

# Need for Integrated Policy Oriented National Research Programmes:

## the Second Phase (1995–2001) of the Dutch National Research Programme on Global Air Pollution and Climate Change NRP

Renaat S.A.R. van Rompaey

### 1 Introduction

As a follow-up on acid rain programmes many countries (Heij and Erisman 1995), e.g. Finland, the Netherlands, Sweden, launched national research programmes on Climate Change by the end of the eighties. Other countries centred new programmes on Global Change, such as Belgium, United Kingdom, Germany, Canada. Also the European Community included the climate issue in the research programme 'Environment & Climate'.

The conclusions of the Intergovernmental Panel on Climate Change (IPCC) shifted in the successive assessment reports (IPCC 1990, 1992, 1996) from possible climate change to actual climate change and will maybe attain quantified climate change in a couple of years.

The Netherlands decided in 1989 to strongly support research efforts in this field (Schneider et al. 1994), because they realised the vulnerable position of the 'Low countries by the sea' in case of sea level rise or changes in hydrological regimes of large rivers like Rhine and Meuse. The Dutch are very conscious about environmental issues as their country is very densely populated.

Much of the wealth of the country and of its environmental care is based on fossil fuel consumption and the availability of a large resource of natural gas. The climate change problem undermines the unlimited use of fossil fuel by asking for drastic reductions in CO<sub>2</sub> emissions. Even a rich country like the Netherlands has a very hard time to deal with the pollutant CO<sub>2</sub>.

### 2 Evaluation of the First Phase (1990–1995) of the Dutch Climate Change Research Programme NRP

#### 2.1 Organisation

In total 145 research contracts were signed with a total additional funding of 60 Mf (= 29 Mecu). Some projects were considered too small, containing only one PhD researcher. Collaboration between projects on related subjects was facultative and not included in the contract. International collaboration was in many projects not really developed. Project leaders referred to core projects of the large international programmes WCRP, IGBP and HDP, but there have been few international activities organised. A number of projects produced only a report, whereas only publications in international journals comply with

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**Author's address** RIVM (postbak 59), Postbus 1, NL-3720 BA Bilthoven, The Netherlands  
**Fax** +31-30-274 4436 **E-mail** renaat@pi.net

the programme's objective to have impact in the international science arena.

In the same way, international participation in the closing conference of the first phase in Maastricht, 6-9 December 1994 was rather limited (Zwerver et al. 1995).

## 2.2 Research Themes

Five themes were identified in 1990: climate system, causes of climate change (greenhouse gases), impacts of climate change, integration and assessment, solutions. There appeared to be close links between the themes climate system and causes. Indeed, greenhouse gases are part of the system. A number of projects on the impact of increasing UV radiation because of loss of

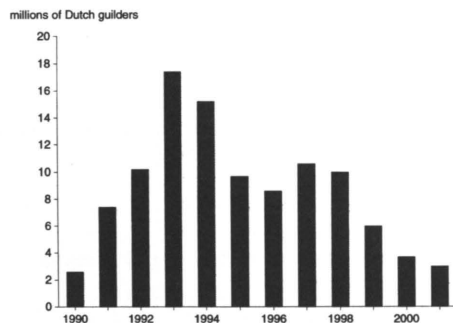


Fig. 1. Availability of funds in the Dutch Climate Change Research Programmes, first phase 1990-1995 and second phase 1995-2001 (foreseen).

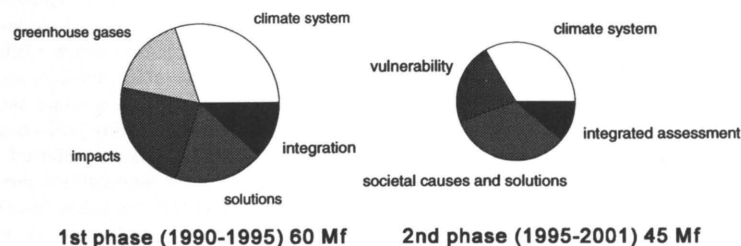


Fig. 2. Distribution of funds over research themes in first and in second phase of NRP.

stratospheric ozone have been included in the programme under theme 'impacts'.

## 3 New Directions for NRP Second Phase (1995-2001)

### 3.1 Organisation

The number of projects will be more restricted, only about 50 for a total additional funding of 45 Mf (22 Mecu). By October 1995, already 25 contracts had been signed. This time, projects are larger, including several research institutes. In this way, collaboration is included in the contract, as is integration of knowledge. Participation in international programmes will be controlled by the Programme Office. A list of intended publications is included in the contract.

The management of NRP is carried by RIVM Bilthoven, the Dutch National Institute for Public Health and the Environment, in cooperation with NWO, the Netherlands Organisation for Scientific Research, The Hague (NRP Programme Office 1995).

### 3.2 Research Themes

Based on the experience of the first phase, the themes 'climate system' and 'causes of climate change' have been merged into the single theme 'climate system'. The theme 'impacts of climate change' has been reoriented towards 'vulnerability of society and ecosystems to climate change'.

The theme 'solutions to the climate change problem' is now called 'societal causes and solutions', and the fourth theme deals with 'integrated assessment of the climate change problem' and also integrates knowledge from the first three themes.

A considerable shift occurred in the funds earmarked for natural sciences towards social sciences (see Fig. 2). In the Programming Memorandum (Berk et al. 1994) it is stated that research projects must be less targeted on detailed experimental work, but must work at higher levels of integration. Within the theme 'vulnerability' research should not be limited to dose-effects studies, but perform a complete system analysis and analyse the contribution of climate change as a supplementary stress. This involves that methods shift from single factor analysis to multi-stress approaches.

### 3.3 Selection of Research Topics for 1995-2001

From April 1994 to June 1995, NRP went through a process of selection of tenders and proposals following the first of three calls for proposals (21 Mf = 10 Mecu available; Berk et al. 1995). Initially 209 tenders were submitted with a demand for funds exceeding 10 times the available budget. Selected tenders were grouped and 65 potential project leaders were asked to write full proposals. These have been peer reviewed by both foreign and national reviewers.

The selection committees decided to propose 25 projects for funding. These cover the following topics:

- theme 'climate system': methane and regional up-scaling, CO<sub>2</sub> fluxes between oceans and atmosphere and between grasslands and atmosphere, aerosols and clouds in relation to the radiative balance of the Earth, ocean circulation modelling, continental ice sheets, modelling of decadal climate variability
- theme 'vulnerability to climate change': tidal flats and coastal aquatic and terrestrial ecosystems, Rhine basin modelling, nutrient poor forest ecosystem development, fresh water wetlands, productivity and water balance of forests
- theme 'solutions': causes of tropical deforestation, biomass as fuel, material systems, energy efficiency, household consumption patterns, tradeable CO<sub>2</sub> permits

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From January 1996 to June 1996, NRP will launch a second call with 13 Mf (= 6 Mecu) available. The third call is foreseen for 1997 with a last 11 Mf (= 5 Mecu). These calls are more policy steered than the first call. Dutch policy makers from several ministries will state clearly which knowledge needs they have and the programming committees are asked to translate these needs into feasible terms of reference of research projects. Research teams will then be invited to tender for these projects.

## 4 Perspective for Research in the Field of Man and Environment: towards a Programme on Sustainable Global Development

I hope that in this way climate change research in the Netherlands will contribute to national and international policy development to cope with the serious problem of climate change. A more intensive dialogue between scientists and decision makers is essential in this process.

I also hope that NRP funding will trigger the formation of international research teams and networks that can deal with the environmental problems of the 21st century. NRP is also a unique forum for natural and social scientists to meet and to discuss the problems of the present and next generations. This forum should be continued after the end of NRP in 2001. Mankind is facing a series of threatening, undesired and unstable developments with inevitably touch all regions and all nations on this earth. Moreover mankind has to choose between welfare and quality of life now, and reasonable welfare for the next generations.

Science has never been so much oriented to-

wards the entire earth, and even more intriguingly, towards the next century. The future is our major concern, and surviving the next century will be the challenge of human genius.

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