

---

## Executive summary

Health Council of the Netherlands. Global environmental impact on health. The Hague: Health Council of the Netherlands, 2009; publication no. 2009/15

---

Major environmental changes which are occurring worldwide include global warming and a decline in the diversity of species. These are complicated processes with particular characteristics: they cover a wide area, are insidious, expand in time and space, have numerous causes and impacts and are interdependent. This advisory report from the Health Council of the Netherlands discusses the consequences of global environmental changes for public health in the Netherlands.

More than twenty years ago, the Health Council determined that there were no indications that climate change would have an adverse impact on public health in the Netherlands. The Council's opinion on this subject has changed. This conclusion comes from the advisory report of the Health and Environment Surveillance Committee, which has particular responsibility for identifying important links between environmental impacts and public health.

International reports contain convincing indications that climate change and other global environmental changes pose a health threat. The fact that the Netherlands will not escape the effects is clear from the report published last year on current knowledge of global environmental changes and public health: '*Mondiale milieuveranderingen en volksgezondheid: stand van de kennis*'. The report specifically examines the impact of global environmental changes on the health of the population of the Netherlands and covers the following processes: atmospheric changes (climate change and damage to the ozone layer), changes in land use, depletion of freshwater stocks and a decline in biodiversity. The report

---

closes with a proposal for a research agenda. The report's publication was a major reason for the Committee deciding to reassess the situation.

The consequences for health of global environmental changes should be paid more attention in policy and research

The Committee notes that in recent decades there has been an increase in knowledge of what the adverse effects of global environmental changes will be on health, both worldwide and in the Netherlands. Climate change in the Netherlands could lead to early death owing to extremely high temperatures and an increase in respiratory complaints and infectious diseases. Additional cases of skin cancer are one of the consequences of damage to the ozone layer. Public health in the Netherlands is also likely to suffer from other environmental changes, such as changes in the use of land, depletion of freshwater stocks and a decline in biodiversity. For example, changes in the use of land and a decline in biodiversity could lead to more infectious diseases. However, indications of the way in which these impacts arise are less direct than in the case of climate change and damage to the ozone layer. The various processes do not usually occur independently but affect each other.

The health effects can be separated into phenomena that probably already occur in the Netherlands and phenomena that may well exist in the future. Examples of the former are the aforementioned increased mortality rate during heat-waves and additional cases of skin cancer attributable to higher levels of UV radiation. An example of the second group of phenomena is an increase in infectious diseases. Also global environmental changes can damage local environments which can lead to conflicts whereby people are forced to flee their homes, and this can have consequences for their health. All these effects are plausible, serious and relevant for the Netherlands. However, they will partially be attributable to other factors, such as an increase in infectious diseases as a result of the growth in international passenger travel and trade.

Health effects still receive little consideration in Dutch policy on global environmental changes. They also receive little attention in the scientific world. As these are plausible, serious and relevant effects and there is still a great deal of uncertainty about how extensive they will be and where and when they will occur, the Committee believes extra policy and research efforts are required.

Policy includes measures for tackling the causes of environmental changes and measures for limiting the adverse effects. Measures in the first category are mainly taken at the international level, as in the case of reducing CO<sub>2</sub> emissions;

---

measures in the second category generally have a national character; in the Netherlands they are primarily intended to protect the population against flooding.

From the health point of view, the Council believes that it would be advisable to intensify and increase both types of measures.

### Research into health threats and protective measures

In the light of this, further research into the health effects of global environmental changes is required. So much is already known about climate change that it would be advisable for part of the research to focus on possibilities for us to adapt, for example by paying more attention to identifying risk groups and how the health threats they face can be reduced. This is less important in the case of damage to the ozone layer because effective global measures have been taken which are expected to result in the ozone layer being restored in due course. Concerning other environmental changes, a lot more research is required into the nature of the health threats, how extensive they will be and where and when they will occur.

### Adopt systems thinking

Factors other than global environmental changes also affect public health. Many of them are beyond the scope of the environment. Examples include the quality of education, lifestyle and the level of affluence. Taking the factors as a whole – including global environmental changes – we know or can reasonably assume that some of them are influenced by each other's effects. However, there are still many gaps in our knowledge of how they are interrelated. More detailed information on the connections is required to enable a better assessment of the health effects of global environmental changes and more accurate delineation of the effectiveness of possible measures. It will only be possible to make significant headway by taking these relationships into account. This approach is known as systems thinking.

It involves using knowledge obtained from different fields. Focusing systems thinking on the health effects of global environmental changes requires the integration of disciplines such as epidemiological, biomedical and ecological research into health effects with research in the fields of economics and social science. The strength of systems thinking is that it can help to give structure to available knowledge and to understand the operation of (parts of) the system. The initial aim is a qualitative description of possible processes, links, interactions and feedback. Insofar as components lend themselves to computation, they

---

are mainly used in aid of the qualitative assessment. Two tools that are commonly used are computer simulation models and scenarios in which possible global developments are described (a free market or a more regulated market, for example). These instruments can be used to make futures studies.

Systems thinking demands the compilation of adequate data. Such data will need to be to some extent specific to the situation in the Netherlands.

#### Actively encourage research into the health effects of global environmental changes

Systems thinking is becoming established in the field of global environmental changes and their causes and effects. However, there is a blind spot in the area concerned with the effects on public health. System modellers and scientists from various disciplines in the natural and social sciences are involved in the research. Few, if any, doctors and other medical scientists, who familiar with empirical health research, are represented. However, input from this group is essential for public health to have a place in systems thinking about global environmental changes. Dutch scientists have extensive knowledge of systems thinking and it would be advisable to put it to good use. The Committee therefore recommends encouraging systems thinking in the required direction by making grants available to support research that promotes this.

#### Precautionary action

Paying attention to the health effects in the manner outlined above would be in keeping with a precautionary strategy. Here, the Committee defines 'precautionary' as dealing with uncertainties in a careful, transparent and situation-specific manner. Decision-making concerned with precautionary action should include regular policy evaluation and proper communication. This is all the more important because it concerns an international issue with insidious, far-reaching and irreversible effects which can only be partially described, let alone reliably quantified. The numerous uncertainties and the divergent opinions in society on the urgency of the problem call for participative dialogue with those concerned: authorities, citizens and parties in the community, and experts. The parties include the business community, trade unions and consumer and environmental protection organisations. The Committee sees communication as a two-way exchange of information and discussions between the parties concerned, whereby the importance of information on scientific findings and explanations of policy options should not be underestimated.

---

The transnational nature of the problem makes international coordination essential for measures and agreements intended to tackle the causes. It will also be possible to take specific measures domestically. A particular aspect of any such measures is that they often have an impact on more than one front simultaneously, which means that they are helpful in tackling more than one environmental issue. For example, energy saving not only reduces the use of natural resources but also emissions, and reducing dependence on fossil fuels for vehicles and transport improves air quality while also reducing greenhouse gas emissions. This is all beneficial to public health.

Finally, the Committee recommends monitoring the effectiveness of policy renewals and examining whether they have any adverse side-effects. The complexity of the problem and the many uncertainties make it difficult to predict the effect of policy. Precautionary action involves assessing policy at set times and more often than in other cases. The findings can be used in combination with new research data to adjust or revise policy.