

# Implications of Climate Change for Evaluation



**Per Mickwitz**  
**Finnish Environment Institute (SYKE)**  
**Environmental Evaluator's Networking  
Forum**

**13.6.2008**

# Structure of the presentation

- **Categorization of the implications of climate change on evaluation**
- **European and Finnish examples of the different implication categories**
- **Implications of climate change from an evaluation methodology perspective**

# Implications of climate change for evaluation

- 1. Implications through evaluation of climate programs and policies**
  
- 2. Implications of climate change on the evaluation of "non-climate" programs and policies.**
  - a) implications through changes of the climate;**
  - b) implications due to interactions with climate programs and policies (both mitigation and adaptation);**
  - c) implications because other policies and programs, e.g. traffic or agricultural programs, integrate climate aims.**

# 1. Implications through evaluation of climate programs and policies (1/3)

- **Program and policy evaluation has not yet been a central issue in climate policy**
    - monitoring of emissions, verification of emission reductions of CDM projects, assessing additionality have been much more central
    - IPCC's 4th assessment talks about evaluation, but at a very general level
  - **The evaluation community (e.g. AEA, EES), on the other hand, has not yet discussed issues related to climate change a lot.**
    - Some recent exceptions, Alexandria conference & ADAM
- ➔ **The role of evaluation will increase, when the end of the commitment period of the Kyoto protocol (2008-12) is approaching and when targets are becoming more stringent (e.g. EU 20 20 to 2020)**

# 1. Implications through evaluation of climate programs and policies (2/3)

- **The need for evaluation will be very different for:**
  - **Programs and policies directed at activities/sectors covered by emission trading**
  - **Other programs and policies**
  
- **In the case of activities covered by emission trading schemes**
  - **Evaluation is not required to establish impacts or effectiveness in reducing greenhouse gas emissions**
  - **Evaluation largely about costs**
  - **Side-effects (air, biodiversity; development)**
  - **Distribution of costs and side-effects (geographic, industries, income groups ...)**

# 1. Implications through evaluation of climate programs and policies (3/3)

*Sectors not covered by emission trading: transport*

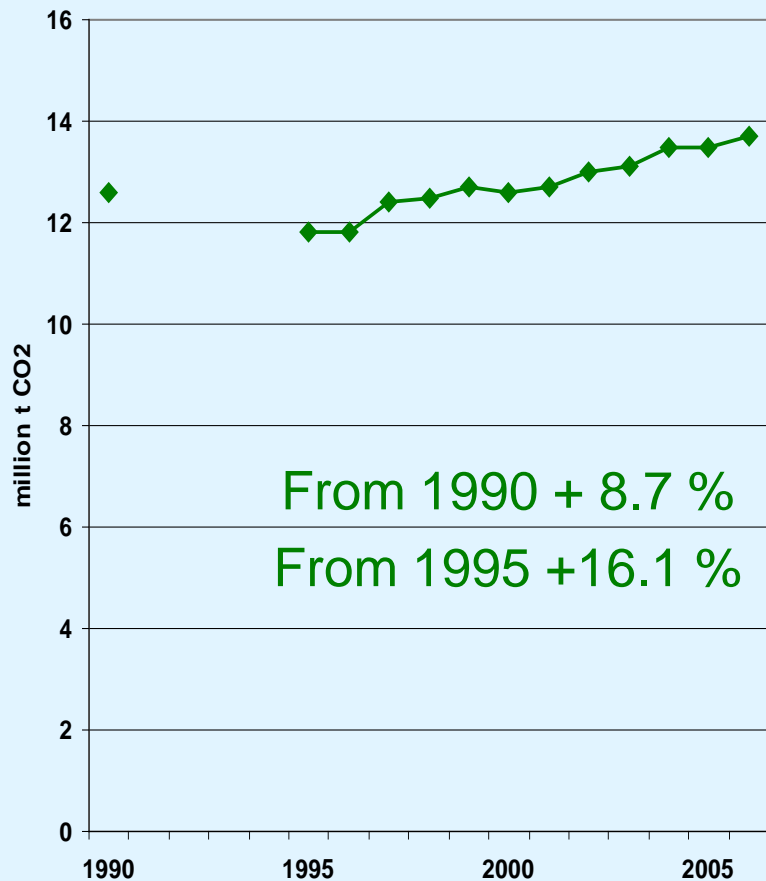


- The EU 20 20 by 2020 proposal includes legally-binding reduction target in sectors not covered by the EU ETS for 2020 compared to 2005:

**Finland -16 %**

# 1. Implications through evaluation of climate programs and policies (3/3)

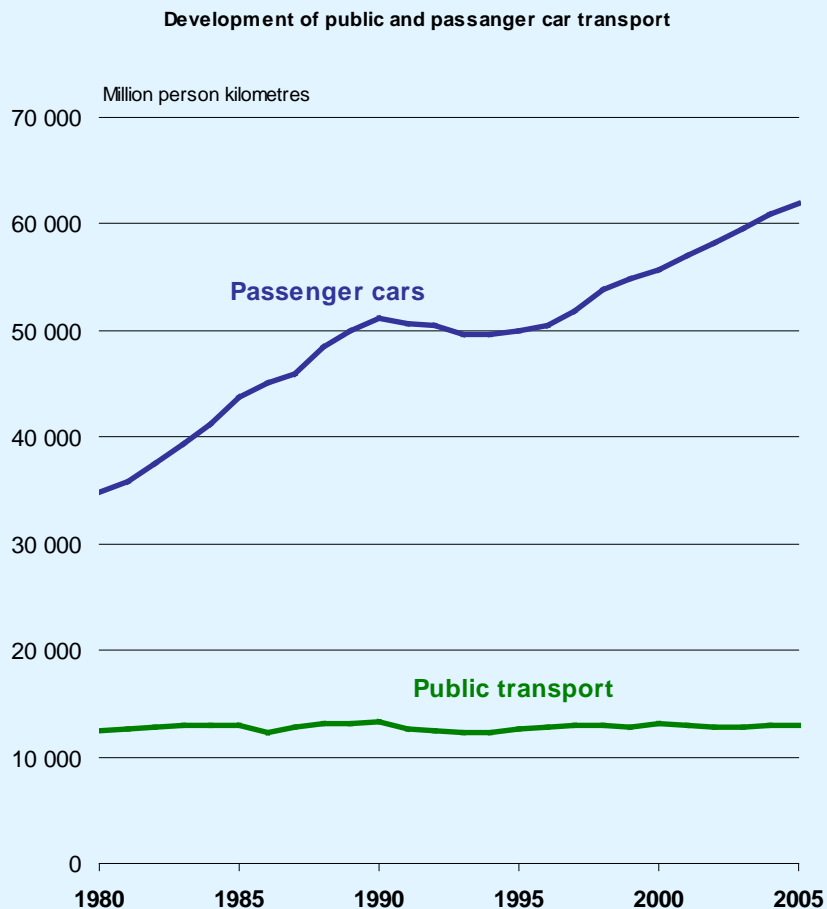
*Sectors not covered by emission trading: transport*



- The EU 20 20 by 2020 proposal includes legally-binding reduction target in sectors not covered by the EU ETS for 2020 compared to 2005:
  - **Finland -16 %**
- Implication: CO<sub>2</sub> emissions from transport have to be reduced substantially

# 1. Implications through evaluation of climate programs and policies (3/3)

## *Sectors not covered by emission trading: transport*



- The EU 20 20 by 2020 proposal includes legally-binding reduction target in sectors not covered by the EU ETS for 2020 compared to 2005:

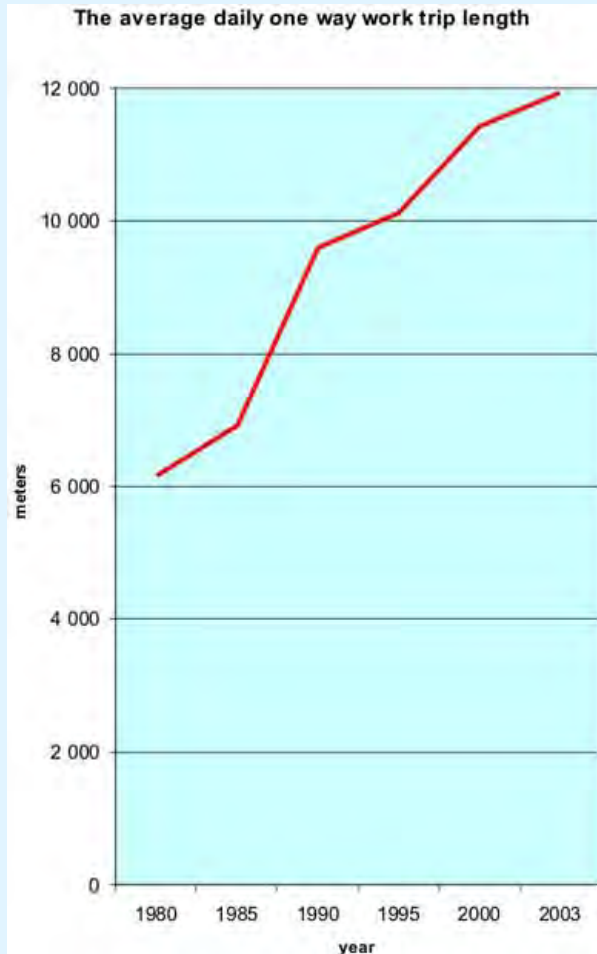
**Finland -16 %**

- Implication: CO<sub>2</sub> emissions from transport have to be reduced substantially



# 1. Implications through evaluation of climate programs and policies (3/3)

## *Sectors not covered by emission trading: transport*

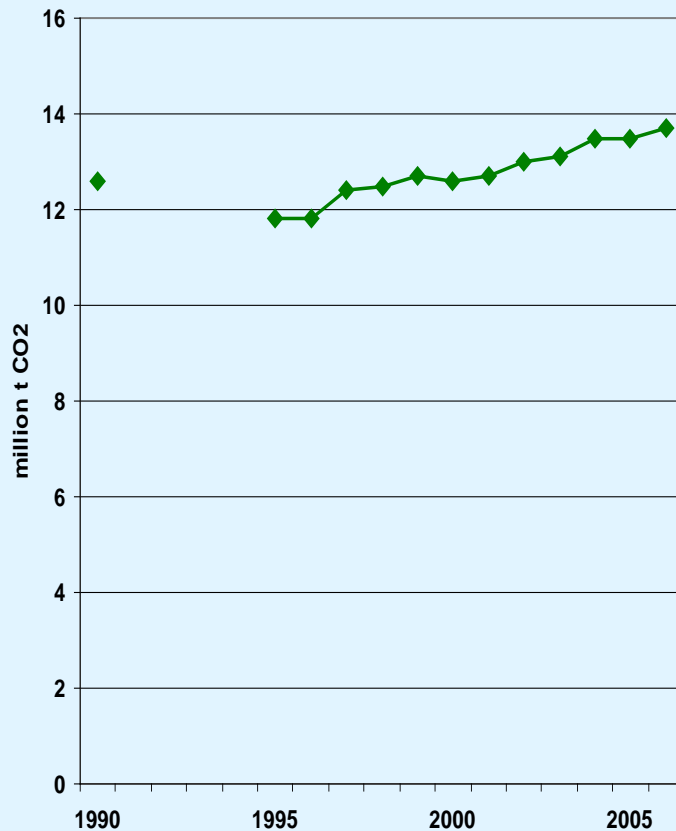


### Examples of explanations:

- The share of public transport has gone down
- Urbane structure has changed, e.g. people commute longer distances to work

# 1. Implications through evaluation of climate programs and policies (3/3)

*Sectors not covered by emission trading: transport*



Policies and programs:

- EU legislation on CO<sub>2</sub> from new cars
- National fuel taxation
- CO<sub>2</sub> based taxation of cars
- Review of income tax rebate for commuting to work
- Promoting eco-driving
- Urban planning (shopping malls)
- **All these jointly influence emissions**
- **Huge need for effectiveness evaluations**

## 2 a. Implications of climate change on the evaluation of "non-climate" programs and policies through changes of the climate



- **Example: eutrophication of the Baltic sea due to nutrient loading**
- **The main Finnish source of nutrients is agriculture**
  - **63 % of Phosphorus 2004**
  - **51 % of Nitrogen 2004**
- **In the Finnish Government decision-in-principle on Water Protection Policy Outlines to 2015: goal**
  - **30% compared to 2001-5**

## 2 a. Implications of climate change on the evaluation of "non-climate" programs and policies through changes of the climate



- **Many options to reduce nutrient loads from agriculture:**
  - Reduced use of fertilizers
  - Changed use of fertilizers
  - Wetlands & buffer zones
  - Reduced farming on steep fields close to waters
  - Changed crops
- **Programs and policies**
  - Education
  - Support conditions
  - Fertilizer tax proposal
  - Wetland agreements

## 2 a. Implications of climate change on the evaluation of "non-climate" programs and policies through changes of the climate



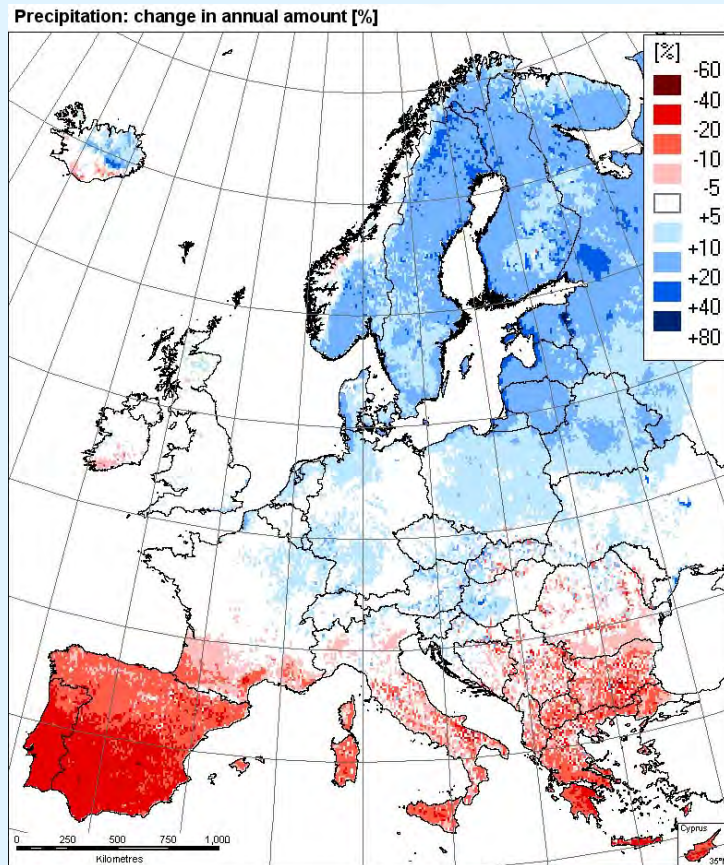
Joulun sää etelässä: lunta vain ladulla

#S 2012/2007

Only artificial snow on the ski track

- **The Winter 2007-8 was the warmest ever recorded in Finland**
  - Hardly no snow or frost
- **Huge effects on run-offs of nutrients from fields**
- **Should be considered in evaluations**
  - Confounding factor
  - Attribution
- **Should be taken into account when planning evaluations**
- **Programs and policies**
  - Education
  - Support conditions
  - Fertilizer tax proposal
  - wetland agreements

## 2 a. Implications of climate change on the evaluation of "non-climate" programs and policies through changes of the climate



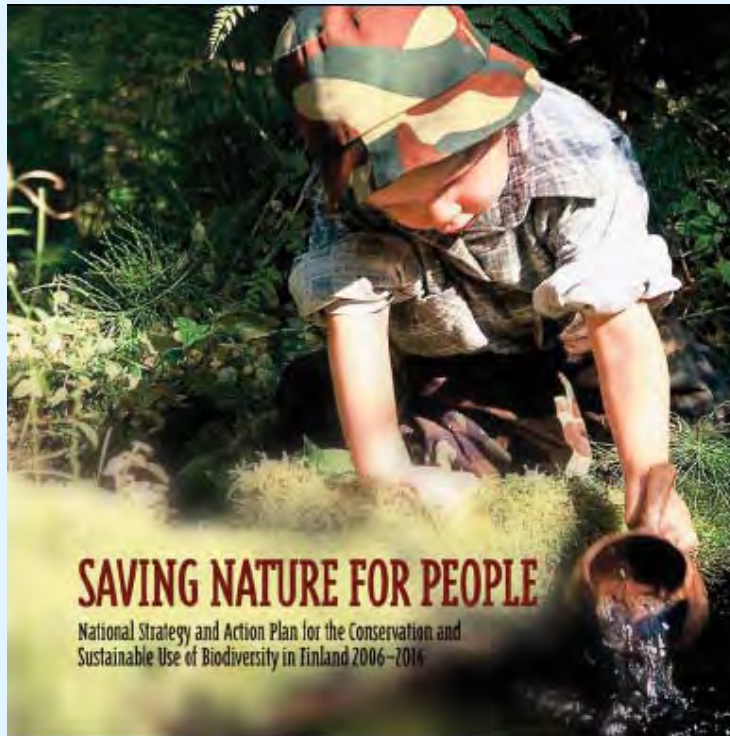
- Long term climate change expected to have much larger impacts on the temperature on rainfall than last winter and thus on farming practices
- A fixed indicator approach (too common in Europe) misleading
- Implications on program theories (even science based part) & on results chains
- Sensitivity of a program or policy under climate change as an evaluation criteria

## 2 b. Implications of climate change on the evaluation of "non-climate" programs and policies due to interactions with climate programs and policies – Example bio-energy



- The EU 20 20 by 2020 proposal based on 20 % renewables by 2020, include specific **legally-binding share of renewables** in the final energy demand by 2020:  
**Finland 38 %**
- The European Council decided on a 10% biofuel target for transport
- In Finland 20 % of all energy is already bio-energy

## 2 b. Implications of climate change on the evaluation of "non-climate" programs and policies due to interactions with climate programs and policies – Example bio-energy



“Efforts to preserve forest diversity have been intensified recently, through increases in the areas of forest under protection, improvements in the quality of protected forests achieved through habitat restoration schemes, and the development of natural forest management practices for commercially managed forests.

... without further measures the numbers of forest species becoming threatened or extinct in Finland will go on rising in the near future. ... With regard to the structural features of natural forests, it is particularly important for the sake of biodiversity to increase the amounts of decaying wood in the forests.”



## 2 b. Implications of climate change on the evaluation of "non-climate" programs and policies due to interactions with climate programs and policies – Example bio-energy



Changed practices due to increased demand of bio-energy: far less “residuals” are left in the forests, even the stumps are removed.

“Efforts to preserve forest diversity have been intensified recently, through increases in the areas of forest under protection, improvements in the quality of protected forests achieved through habitat restoration schemes, and the development of natural forest management practices for commercially managed forests.

... without further measures the numbers of forest species becoming threatened or extinct in Finland will go on rising in the near future. ... With regard to the structural features of natural forests, it is particularly important for the sake of biodiversity to increase the amounts of decaying wood in the forests.”

## 2 b. Implications of climate change on the evaluation of "non-climate" programs and policies due to interactions with climate programs and policies – Example bio-energy

### Should be considered in evaluations

- Confounding factor
- Attribution

### Implications on program theories

Changed practices due to increased demand of bio-energy: far less “residuals” are left in the forests, even the stubs are removed.

“Efforts to preserve forest diversity have been intensified recently, through increases in the areas of forest under protection, improvements in the quality of protected forests achieved through habitat restoration schemes, and the development of natural forest management practices for commercially managed forests.

... without further measures the numbers of forest species becoming threatened or extinct in Finland will go on rising in the near future. ... With regard to the structural features of natural forests, it is particularly important for the sake of biodiversity to increase the amounts of decaying wood in the forests.”

2 c. Implications of climate change on the evaluation of "non-climate" programs and policies because other policies and programs integrate climate aims.

- **Climate integration needs to be evaluated – It is far easier to declare intention to integrate than to carry it out**
  - We have just finished a study on Mainstreaming Climate Policy for the Finnish Prime Minister's Office
  - Mickwitz P. and P. Kivimaa 2007. Evaluating Policy Integration: The Case of Policies for Environmentally Friendlier Technological Innovations, *Evaluation* 13 (1), 68-86.
- **Climate integration will influence the evaluation of the other aims of the programs and policies**

# Implications of climate change from an evaluation methodology perspective

- **Side-effects evaluation**
- **Evaluation criteria**
- **Attribution**
- **Program theory**
- **Data**
- **Uncertainty**
  
- **The evaluation of climate programs and policies requires a strong focus on side-effects**
  - **Positive e.g. air emissions**
  - **Negative e.g. biodiversity**
  - **Non-environmental e.g. development, income distribution, innovations and technological development**
  
- **IPCC 2007 (chapter 11) “Spillover effects”**

# Implications of climate change from an evaluation methodology perspective

- **Side-effects evaluation**
- **Evaluation criteria**
- **Attribution**
- **Program theory**
- **Data**
- **Uncertainty**

**Program theories of climate as well as other programs need to take into account:**

- **Climate change**
- **Climate policies and programs as well as the social and economic processes affected by them**
- **Climate policy integration**
- **Requires:**
  - **Increased awareness**
  - **Utilization of natural sciences (adaptation & impacts)**
  - **Utilization of social sciences**
  - **More research, especially on social & economic processes**



- **I believe that climate change will have huge implications for evaluation.**
- **The huge uncertainties involved will have implications for the evaluation processes – unrealistic expectations may influence the legitimacy of evaluation.**
- **How influential should evaluations be (Hans Bruyninckx & Jared Hardner)?**