; how to make use of the flexibility instruments in the Kyoto Protocol to meet the EU target; and uncertainties related to the future development of the EU (the form and pace of further integration, subsidiarity and flexibility, further enlargement). Participants to the dialogue workshops will have to be selected from the following categories: climate negotiators from national Ministries of the Environment in EU countries as well non-EU countries in Europe and from the European Commission, climate decisions-makers from other relevant Ministries (Economic Affairs, Energy, Foreign Affairs), representatives of key target sectors involved in a European climate policy (industrial branch associations, general business associations, NGOs), and scientific experts.

The identification of issues and stakeholders will be done by using a combination of the following methods:

- Development by the project team of a set of qualitative scenarios, describing the range of possible futures of the European integration process on the medium term (5-15 years) and their potential consequences for climate policy. In the meetings and interviews in the remainder of phase 1, this set of scenarios, together with a review of other relevant literature, will serve as a tool to focus the selection of issues for the phase 2 workshops.
- A meeting with (representatives of) the Council's Ad Hoc Group on Policies and Measures to determine the appropriate institutional level of the project.
- A meeting with Dutch policy-makers/negotiators in the field of climate change.



- A limited number of interviews (5-10) with representatives of key sectors and NGOs at the European level to be involved in the workshops of phase 2 (see below).
- Organisation of a dialogue workshop at the end of phase 1. During this workshop, the agenda will be set for the more specific workshops to be organised in phase 2 (cf. the list of potential issues below, under phase 2). This workshop will bring together 15-20 climate negotiators and other stakeholders from a number of key member states and applicant countries<sup>7</sup>. In addition, a limited number of scientific experts, e.g. from the NRP theme II and III assessment studies, will be invited to present the range of options for scientific input into the phase 2 workshops.
- Preparation of a document, describing the design of the phase 2 workshops and serving as a basis for the commitment of workshop participants.

In addition, phase 1 will be used for the further development of existing working contacts and collaboration with other, related research initiatives. The following projects and/or institutes are relevant: European Forum on Integrated Environmental Assessment (EFIEA), the WWF/CEPS project, related projects in the EU 'Environment and Climate' Programme (including ULYSSES and CIRCITER) as well as other EU research initiatives (DG XI, DGXVII, DG XII), IIASA in Austria, CSERGE in the UK, Wuppertal Institut in Germany, Potsdam Institut für Klimaforschung in Germany, and Fridtjof Nansen Institute in Norway. The establishment of EFIEA, initiated during a conference in Toulouse (France) in October 1996, appears as a particularly promising scientific platform for the exchange of views and networking in the interest of the project and will be followed closely.

#### **Phase 2 (months no. 7-24)**

The main task in the second phase is the preparation, organisation and evaluation of three dialogue workshops in an iterative process. These workshops will elaborate on a set of specific aspects of European climate policy to be identified during phase 1 and build upon the results of the earlier workshops in the sequence. For this reason, all three workshops will be held with approximately the same group of participants. During the workshops, on the basis of request from participants, various policy support tools will be made available (modelling tools, scenario analyses, etc.). Although the content and design of the phase 2 workshops depends to a large extent on the results of phase 1, the following directions and options can be specified.

Potential (partly interrelated) issues for the three dialogue workshop in phase 2:

- long-term perspectives for burden sharing in EU climate policy, particularly in relation to the further enlargement of the EU;
- the potential for the use of Kyoto flexible instruments (emissions trading, Joint Implementation, Clean Development Mechanism) and the use of sinks in the context of the EU, i.e. both within the EU (in close connection with the issue of burden sharing) and in relation to third countries;
- the development of competencies and common and co-ordinated policies and instruments in EU climate policy in relation to the future development of the Union (further steps in the integration process after the Amsterdam Treaty, developments in specific policy fields such as European Monetary Union (EMU) and tax policy, European Political Union (EPU), transport policy, energy policy, agricultural policy and other sector policies)

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<sup>7</sup> These are envisaged to include: two of the large member states in the centre of the EU (UK, F, D), two southern member states (E, I, GR), two of the small northern member states (NL, DK, S, FIN) as well as two countries from the first group of CEE applicants (Estonia, Poland, Czech Republic, Hungary, Slovenia).

- the delimitation of EU competencies and activities vs. national and global climate policy, particularly in relation to evolving debates about subsidiarity and flexibility in the EU;
- the ambition and perception of the EU as an international leader in climate policy.

A further selection and delimitation of these issues will have to take place at the end of phase 1.

The phase 2 workshops will as much as possible consist of the same group of 15-20 stakeholder representatives. These will include 10-12 climate negotiators from key member states and applicant countries as well as 5-8 representatives of key sectors and NGOs<sup>8</sup>. In addition, dependent on the issue at stake, a limited number of scientific experts (max. 5) may be invited to each workshop on an ad hoc basis.

Scientific input into the phase 2 workshops will be provided in the following ways:

- on the basis of the NRP theme II and III assessments that are conducted parallel to the COOL project and other research findings available within the NRP, such as MATTER (ECN), WorldScan/IMAGE (CPB), Tradable emission rights (RUG), Burden Differentiation (3rd trench NRP project, yet to be decided);
- through the use of modelling tools and/or scenario studies designed specifically or adapted for the purpose of these workshops, such as PRIMES/GEM-E3 (NTUA, Greece), POLES (University of Geneva, Switzerland), Mobi/DK (Denmark), MARKAL (ECN), work by RUU/WTM (through sub-contracting);
- through the further development and refinement of qualitative scenarios regarding the political and socio-economic development of the EU (building, *inter alia*, upon the scenarios developed in phase 1 of this sub-project).

### Phase 3 (months no. 25-30)

Phase 3 of the European sub-project will basically consist of making contribution to the analysis and evaluation of the COOL findings as described in the Core project proposal.

**Table 1. Overview of activities and deliverables of the COOL European dialogue sub-project:**

<b>First Phase (month 1-6)</b>			
<u>Act. no.</u>	<u>Description of activity</u>	Month no.	Deliverable
1.1	Development of scenarios/literature review regarding EU climate policy	1-3	document for first workshop
1.2	Meetings with the Council's Ad Hoc Group on Policies and Measures and with Dutch climate policy makers	2	internal report
1.3	Interviews with representatives of key sectors and NGOs	2-3	internal report
1.4	First COOL European dialogue workshop with key policy makers	4	workshop report
1.5	Elaboration of results from first workshop: identification of issues, identification and commitment	5	detailed plan for the design of phase 2, commitment of

<sup>8</sup> Countries are envisaged to include a further selection of countries from the 'agenda-setting' workshop in phase 1 (e.g. two large key member states, one northern member state, one southern member state, one applicant country, and the Netherlands). Key sectors may include: the energy sector (electricity generation, oil companies/refineries), the 'sustainable energy' sector (wind, CHP, etc.), car industry, building industry, agriculture. NGOs may include environmental and consumer organisations.

	of participants, identification of needs for scientific input in phase 2 workshops		workshop participants, organisation of scientific input into phase 2
1.6	Presentation of interim results and plan for phase 2 at the first overall COOL National Workshop	6	interim report on phase 1 and plan for phase 2
1.7	Establishment of links with other, related projects	1-6	possible establishment of collaboration

<b>Second phase (month 7-24)</b>			
<u>Act. no.</u>	<u>Description of activity</u>	<u>Month no.</u>	<u>Deliverable</u>
2.1	Preparation of input for second workshop	7-10	material for second workshop
2.2	Second COOL European dialogue workshop	10	second workshop
2.3	Elaboration of results from second workshop	10-11	workshop report
2.4	Preparation of input for third workshop	11-15	material for third workshop
2.5	Third COOL European dialogue workshop	16	third workshop
2.6	Elaboration of results from third workshop	16-17	workshop report
2.7	Preparation of input for fourth workshop	18-21	material for fourth workshop
2.8	Fourth COOL European dialogue workshop	22	fourth workshop
2.9	Elaboration of results from fourth workshop	22-23	workshop report
2.10	Presentation of the results of the European dialogue at the second overall COOL Workshop	24	interim report on phase 2

<b>Third Phase (month 25-30)</b>			
<u>Act. No.</u>	<u>Description of activity</u>	<u>Month no.</u>	<u>Deliverable</u>
3.1	Final reporting on the European dialogue project	25-26	final report on European Dialogue project
3.2	Evaluation of the European dialogue	27-28	contribution to synthesis report
3.3	Dissemination of results	28-30	short report, leaflets, scientific papers
3.4	Presentation of the results of the European sub-project at the COOL Final Conference	30	paper

### Advisory structure

Given the complexity of the COOL project and its policy-oriented character there is a clear need for organising external guidance for the project management. The envisaged Advisory Structure will consist of a *general advisory board* for the whole of the COOL project and *sub-committees* for each of the dialogue projects (for a full description see the COOL core project).

It is envisaged that the (full) board will meet twice during the first phase of the project, twice or three times during the second phase and once during the third phase. Its sub-committees may schedule additional meetings. The first meeting of the board is planned shortly after the start of the project to give advise on the design and planning of the first phase. During a second meeting at the end of the

first phase the committee will play an important role in providing guidance on the plans for the second phase of the project.

Due to policy-oriented character of the project and to co-ordinate activities within the project with those undertaken by the various Ministries in support of the development of Dutch climate policy, the Ministry of Environment (VROM) has indicated the need for establishing sub-committees within the general advisory board that will follow each dialogue subproject more closely (e.g. by consulting more often and by its members functioning as “resource persons” in the preparation of or during project meetings). The sub-committees will consist of members of the general advisory board. The Ministry of Environment has already nominated representatives for each of the sub-committees: for the global dialogue this will be Henk Merkus (department of Climate Change). It is expected that also representatives of other Ministries will participate.

## **8. Scientific approach and innovative aspects**

The COOL project focuses on the interface between science and policy making in the field of climate change. In the European Dialogue project, as well as in the other dialogue projects, the main method adopted for this purpose is the establishment of a structured dialogue (participatory integrated assessment) between key stakeholders in the climate issue. The project thus seeks to bring together the 'supply' and 'demand' sides of scientific knowledge in a complex policy process to produce policy relevant insights and to study their interaction. This entails the following disciplinary input:

- Analysing the conditions set by the evolving political, institutional and socio-economic context of a European climate policy and developing scenarios regarding these conditions (see section 7) basically requires social science input. Relevant expertise is available within the sub-project team;
- Support of the design of the dialogue process will be provided by Dr. Jill Jäger (IIASA, Austria);
- The input of the necessary knowledge from natural and economic science will be ensured, first by making use of the NRP theme II and III assessment studies and results of existing research programmes as set up for instance by the Dutch NRP and the EU-DG XII, and second through collaboration with and subcontracting of other (foreign) institutes where relevant. This may involve the use of integrated assessment models, socio-economic models and/or scenario studies, designed or made suitable for the European context (see further section 7). The relevant economic and technical expertise to co-ordinate these efforts is available in the project team.

In combining different disciplinary perspectives on both the climate issue and political decision making in general, the sub-project serves the major goals of COOL, as elaborated in the Core project proposal:

- The policy-driven objective: contributing to a better and more effective 'fit' between the climate policy processes and scientific input, with a focus on long-term policy options;
- The science-driven or methodological objective (process evaluation):
  - testing and further development of the methodology of participatory integrated assessment as a tool for policy support;
  - evaluation of the utilisation of scientific knowledge in the dialogue process;
  - analysis of assessment and policy linkages between the three geographic levels, i.e. in the context of this sub-project particularly the role of the EU as an intermediate policy level between the national and global levels.

## **9. Relevance and potential use of the expected results for science and policy**

The first major goal of the European Dialogue project is to support the development of long-term climate policy in the Netherlands in the European context. The results of the project will thus be

relevant in the first place for improving the Dutch input into EU climate policy processes. In the second place, the policy process at the EU level itself should benefit from the project's efforts to support this process with tailored scientific knowledge. The scoping phase (phase 1) ensures that the scientific input will meet the specific demands of the European policy context and will be constituted at the appropriate institutional level. Regarding the scientific goal of the project, the dialogue process will provide the opportunity to further contribute to the development of methodologies for participatory approaches for integrated assessment and enhance our understanding of the interaction between science and policy regarding complex and multi-level, long-term policy issues. Climate change is a key example of this type of issues. In a more indirect way, these scientific insights will also contribute to a more effective and efficient policy process.

## **10. Description of how the project fits in long-term research strategy of the institute**

### *Wageningen Agricultural University, Chair of Environmental Systems Analysis*

This group includes natural and socio-economic scientists in a multidisciplinary programme. Climate change is one of the group's research themes. Various scientists have broad experience in the science policy dialogue on acidification in Europe and Asia. Others participate in IPCC/OECD development of emission guidelines.

### *Wageningen Agricultural University, Chair of Environmental Sociology and Social Methodology (WAU/MSSM)*

Since the end of the 1980s, international and European environmental policy has been one of the principal research focuses of the Department of Sociology at WAU. Major research projects were undertaken, among other things, on the interrelation between national and EU environmental policy making and on globalisation and the environment. The Department participated in four research projects in the EU 'Environment and Climate' Programme, one on the impact of the new member states on EU environmental policy (1994-1996), one on transport and risk communication (1994-1996), one on the emergence of new interactive environmental policy approaches (1996-1998), and one on the role of public utilities, including energy companies, in environmental innovation (1997-1999), in the latter two cases as co-ordinator. These activities have resulted in several books and articles as well extensive research contacts inside and outside Europe. Members of the Department have edited the first textbook on international environmental policy in Dutch language, which is widely used in Dutch universities. Also in the Department's own course programme, international and European policy plays an important and well-established role.

## **11. Description of how the proposed research fits in and contributes to ongoing projects from NRP and other Dutch and international research programmes**

The overall project has been developed at the request of and according to the terms of reference of theme IV of the National Research Program. It intends to capitalize on the climate change research of the participating institutions, part of which has been funded through the NRP. Internationally, the project not only intends to support the debate regarding the FCCC implementation and further IPCC work, at the European level also a contribution to the European Forum on Integrated Environmental Assessment (EFIEA) is envisaged.

## **12. Expertise and experience of the researchers**

Prof. dr. **Leen Hordijk** has been leader of the acid rain project of IIASA (Austria) and has been closely collaborating with policy makers negotiating various international agreements on acidification in

Europe. Recently he was leader of a World Bank sponsored regional study on acid rain in Asia. He has published various papers on the use of scientific results in environmental negotiations.

*Selected publications:*

Hordijk, L. (1995) Integrated assessment models as a basis for air pollution negotiations, *Water, Air, and Soil Pollution* 85, 249-260.

Bloemhof-Ruwaard, J.M., P. van Beek, L. Hordijk, L.N. van Wassenhove (1995) Interactions between operational research and environmental management, *European journal of Operational Research* 85, 229-243.

Amann, M., L. Hordijk, G. Klaassen, W. Schöpp, L. Sorensen (1992) Economic restructuring in Eastern Europe and acid rain abatement strategies, *Energy Policy* 20, 1186-1197.

Dr. Ir. **Arthur P.J. Mol** (1960), PhD. (1995, University of Amsterdam), MSc in Environmental Sciences (1985, WAU), associate professor with the Chair of Environmental Sociology and Social Methodology (MSSM) of Wageningen Agricultural University (WAU) in Environmental Sociology, Environmental Policy and Industrial Transformations. Member of the Executive Board of the Centre for Environment and Climate Studies WAU. Member of the academic boards of the MSc Environmental Sciences programme and the MSc Urban Environmental Management Programme. Currently engaged in research on environment induced institutional transformations in industrialised and developing countries.

*Selected publications:*

Mol, A.P.J. (1997), Industrial transformations and environmental reform, in: M. Redclift and G. Woodgate, *The Handbook of Environmental Sociology*, Glos, UK, Edward Elgar)

Mol, A.P.J. (1996), Ecological Modernisation and Institutional Reflexivity: Environmental Reform in the Late Modern Age, *Environmental Politics* 5, 302-323.

Mol, A.P.J. (1995), *The Refinement of Production. Ecological modernization theory and the chemical industry* (dissertation), Van Arkel, Utrecht, 454 pp.

Jaarsma, E. and A.P.J. Mol (1994), De rol van het onderzoek in het beleidsproces rond regulerende energieheffingen, *Milieu. Tijdschrift voor Milieukunde* 9, 120-129.

Liefferink, J.D., P.D. Lowe and A.P.J. Mol (eds.)(1993), *European Integration & Environmental Policy*, Belhaven Press, London / New York.

Principal investigator: vacancy.

Dr. **Ger Klaassen** (IIASA) is an environmental economist with 15 years experience in integrated assessment, and economic analysis for transboundary air pollution problems as well as climate. He worked 2.5 years at the European Commission on climate policy.

*Selected publications:*

G. Klaassen (1998) Emission Trading in the European Union: Practice and prospects. In: Sorrel and Skea (eds.): *Pollution for sale: emission trading and joint implementation*. Edward Elgar, Cheltenham (UK) (forthcoming).

Jansen, H. and G. Klaassen (1998) Economic Impacts of the 1997 EU energy tax *Environmental and Resource Economics*, (forthcoming).

Jansen, H. and G. Klaassen (1997) Presentation of the new community system for the taxation on energy products, part II Assessment of the impact proposal. Commission Staff Working paper. Addendum to document SEC(97)1026 of 23.05.97. DGXI, European Commission, Brussels.

Horrocks, P. and G. Klaassen (1997) Climate Change - Analysis of proposed EU emission reduction objectives for Kyoto. Commission Staff Working paper. European Commission, Brussels.

Horrocks, P., G. Klaassen et al. (1997) Communication on Climate Change: the EU approach for Kyoto. COM (97) 481, European Commission, Brussels.

Ir. **Willemijn Tuinstra** studied Environmental Systems Science at Wageningen Agricultural University. During internships she has worked with the IMAGE-group at RIVM, assisting in scenario development and with the Transboundary Air Pollution (TAP) group at the International Institute for Applied Systems Analysis (IIASA) in Austria, investigating the role of the RAINS-model in negotiations on the Second Sulphur Protocol (UN-ECE LRTAP). After finishing her studies (1996), she worked as a guest researcher with Dr Jill Jäger at IIASA. This included studying various aspects of Integrated Assessment in international environmental policy, especially with regard to climate change and the use of models. She was involved in the ULYSSES project, an EU-DG XII project which explores the interface between Integrated Assessment Models and citizens as part of an integrated assessment approach focusing on issues of urban life styles and sustainability in the context of climate change. Her main research interests concern the diverse aspects of the interactions between science and policy in international environmental issues.

Dr. **Rudolf S. de Groot** is an ecologist by training and experienced in assessing impacts of climate change on natural ecosystems and biodiversity. He is affiliated with WAU, Chair of Environmental Systems Analysis and is co-ordinator of the WIMEK Research Programme on Climate Change and Biosphere and of the Core Programme on Climate Change, Land Use, Biogeochemical Cycles and analysis of Policy Options of the National Research School on Socio-Economic and Natural Sciences of the Environment (SENSE).

*Selected publications:*

- De Groot, R.S., P. Ketner and A.H. Ovaa (1995) Selection and use of bio-indicators to assess the possible effects of climate change in Europe. *Journal of Biogeography* 22, 2707-2715.
- De Groot, R.S. and P. Ketner (1994) Sensitivity of NW European species and ecosystems to climate change and some implications for nature conservation and management. **In:** Pernetta, J.C., R. Leemans, D. Elder and S. Humphrey (eds), *Impacts of Climate Change on Ecosystems and Species: Implications for Protected Areas*, IUCN, Gland, Switzerland, pp 28-54.
- De Groot, R.S. and C.W. Stortenbeker (eds) (1992) Sensitivity of wetland ecosystems for climatic change (101 pp). Special Issue *Wetlands Ecology and Management* 2, Issue 1/2, SPB Academic Publishing, The Hague
- Boer, M.M. and R.S. de Groot (eds), 1990. Landscape-ecological Impact of Climatic Change. *IOS Press*, Amsterdam, Washington, Tokyo (429 pp)

Dr. **Carolien Kroeze** (WAU, Chair of Environmental Systems Analysis) is a biologist specialised in developing emission estimations techniques, biogeochemical processes analysis and integrated assessment. She has large experience in integrated assessment modelling in particular for acid rain in Asia and Europe.

*Selected publications:*

- C. Kroeze (1998) Potential for mitigation of emissions of nitrous oxide (N<sub>2</sub>O) from the Netherlands (1980-2015), *Ambio* 27, 118-122
- L. Hordijk and C. Kroeze (1998) Integrated assessment models for acid rain, *European Journal of Operational Research* 102, 405-417.
- S.P. Seitzinger and C. Kroeze (1998) Global distribution of nitrous oxide production and N inputs in freshwater and coastal marine ecosystems, *Global Biogeochemical Cycles* 12, 93-113.

Through the COOL Core project, project leaders and researchers of the COOL National and Global Dialogue projects will also be involved in this sub-project.

### 13. Budget breakdown

#### a) Total costs (in kf)

	Not related to policy supporting activities	Related to policy-supporting activities	Total
Personnel	379.2	136.3	515.5
Material cost	110	170	280
VAT		-	-
Total	489.2	306.3	795.5

#### b) Contributions

##### National programme

	Not related to policy supporting activities	Related to policy-supporting activities	Total
Personnel	170.5	136.3	306.8
Material costs	110	170	280
VAT	-	-	-
Total	280.5	306.3	586.8

##### Own contributions

	Total
Personnel	208.7
Material costs	-
VAT	-
Total	208.7

#### Total contributions:

	Total
NRP	586.8
WAU	208.7
Third parties	p.m.
Total	795.5



**14. Labour costs (in kf, excl. VAT to charge to NRP by Institution)**

Inst.	Name	Function	Tariff (kf/my)	MY	Total	NRP	Inst
WAU	Vacancy	Senior researcher	108	21.5/12	193.5 <sup>1</sup>	193.5	
	W. Tuinstra	Junior reseacher	80	0.67	53.3 <sup>2</sup>	53.3	
	A. Mol	Senior reseacher	189	2.5/12	39.4		39.4
	L. Hordijk	Project-leader	279	0.5	139.5		139.5
	C. Kroeze	Senior researcher	169.2	1/12	14.1		14.1
	R. de Groot	Senior researcher	189	1/12	15.7		15.7
IIASA	G. Klaassen	Senior reseacher	240	0.25	60 <sup>3</sup>	60	pm
<b>Total</b>				3 yr. 5m.	515.5	306.8	208.7

	Of which related to policy- supporting activities
<sup>1</sup> Vacancy	7/12 * 108 = 63
<sup>2</sup> W.Tuinstra	5/12 * 80 = 33.3
<sup>3</sup> G. Klaassen	2/12 * 240 = 40
<b>Total</b>	136.3

**15. Material costs (in kf excl. VAT to charge to NRP by Institution)****National programme**

<i>Item</i>	<i>Not related to policy supporting activities</i>	<i>Related to policy-supporting activities</i>	<i>Total Amount</i>
4 International workshops (incl. logistics)		80	80
Travel costs	20		20
Other sub-contracting	80		80
consult on workshop (J.Jaeger)		80	80
Printing, documentation	10	10	20
<b>Total</b>	110	170	280

**16. Specification third parties**

<i>Item</i>	<i>Amount</i>
Possible Contribution EU funds (DG XII etc.)	p.m
<b>Total</b>	p.m

**Appendix 1: Related and relevant projects at WAU**

1. Joint environmental policy-making (JEP): new interactive approaches in the EU and selected member states (Dept. of Sociology: Mol, Liefferink et al.; in the framework of the EU 'Environment and Climate' programme)
2. Citizenship involvement in the ecological modernisation of household-related public utility sectors in the EU: from captive to authoritative consumer? (Dept. of Sociology: Spaargaren, Van (Dept. of Sociology: Spaargaren, Van Vliet et al.; in the framework of the EU 'Environment and Climate' programme; in the framework of the EU 'Environment and Climate' programme)
3. Three Ph.D. projects regarding economic and energetical aspects of (the relations between) climate change, ozone and acidification (Hordijk, Kroeze, Van Ierland; funded by WAU, NWO and KEMA)
4. International estimation of the emission of greenhouse gases (Kroeze, Van Amstel, Hordijk; funded by WAU and VROM/DGM)
5. Potential for use of renewable sources of energy in Asia and their cost-effectiveness in air pollution abatement (Hordijk, Kroeze; EU-project)
6. Uncertainty analysis of emission inventories (Hordijk, Kroeze, Pulles (TNO); Ph.D. project funded by TNO)

## Climate OptiOns for the Long-term (COOL):

### Global Dialogue

#### 1. General information

Project title: Climate OptiOns for the Long-term (COOL)  
Sub-project: Global Dialogue  
NRP theme: IV  
Duration: 2.5 years

#### 2. Contracting organisation

Name organisation : National Institute of Public Health and the Environment  
Abbreviation : RIVM  
Postal Address : P.O. Box 1  
Postal Code/City : 3720 BA Bilthoven  
Telephone number : 030-274 3990  
Telefax number : 030-274 4435  
E-mail address : Bert.Metz@rivm.nl

#### 3. Project leader

Name : dr. ir. B. Metz  
Function : Head Global Environmental Assessment Division, Bureau of Environmental Assessment  
Address, etc. : see above

#### 4. Subcontracted institutes

	<b>Organisation</b>	<b>Responsible scientist</b>
1.	Kassel University, Center for Environmental Systems Research Kurt Wolters Strasse 3 D-34109 Kassel Germany	prof. dr. J. Alcamo
2.	Potsdam Institute for Climate Impact Research (PIK) Telegrafenberg PO Box 6012 03 14412 Potsdam Germany	Prof. dr. F. Toth
3.	Centre International de Recherche sur l'Environnement et le Développement (CIRED) Ecole des Hautes Etudes en Sciences Sociales 45 bis Av. de la Belle Gabrielle 94736 Nogent/Marne cedex France	dr. J-C Hourcade

4.	Institute for Environmental Studies Free University De Boelenlaan 1115 1018 HV Amsterdam The Netherlands	dr. J. Gupta
5.	Netherlands Bureau for Economic Policy Analysis (CPB) PO Box 80510 2508 The Hague The Netherlands	drs. H. Timmer

The list of foreign institutes is indicative and can be extended if other expertise is needed. The primary contributors in the project are RIVMs partners in EuroPrime (EUROpean Partnership for Research on Integrated Modelling of the Environment) - a network of institutes co-operating on the development and applications of the IMAGE 2 model, presently consisting of RIVM, Kassel University, and PIK and to be joined by CIRED. PIK will primarily contribute to the assessment of the impacts of climate change in relation to the level and timing of GHG emissions control. CIRED will contribute to the assessment of the economic implications of emission control strategies and instruments. Dr. F. Toth of PIK will make a specific contribution to the project by giving advise on the set up of the workshops. IVM will contribute expertise in the area of enhancing developing countries participation in international climate change policy development (dr. J. Gupta). The contribution of CPB will be part of the existing co-operation between RIVM and CPB in the application of the WorldScan model for scenario development and analysis and its linking to analyses with the IMAGE model. Depending on requests for specific analysis during the workshops and available means, it is expected that contributions by other (foreign) research institutes will be made on an ad hoc basis.

### 5. Abstract of sub-project:

The goal of the overarching COOL-project (see core proposal) is to support the development of long-term climate policy in The Netherlands in an European and global context. This sub-project deals with the global component of the project. It has three objectives. First, it aims at supporting the development of the Dutch international climate policies within the context of the FCCC by exploring key policy issues relevant for the development of international climate policy regimes on the medium to long term. Second, it intends to contribute to the development of methodologies for participatory integrated assessment (scientific goal). Finally, as an subsidiary goal the project aims at providing an global context to the European and national COOL sub-projects.

To achieve these objectives the following key activities of the global dialogue sub-project are distinguished:

- (1) continuation and broadening of the existing dialogue between researchers and policy makers participating in international climate negotiations, building upon networks developed during previous NRP-projects (see "Rationale");
- (2) addressing key policy questions as identified by policy makers with respect to the development of long term international climate policies through integration and structuring of available scientific knowledge, with the help of e.g. integrated modelling tools and dedicated assessment studies;
- (3) interactive development and analysis of policy scenarios to evaluate the environmental and socio-economic risks and implications of different international post-Kyoto climate policies and to provide a

context for the evaluation of climate options, strategies and measures at the European and national scale.

(4) the development of dedicated evaluation and decision support tools to frame key policy issues in a flexible and accessible way.

In the first phase of the global dialogue-project one international science-policy dialogue workshop will be held. The first COOL workshop will both provide a follow up to two similar workshops organised by Kassel University in co-operation with RIVM as well as focus on the implications of the outcomes of COP4 in Buenos Aires (November 1998). The results of the workshop will be presented and discussed at the first national COOL conference at the end of phase 1 to facilitate interaction between the global, European and national sub-projects.

During the second phase of COOL the global dialogue will be continued with at least another three workshops, with an interval of about 6 months. Depending on additional funding this series may be extended with one more workshop. The general focus of the subsequent workshops will be on the further elaboration of the key policy questions as identified during the first Kassel workshop (May 1998) and updated after COP4 at the first COOL workshop. It will include the development and evaluation of new policy scenarios based on the new IPCC baseline scenarios, the evaluation of long term climate regimes and the development of decision support tools for evaluating policy options. The results of these workshops will be presented during the second national COOL conference, planned at the end of the second phase. During the third phase of COOL (synthesis) overall reporting, (further) international dissemination of the results of global dialogue, and evaluation will take place.

## **6. Rationale**

This global dialogue project is a sub-project of the COOL-project, that has been developed at the request of and following the Terms of Reference of the National Research Programme. As emphasised in the COOL main core-project proposal, Netherlands climate policy is very dependent on international negotiations in the context of the Framework Convention on Climate Change (FCCC) and within the European Union. The policy making within the EU again depends to a large extent on the development of international climate policies. For the development and evaluation of policy options at the national and European scale, there is a need for making assumptions about conditions, developments and policy options at the global scale. Therefore, it was deemed to be necessary to include a sub-project providing a global context to the European and national sub-projects.

At the same time, climate policy developments within the FCCC create a direct need for scientific support in the development and evaluation of policy options by the Dutch government. The policy relevance of the assessment of international policy options can be enhanced by an international science - policy dialogue. This view is based on previous experiences with an international science – policy dialogue in support of international climate policy development prior to the Kyoto protocol, the so-called Delft dialogue workshops (van Daalen et al, 1998). Since then, this series was followed by a science-policy workshops organised by Kassel University in co-operation with RIVM to solicit a new set of key policy questions after Kyoto. The results of that workshop have been incorporated into this proposal. A second Kassel workshop has been planned to provide first answers in response to the policy questions, some still relevant for COP4. This COOL sub-project will give a further follow-up to these previous international science – policy dialogues. In addition, the projects aims to contribute to the development of methodologies for participatory integrated assessment – especially in the context of international environmental policy making.

Below the policy context and previous experiences with an international science – policy dialogue will be further discussed.

### **Policy context of the project**

In 1992 the Framework Convention on Climate Change was adopted, during the United Nations Conference on Environment and Development, in Rio de Janeiro, Brazil. At its first Conference of Parties, the parties to the FCCC agreed on the so-called Berlin Mandate to start negotiations on additional commitments from Developed Country parties (Annex-1) to control or reduce their emissions of greenhouse gases. These negotiations resulted in the adoption of a protocol to the FCCC at the Third Conference of Parties (COP-3) in Kyoto, Japan, in December last year. This so-called Kyoto-protocol specifies (differentiated) emission reduction /control targets for Annex-1 countries for the medium term (2008-2012). The Kyoto protocol has led to many new policy questions related to the elaboration and implementation of the protocol. One set of issues relates to the incorporating of new flexible policy instruments like emission trading, joint implementation and the so-called “Clean Development Mechanism” - a facility enabling Annex-1 parties to meet part of their emission targets under the protocol via emission reduction projects in non-Annex-1 countries. Another new element concerns the “net-approach” allowing Annex-1 parties to include ‘sinks’ in meeting their emission targets under the protocol. The modalities and implications of these new elements are still unsettled and even more so their implications for both the medium and long-term.

At the same time, while not part of the Berlin Mandate, the contribution of developing countries to the control of global greenhouse gas emissions has been an important issue of contention in the negotiations, especially due to the USA demand for meaningful participation of key developing countries. Thus, apart from issues related to the implementation of the protocol, the so-called “evolution of commitments” from Annex-1 to Non-Annex-1 parties is a major issue in the discussions on the future development of the FCCC. It can be expected that the issue will already play a key role in the negotiations on commitments for the second budget period (2012-2016), which are likely to start early in the next century. The evaluation of options for the evolution of commitments under the FCCC will therefore be one of the important long-term issues of the global dialogue project.

During the international policy-science dialogue workshop in Kassel a number of key policy questions have been identified where integrated global modelling efforts are expected to be able to contribute to climate policy development. In addition to formulating policy questions the time frame of getting answers to these questions was estimated. Also, an indication was given of the timeframe within each question would be relevant: Short (COP4), Medium (up to 5 year) and Long-term (>5 years).

1. What are the implications of stabilisation scenarios? (M)
  - a) What are the costs and environmental effects of different stabilisation pathways/targets?
  - b) What are methods for evaluating stabilisation pathways/targets under uncertainty?
  - c) What is the maximum feasible greenhouse gas reduction rate given by social/economic/policy inertia?
2. How do different burden sharing schemes affect the implications of stabilisation scenarios? (M)
  - a) What are the consequences of the Brazilian proposal and variations thereof?
  - b) What are the consequences of various convergence and graduation mechanisms?

3. What is the potential (in tons of greenhouse gases) of emissions trading, joint implementation, clean development mechanism (CDM) for a given investment? (S)
4. What is the role of land use change, forestry and agriculture policies in stabilisation? (M)
  - a) What are the long-term consequences of the carbon offset approach?
  - b) What are the policy implications of the biosphere shifting from a carbon sink to a carbon source?
5. What are the impacts and implications of instruments used in Annex I during the 1<sup>st</sup> commitment period and beyond on developing countries? (S)

What are the impacts on e.g.:

  - a) welfare
  - b) trade balance and
  - c) oil prices
6. What are the trade-offs between the six gases in the Kyoto approach? (S)
  - a) Base year data, projections, uncertainties
  - b) Policy options and costs
7. What is the influence of (M):
  - a) Clean development mechanisms and Joint Implementation on energy technology transfer?
  - b) Emissions trading and Joint Implementation on energy technology development?

Clearly, it will not be possible to address all of these questions during the project. Some of these questions are foremost related to issues that will be discussed during COP-4 (Buenos Aires, November 1988) and may lose their relevance afterwards. At the same time, COP-4 is likely to raise new policy questions or change policy priorities. Therefore, during the first international COOL workshop the identified list of key policy questions will be reviewed and updated.

*Scientific background of the project:*

The global dialogue project intends to give a follow up to and build upon the results of two earlier NRP Theme IV projects in the field of international science-policy dialogue. The first project, entitled "Enhancing the Effectiveness of Research to Assist International Climate Change Policy Development" (Bernabo et al., Hisschemöller et al. and Klabbers, 1994/1995/1996), consisted of a global dialogue between stakeholders in selected countries and focused on the development of an international agenda of priority research issues on the basis of the identification of information needs. These needs were derived from a qualitative assessment of possible and desirable scenarios and related policy options. It resulted in a better understanding of (differences between) national perspectives and a proposal for research priorities. The other policy-dialogue project, the so-called "Delft-dialogue workshops" (van Daalen et al, 1998) had as its main objective the use of the integrated assessment model IMAGE 2 in support of the negotiations on the Kyoto protocol to the climate convention. In this project policy makers from different countries and NGOs participated. During the Delft workshops the attention shifted from initially the assessments of long term climate risks to linking these to the discussions on necessary short term emission control, especially by the developed

countries, as discussed in the protocol negotiations. This led, amongst other results, to the “safe landing approach” and “safe emissions corridors” concept (Alcamo et al., 1996) This approach gained substantial political support from AOSIS, EU member states and environmental NGOs, but did not get general support. While it appealed to those in favour of a precautionary environment-oriented approach, it did not to those framing the issue primary in terms of long-term stabilisation of GHG concentrations and following an economic approach to evaluate short term emission control. One reason this alternative framework did not get much attention was the rather homogeneous, environment-oriented character of the group of participants. From this experience it was concluded that in future projects a more diverse group of policy makers would be needed to arrive at results that will meet wider acceptance (van Daalen et al, 1998).

The global dialogue project will provide a follow up to both previous NRP dialogue projects. As in the Delft science-policy dialogue, it will form a new micro-cycle of policy driven utilisation of scientific knowledge (Klabbers et al., 1994), again supported by (quantitative) analysis with integrated modelling tools, but now starting from the post-Kyoto/Buenos Aires policy context. At the same time, like in the International Policy Options project, it intends to incorporate more different perspectives to enhance its policy relevance.

## **7. Objectives, Expected results and deliverables**

### *Objectives:*

The global dialogue sub-project of COOL has three objectives:

- (1) supporting the development of the Dutch international climate policies within the context of the FCCC by exploring key policy issues relevant for the development of international climate policy regimes on the medium to long term.
- (2) contribute to the development of methodologies for participatory integrated assessment (scientific goal).
- (3) providing an global context to the European and national COOL sub-projects (subsidiary goal).

### *Expected results:*

The outcomes of the project cannot be clearly specified at the outset as they will depend on the dialogue with the policy makers. This has been clearly demonstrated in the Delft workshops, where the development of tools like the Safe Landing Analysis (Alcamo and Kreileman, 1996) and Interactive Scenario Scanner (Berk and Janssen, 1997) were not planned but resulted from the dialogue it self.

Given the diversity of perspectives the project does not intend to reach consensus among its participants on how much action would be needed or who should make what contribution. What the project hopes to contribute to is arrive at a more common understanding of the scientific and technical dimensions of the problem and the development of common frameworks for analysis and evaluation of policy options, embracing different perspectives of the climate problem.

Concrete results that can be expected from the project are:

- reports on the workshops
- strategic papers on key policy issues in the international climate policy debate;
- policy scenarios that can be used for providing context to the European and national sub-projects of COOL;



## *Global Dialogue*

- new analytical tools;
- presentations of results during the COOL conferences and FCCC / IPCC meetings.
- an evaluation paper on the dialogue process

### **7a Description and planning of activities and deliverables**

As indicated in the Core project description the COOL project will consist of three phases:

- (1) Scoping /problem definition;
- (2) Assessing; and
- (3) Synthesis and evaluation.

For the COOL global dialogue sub-project the difference between the first and second phase will be less pronounced than in the case of the other sub-projects. This is because the global project will be able to profit from the outcomes of the workshops organised by Kassel University, in May and September 1998, funded by the German Ministry of Environment and NRP (Kassel II). With these workshops the network with policy makers has been preserved and the COOL global sub-project a provided with a head-start compared to the European and national sub-projects.

The first phase will be used to give more focus to the project with respect to the issues that will be assessed during the second phase and to expand the network to a group with more different views and backgrounds. Special attention will be paid to the implications of the outcomes of COP4 (Buenos Aires, November 1998) for determining priority issues within the sub-project. The frequency of the planned workshops is based on the experiences with the Delft workshops and advice received from former Delft participants. As with the Delft workshops, the planning of the workshops may be adjusted to the (yet unknown) planning of FCCC meetings, in particular of the Subsidiary Body on Scientific and Technical Advice (SBSTA) and meetings of the COP, in order to enhance participation. The series of workshops may be extended with an additional workshops depending on additional funding and the expressed interest by policy makers.

An overview of planned activities in each phase of COOL and deliverables in given in Table 1.

**Table 1. Overview of activities and deliverables of the COOL global dialogue sub-project:**

<b>COOL First Phase (month 1-8)</b>			
Act. no.	Description of activity	Month no.	Deliverable
1.	Elaboration of the key policy issues identified during the Kassel workshops for the planning of : - short term analysis in preparation of the first COOL workshop; - medium term analysis, the adjustments/extensions of present tools and/or development of new analytical tools in preparation of future COOL workshops; - long-term research efforts for EuroPrime and climate research programmes in general; - contributions needed from other institutes	1	
2.	The evaluation of the participants of the Kassel workshops with respect to a balanced and sufficiently divers representation of perspectives.	1	- list of participants to be invited for the first COOL workshop
3	The preparation of input to the first COOL Global Dialogue workshop, including: - analysis of new IPCC baseline scenarios - scenario analysis on the basis of the requests for scenario development during the second Kassel workshop.	1-2	- briefing book for first workshop with results and background materials.
4.	First COOL global dialogue workshop in Kassel, including: (a) presentations and discussion of analyses requested during the second Kassel workshop (b) an evaluation of the IPCC scenario-development process and desired input to that process to enhance its policy relevance (c) evaluation of implications of outcome FCCC COP4 (Buenos Aires, November 1998) for priority policy questions and policy analysis	3	- workshop report list of requests for new policy analyses and further scenario development /analysis - revised list of key policy questions after COP4

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5.	(a) An assessment of the need for background studies (partial scientific assessments) and additional policy support tools to support the Global Dialogue project during the second phase of COOL. (b) Elaboration of request for further model analysis and scenario development (c) An evaluation of the possible contribution by other research groups for subsequent (scenario) analyses to address identified key policy issues for the Global Dialogue	4-7	- additional model analyses and scenario development; - proposals for background assessments; - agreements on contributions by other research groups
6.	Presentation of the interim results and planned / envisaged analysis of the global dialogue at the first national COOL conference	8	- interim report on global dialogue and plans for second phase

<b>COOL Second Phase (month 9 -24)</b>			
Act. no.	Description of activity	Month no.	Deliverable
1.	Second COOL global dialogue workshop including presentation and discussion of new model-analyses and scenario development requested during the previous workshop; possibly already on the basis of contributions by other institutions.	10	- workshop report; - requests for new policy analyses and further scenario development /analysis, - proposals for background assessment studies / items
2.	Third COOL global dialogue workshop	14	- workshop report; - requests for new policy analyses and further scenario development /analysis
3.	Fourth COOL global dialogue workshop	19	- workshop report; - requests for new policy analyses and further scenario development /analysis, -development/ adjustment of analytical tools.

*Global Dialogue*

4.	Optional (depending on additional funding): Fifth COOL global dialogue workshop	24	- workshop report; - requests for new policy analyses and further scenario development /analysis, -development/ adjustment of analytical tools.
5.	Dissemination of results to FCCC via presentations, leaflets, software, internet	during 2nd phase	strategic policy papers, leaflets, software, web-pages
6.	Presentation of the results of the global dialogue at the second overall COOL conference	24	preliminary report

*Global Dialogue*

<b>COOL Third Phase</b> (month 25-30)			
Act. no.	Description of activity	Period	Deliverable
1.	Evaluation of the global dialogue	25-26	Evaluation for syntheses report
2.	Reporting on overall outcome of Global Dialogue	27-29	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	27-30	Paper /poster

*Advisory structure*

Given the complexity of the COOL project and its policy-oriented character there is a clear need for organising external guidance for the project management. The envisaged Advisory Structure will consist of a *general advisory board* for the whole of the COOL project and *sub-committees* for each of the dialogue projects (for a full description see the COOL core project).

It is envisaged that the (full) board will meet twice during the first phase of the project, twice or three times during the second phase and once during the third phase. Its sub-committees are likely to scheduled additional meetings. The first meeting of the board is planned shortly after the start of the project to give advise on the design and planning of the first phase. During a second meeting at the end of the first phase the committee will play an important role in providing guidance on the plans for the second phase of the project.

Due to policy-oriented character of the project and to co-ordinate activities within the project with those undertaken by the various Ministries in support of the development of Dutch climate policy, the Ministry of Environment (VROM) has indicated the need for establishing sub-committees within the general advisory board that will follow each dialogue subproject more closely (e.g. by consulting more often and by its members functioning as “resource persons” in the preparation of or during project meetings). The sub-committees will consist of members of the general advisory board. The Ministry of Environment has already nominated representatives for each of the sub-committees: for the global dialogue this will be Leo Meyer (department of Climate Change). It is expected that also representatives of other Ministries will participate.

## **8. Scientific approach and innovative aspects, short description of the research plan**

The general description of the scientific approach followed in the COOL-project can be found in the COOL-core project.

The global dialogue project adopts as its main approach:

- (a) a structured science-policy dialogue to articulate and reformulate policy questions, select key issues for analysis, to adjust research and presentation of results to policy makers' needs and to enhance their understanding of the issue;
- (b) integration and assessment of scientific knowledge and policy options, amongst others through the use of modelling and evaluation tools, and
- (c) scenario development and analysis to evaluate baseline developments, the effectiveness and implications of various policy strategies, and conditions for reaching desirable futures.
- (d) development of decision support tools to enhance the communication between scientists and policy makers

### *Ad (a) structured policy-science dialogue:*

As indicated the structured dialogue of the global dialogue project uses elements of methodologies used in previous dialogue projects, especially the Delft workshops (van Daalen et al., 1998). Its basic approach is a policy-driven utilisation of scientific knowledge by involving policy makers (stakeholders) in the process of the assessment of scientific knowledge. To this end an iterative science-policy dialogue is set up, in which policy makers define policy questions which are then together with scientists translated into research questions that can be addressed by scientists on the basis of quantitative analyses with integrated modelling tools and /or qualitative expert knowledge. The results are then communicated back to the policy makers using jointly selected indicators and presentation /communication methods. Policy makers then come up with new questions and requests for new analyses and presentations.

Essential for the success of the dialogue is the involvement of a fixed group of policy makers in an iterative process over a longer period of time. This provides the opportunity to establish a learning process for both policy makers and scientists. It not only results in a better understanding of policy makers needs by scientists, it also helps policy makers in understanding each other better and contributes to the establishment of a common knowledge base and interpretation framework.

One of the lessons of the Delft workshops (van Daalen et al, 1998) is that the composition of the group of policy makers can result in biases in the assessment. Such biases hamper the more general acceptance of the outcomes of the dialogue and in that way limit their policy relevance. Therefore, the global dialogue project in COOL will try to include a more diverse group of policy makers. This will complicate the dialogue process in terms of integrating perspectives in the assessment as policy makers with different perspectives and interests tend to have different priorities with respect to both policy questions and information needs (and often also a different perception of the state of science) (e.g. Hisschemöller et. al.,1995). As was shown in the Dutch Policy Options project (Klabbers et al., 1994) some stakeholders do not accept the climate problem as an established environmental problem at all. In such a case, it is very difficult to come to a common framing of the issue and will science only be used in an advocative way. Also on the international policy level, there are actors that do not accept climate change as a problem (e.g. some OPEC countries or lobbying groups from the American coal industry). These groups will not be involved in the global dialogue, because they are likely to hamper the dialogue process and not likely to make a constructive contribution to the international climate policy development process, which is the main aim of the project.

*Ad (b): Integration and assessment of scientific knowledge and policy options*

Given the relatively short iterative cycles (in the order of 5-6 months) the focus of this way of participatory integrated assessment is predominantly on the utilisation of existing knowledge for policy development and not so much on (the steering of) the production of new knowledge (as e.g. in the International Policy Options project). This is in line with the general objective of the COOL project to facilitate the integration and utilisation of scientific knowledge. The advantage of the use of integrated models in the science-policy dialogue is the coherent, consistent and time-efficient way of exploring and evaluating policy options. The iterative character of the science - policy dialogue offers room for a systematic and effective utilisation of the scientific knowledge captured in integrated assessment models, and combining this with more qualitative expert judgements and short background studies. The global dialogue project will make use of various types of existing, integration models, like the IMAGE 2 / TIMER model (RIVM), the Worldscan model (CPB), the FUND model (IVM) and the Markal model (ECN), as well as integrated models of other (foreign) institutes where appropriate.

Based on the experience with the Delft workshop the design of the global dialogue workshops will be rather simple and based on the following general set up:

- overview of the programme: what were the previous requests and which will be addressed;
- various short plenary presentations of results of analyses, generally at a non-technical level and supported by various visualisation and presentation techniques including the use of model interfaces;
- plenary discussion of the results: issues of clarification, evaluation of the relevance of the results, identification of needs of new, different or additional analyses and suggestions for improvement of the communication of results;
- prioritisation of request for new analyses and tool development;
- discussion of the dissemination of results outside the workshop;
- evaluation of the set up, relevance and quality of the workshop.

In certain cases there may be a need for the design of specific activities, like exercises with interactive tools, to enhance communication and learning or to solicit input for policy makers for policy or scenario analysis. Especially for setting up these type of activities specialist expertise will be used.

For the global dialogue this expertise will be delivered by dr. Ferenc Toth, who as a policy exercise specialist has extensive experiences in this field. In addition the global project will profit from the expertise available within the core-project of COOL.

In addition to a good design of the workshops, there is a need for a proper facilitation of discussions during the workshop. The heterogeneous character of the involved group of policy makers will pose an extra challenge for the moderation of the workshops as conflicting ideas will have to be channelled in a constructive way. Adequate facilitation of the workshops not only requires qualities with respect to the handling of processes, but also the ability to structure and integrate contents. For this reason it has been decided not to rely on an external facilitator, but to make use of the extensive experience with facilitating workshops available within the project team, notably by dr. ir. Bert Metz.

*Ad (c): Scenario development and analysis*

In the global dialogue project scenario development and analysis is used as a way of linking the science-driven assessment of scientific knowledge to the policy-driven exploration of policy options. Like the previous International Policy Options project, the global dialogue project intends to take into account different policy perspectives by including a heterogeneous group of policy makers and

scientific advisors. One way of dealing with this diversity of views and interests in a productive way is the use of scenario-analysis. Combined with integrated modelling tools it allows for a structured and consistent exploration of the environmental, socio-economic and policy implications of different perceptions of scientific and structural uncertainties and of likely and desirable futures (e.g. Rotmans and de Vries, 1997).

An alternative way to deal with the heterogeneity of perspectives would be the use of policy exercises (Parson, 1996a). This methodology, which can also be supported by integrated model analysis or expert judgements, has the advantage of also assessing strategic uncertainties. However, previous experiences indicate it is likely to result in a too low level of knowledge utilisation due to its focus on simulations of negotiation processes (Parson, 1996a, 1996b). It also may unnecessarily emphasise divergence of views and interests and it does not help in finding common frameworks for the analysis and evaluation of the climate problem and climate policy options (e.g. like the safe landing approach) that could facilitate international climate policy development.

Scenario -analyse also provides a context for the evaluation of policy options within the European and national COOL projects. To that end the results of the global dialogue project will be presented to the other dialogues and views from the European dialogues and the national dialogues fed back to the global dialogue.

#### *Ad(d) The development of decision support tools*

Integrated Assessment models usually are not particularly well suited for supporting science – policy dialogues. The reason for this is that most IAMs have been developed for scientific use. The complexity, longer computing time and poorly developed user interfaces of most state-of-the-art IAMs make them unsuitable for an interactive communication with policy makers. As a result, in communicating information to policy makers, most of the current IA models are used passively i.e. only results of scenarios are presented. While graphs, tables and diagrams depict differences between scenarios and provide useful insights, they usually provide little insight in the behaviour of the models. Also, important model and input assumptions often remain hidden. Information exchange could be much more effective if analytical tools could be used interactively. Moreover, as in the Delft workshops there often is a need for more dedicated analytical tools, specifically designed to provide insight in particular policy dimensions of the problem ( e.g. the Safe Landing Analysis). It is expected that this will also be the case in the global dialogue project. Such tools are not intended to replace complex IAMs but to facilitate the communication between policy makers and scientists, both within and outside the project. By linking the development of such decision support tools to a policy dialogue between climate policy makers and well established IAM groups both their policy relevance and scientific credibility can be secured (Berk and Janssen, 1997).

## **9. Relevance and potential use of the expected results for science and policy**

### *Policy relevance:*

The overall aim of the NRP COOL project is the utilisation of scientific knowledge in support of the development of (international, national and sectoral) climate policies by combining the integration of scientific knowledge with a dialogue between stakeholders and scientists in a so-called participatory integrated assessment approach. Like in the other COOL sub-projects, the involvement of stakeholders participating in the implementation of the FCCC provides the best conditions for the utilisation of scientific knowledge for the development of international climate policies.



Via the involvement of Dutch policy makers in the global dialogue, the project will directly contribute to the development of Dutch climate policies in international fora, notably FCCC.

*Scientific relevance:*

From the perspective of scientific development the project is likely to contribute to the experience with and to enhanced insights in effective methods for participatory integrated assessment and knowledge utilisation in support of international environmental policy development, notably with respect to the development of common evaluation and decision frameworks or international policy regimes. In this respects the project especially aims at the development of methods to deal with knowledge utilisation in support of policy development under conditions of a divergence of perspectives and interests of stakeholders involved.

Recently, IPCC has started preparations for its Third Assessment Report (TAR), to be published in 2000. As a basis for this report IPCC is in the process of preparing a special report on new emission scenarios that will be used to assess possible impacts of climate change. RIVM and Kassel University are participating in this effort. These scenarios are baseline scenarios and do not include climate policies. In the TAR there will be a chapter on the evaluation of (long term) climate policy scenarios leading to or contributing to stabilisation of GHG concentrations on the basis of the new baseline scenarios. The COOL project intends to also contribute findings to that assessment.

## **10. Description of how the project fits in long-term research strategy of the institute**

RIVM has as its main function the assessment of the quality of the environment and the impacts of changes as a function of possible socio-economic developments at the national, European and global levels. RIVM has been active in the area of climate change research since the late 80s and the Institute's strategy intends to consolidate and strengthen the relevance of its research work in the field of climate change. RIVM's involvement in IPCC activities, like its recent contribution to the development of new baseline scenarios as part of the Special Report on Emission Scenarios (SRES) illustrates its commitment to play an active and prominent role in the field.

The present projects constitutes a consolidation and continuation of RIVM's involvement in an international science-policy dialogue in support of international climate negotiations, especially concerning the utilisation of integrated modelling tools in policy development. Moreover, the projects fits in with RIVM's strategy to strengthening international co-operation on the IMAGE 2 model within the EuroPrime consortium.

## **11. Description of how the project research fits in and contributes to ongoing projects from NRP and other Dutch and international programmes**

The project has been developed at the request of and according to the terms of Reference of theme IV of the National Research Programme. It intends to capitalise on the climate change research of the participating institutions, part of which has been funded through the NRP (IMAGE, Worldscan). In phase 2 the project also intends to involve a wider set of experts and research institutions that benefited from NRP funding. It is hoped that the output of the project will effectively support the

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development of further IPCC work, notably the development of new global stabilisation scenarios for the TAR.

Project leaders of related NRP projects will be invited to participate in the workshops as resource persons and/or to present research results in response to requests by policy makers.

## 12. Expertise/experience of the researchers

The COOL-global dialogue project will be led by dr. ir. **Bert Metz**, who has a background in chemical engineering and environmental diplomacy and is now head of RIVM's Global Environmental Assessment Division and co-chair of working group III of IPCC. He recently joined RIVM after serving as climate co-ordinator at the Ministry of Housing, Physical Planning and the Environment and principle climate negotiator for the Netherlands since 1990. Apart from his immense experience with international climate policy making, he also has broad experience with science - policy interactions. Amongst others, he participated in all previous NRP science-policy dialogue projects - including the Delft dialogue - as well as in two IMAGE 2 advisory board meetings aimed at steering global modelling activities.

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Project co-ordinator as well as senior researcher at RIVM is drs. **Marcel Berk**, a political scientist formerly affiliated with the Programming Bureau of NRP as integrated assessment expert and currently working at RIVM as a policy analyst in the field of climate and global change. He was involved in the earlier NRP - Policy Options and PORA dialogue projects, and more recently in the set up and preparation of the subsequent Delft-Dialogue workshops.

He was involved in the development of both the Safe Landing Analysis and the Interactive Scenario Scanner.

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Drs. **Johannes Bollen**, senior- international economist, will be responsible for supporting the scenario-development with the combined application of the IMAGE-WorldScan models in co-operation with CPB. He has extensive experience in the field of the development of (economic) scenarios, both on the basis of his work within the IMAGE-project as well as environmental studies on Eastern-Europe for the World Bank.

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The application of the IMAGE-2 Model and development of derived decision support tools in the context of the COOL-project will be the responsibility of dr. **Michel den Elzen** and ir. **Eric Kreileman**, senior researchers at RIVM and responsible for the integration of model components and policy applications. Both researchers have a long experience in integrated modelling and their application in policy analysis. Michel den Elzen was involved in the development of the IMAGE 1 model and the ESCAPE model for the EU. Eric Kreileman was responsible for the integration of various sub-models in the IMAGE 2 model, directly involved in the Delft Dialogue process and developer of the Safe Landing Analysis software. Michel den Elzen developed the climate sub-model (CYCLES) of the TARGETS model and now working on a meta-model of IMAGE 2.

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**Bert de Vries**, senior energy expert and developer of the IMAGE 2 energy sub-model, will be responsible for the applications of the TIMER model, a new version of the IMAGE energy model which also includes energy supply dynamics, that will become an integrated part of the IMAGE 2.2. model version from fall 1998.

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**Rik Leemans** is ecologist and project leader of the IMAGE 2. He has been a lead author of IPCCs Working Group II on Impacts and Adaptation and is active participant in a number of IGBP's research programs (GAIM, LUCC, GCTE). Apart from his general expertise on integrated modelling of climate change, he has specific expertise on climate change impacts and the use of climate change/impact indicators.

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### 13. Budget breakdown

The total funds needed for the COOL global dialogue project will be kf 1,129 of which kf 588 are requested from NRP. Of the total budget requested from NRP a major part will be used to cover costs directly related to the organisation of the dialogue workshops (kf105) assuming the first of the COOL workshop will co-funded by Kassel University). The organisation of international dialogue workshops is rather expensive as funds for providing support for developing country and Eastern European participants is needed to enable their participation.

With respect to the costs related to research activities in support of the dialogues, it is envisaged that the global dialogue will not be supported by the “Theme III Assessment Study” as this study will mainly focus on national options. This means that substantial funds need to be reserved for supportive research and analyses, especially when external expertise is needed. To enable ad hoc contributions from other (foreign) institutes kf70 has been included in the budget for this purpose.

As a result this sub-project of COOL has substantial material expenditures. Consequently, a full matching of NRP funding of 50% is not possible. However, if expenditures directly related to the organisation of the workshops are excluded in calculating the matching of funds (as agreed by the Steering Group of NRP) the Institutes own contribution rises to well over 50%.

As the budgeted amounts for the workshop are considered to be a minimum, during the first phase additional funding for the workshops and related research activities will be sought. Together with our international partners contributions from other governments (notably Germany and France) will be pursued. For the participation of developing countries in the workshops additional funding from the Dutch Ministry of Development Co-operation will be requested.

#### a) Total costs (in kf)

	<i>Total</i>
<i>Personnel</i>	897
<i>Materials</i>	206
<i>VAT</i>	26
	1,129

#### b) Contributions (in kf incl. Vat):

##### National programme

	<i>Total</i>
<i>Personnel</i>	356
<i>Material</i>	205.9
<i>VAT</i>	26



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	587.9
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**Own contributions (in kf incl. Vat):**

	<i>Total</i>
<i>Personnel</i>	541
<i>Material</i>	-
<i>VAT</i>	-
	541

**Total Contributions (in kf incl. Vat):**

	<i>Total</i>
<i>NRP</i>	587.6
<i>RIVM</i>	541.0
<i>Third Parties</i>	p.m.
	1128.9

**14. Labour costs (in kf. excl. VAT to be charged to NRP by institution)**

Name	Function	Tariff per year	years	Total	NRP	Inst.
Dr. ir B. Metz	Project leader	313	0.15	46		46
Drs. M.M. Berk	Project co-ordinator	178	0.79	141		141
Dr. H.J.M. de Vries	/senior researcher	240	0.29	71		71
Dr. R. Leemans	Senior researcher	313	0.24	74		74
Drs. J.C. Bollen	Senior researcher	178	0.29	52		52
Dr. ir. M.J.G den Elzen	Senior researcher	178	0.44	79		79
Ir. G.J.J. Kreileman	Senior researcher	178	0.44	79		79
Vacancy	Senior researcher	178	2	356	356	
		Total	2.65	897	356	541

**15. Material costs (in kf incl. VAT; to be charged to NRP)**

<i>Item</i>	<i>Amount</i>
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4 international workshops (incl. logistics)( 4 * kf 30)	120,000
International travel costs	10,000
Consult on workshop set up from PIK (dr. F. Toth)	12,000
Contribution IVM (dr. J. Gupta)	20,000
Other subcontracting for research activities	55,000
	15,000
Reporting /dissemination of results to FCCC etc.	
<b>Total</b>	<b>232,000</b>

### 16. Specification third parties

<i>Item</i>	<i>Amount</i>
Contribution CPB	p.m.
Contribution Kassel University	p.m.
	p.m.
Contribution PIK	p.m.
Contribution CIRED	p.m.
	p.m.
Dutch Ministry of Development Co-operation (DGIS)	
Contributions from other governments (Germany, France)	
<b>Total</b>	<b>p.m.</b>

CPB, Kassel University, PIK and CIRED are willing to contribute to the global science-policy dialogue. The level of their (in kind) contribution will depend on the selection of priority policy questions and, when substantial amounts of work are involved on the availability of funding. When needed, part of this will be secured via sub-contracting. During the first phase of the project a further planning of the desired research activities and subcontracting to the collaborating institutes will take place.

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