

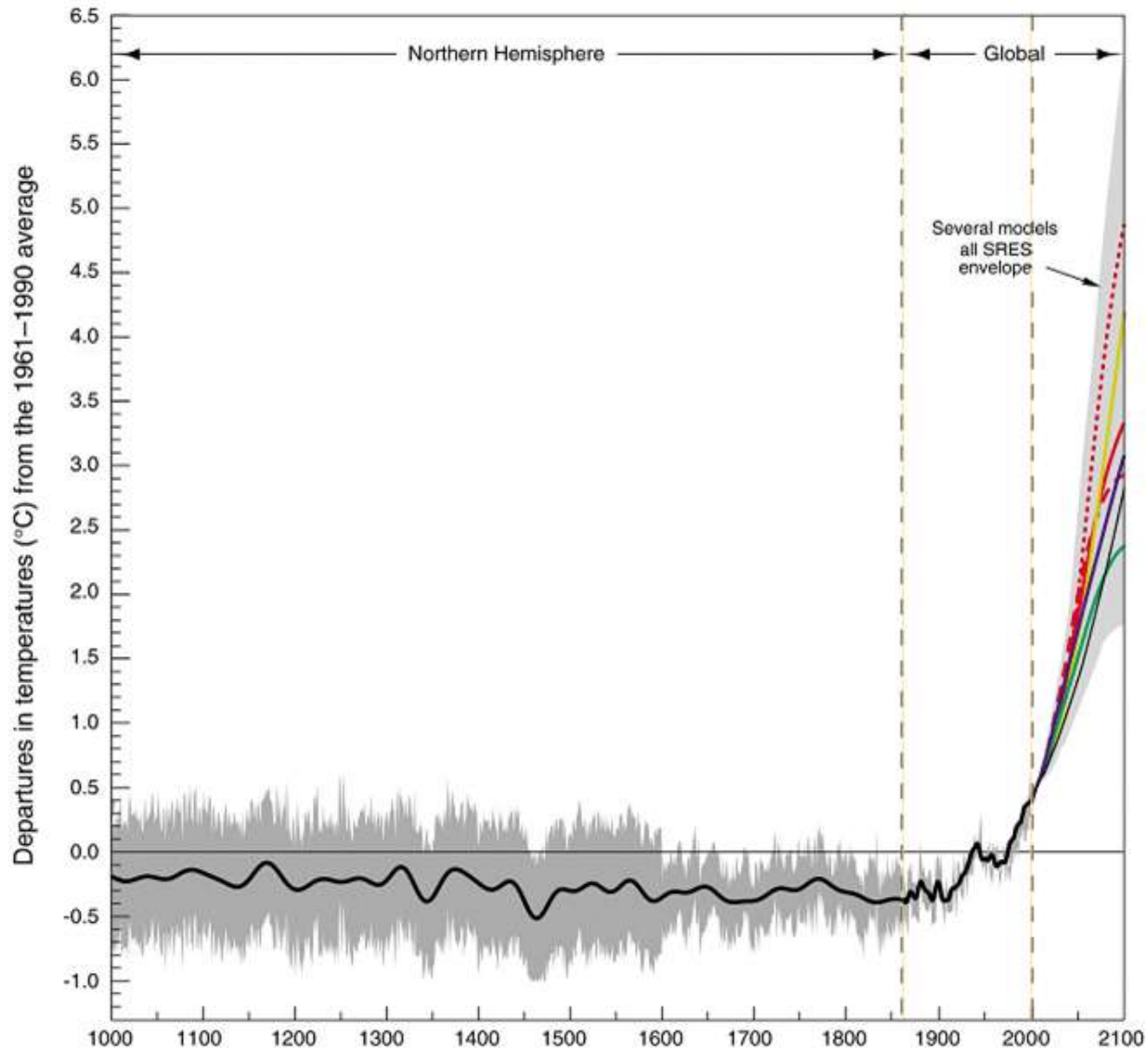
Presentation on climate, water and development by
prof. Dr. Pier Vellinga

Chairman of the Netherlands' National Programme Knowledge for Climate

Themes:

- Climate and Water issues relevant for development in coastal and low lying areas
- Experience in early phases of planning for adaptation in the Netherlands
- Proposal for international cooperation in the framework of a "Delta Alliance"

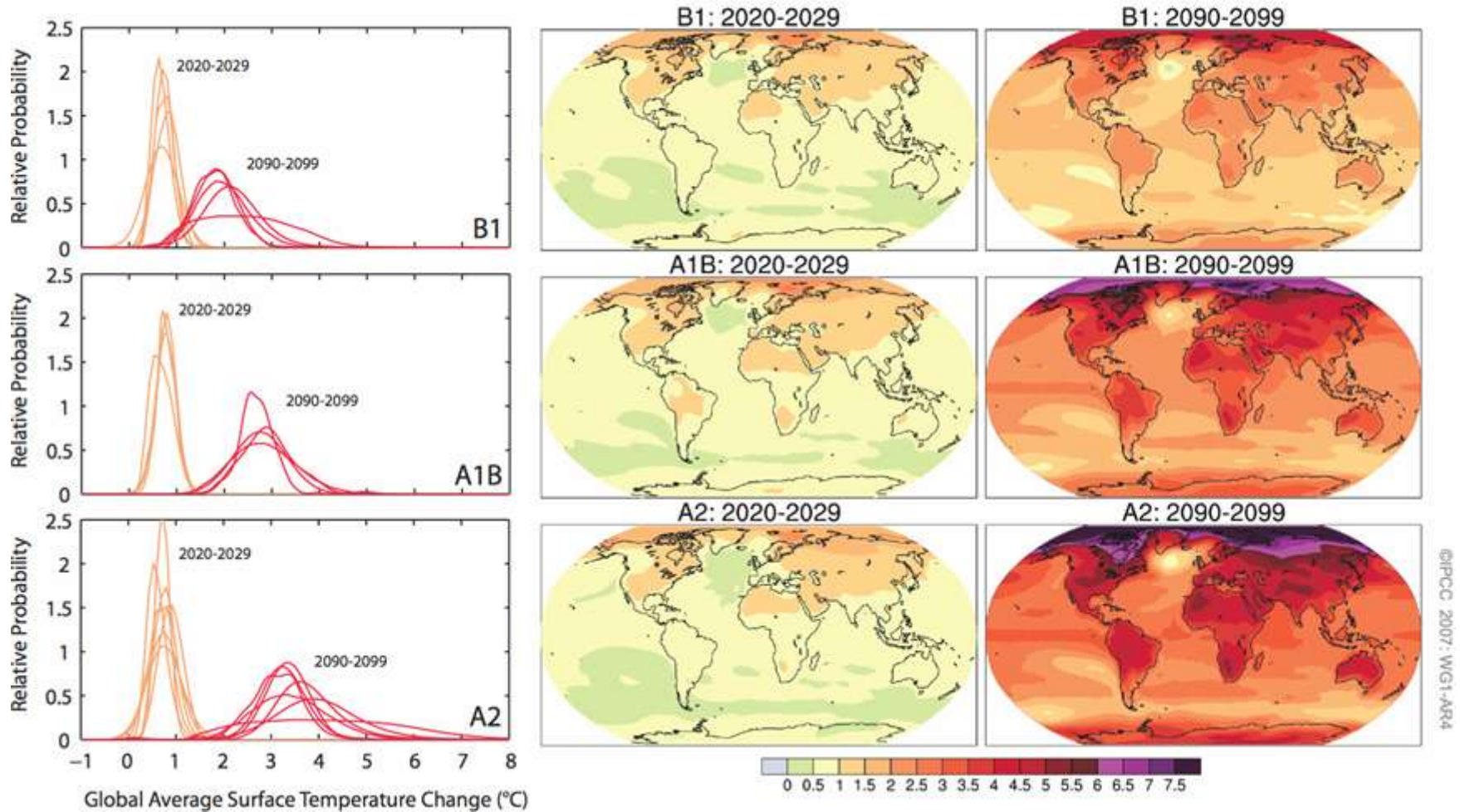
Projected rise in global average temperature



IPCC 2007 report

The global climate of the 21st century

AOGCM Projections of Surface Temperatures

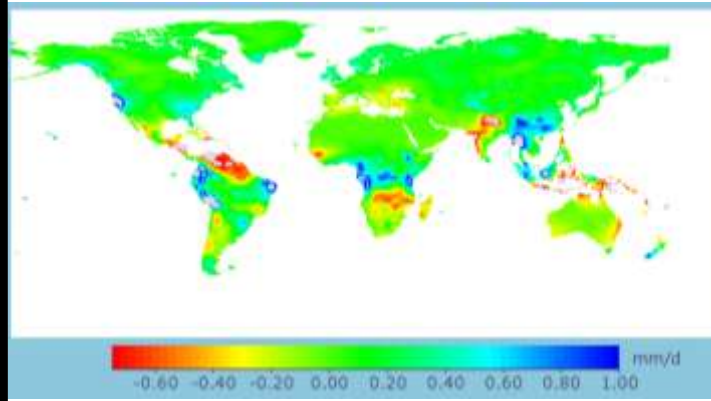
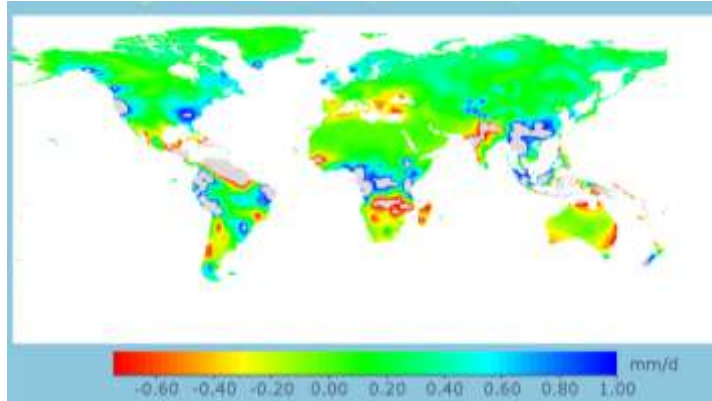


Source: IPCC WGI Fourth Assessment Report

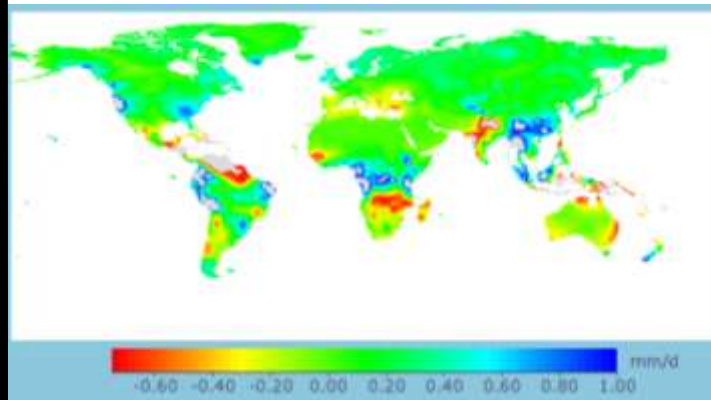
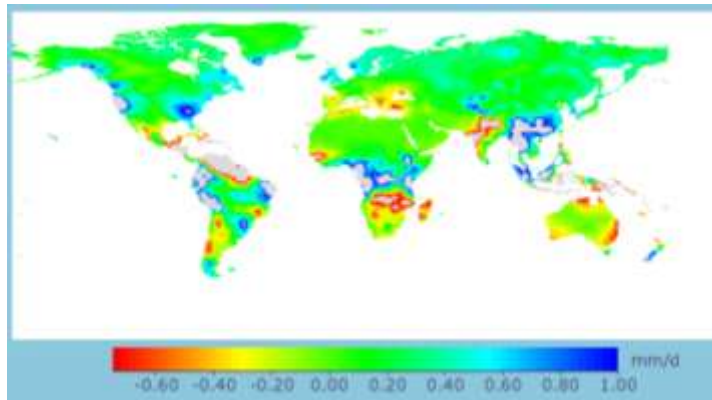
Changes in precipitation

Full globalisation

Focus on material gains

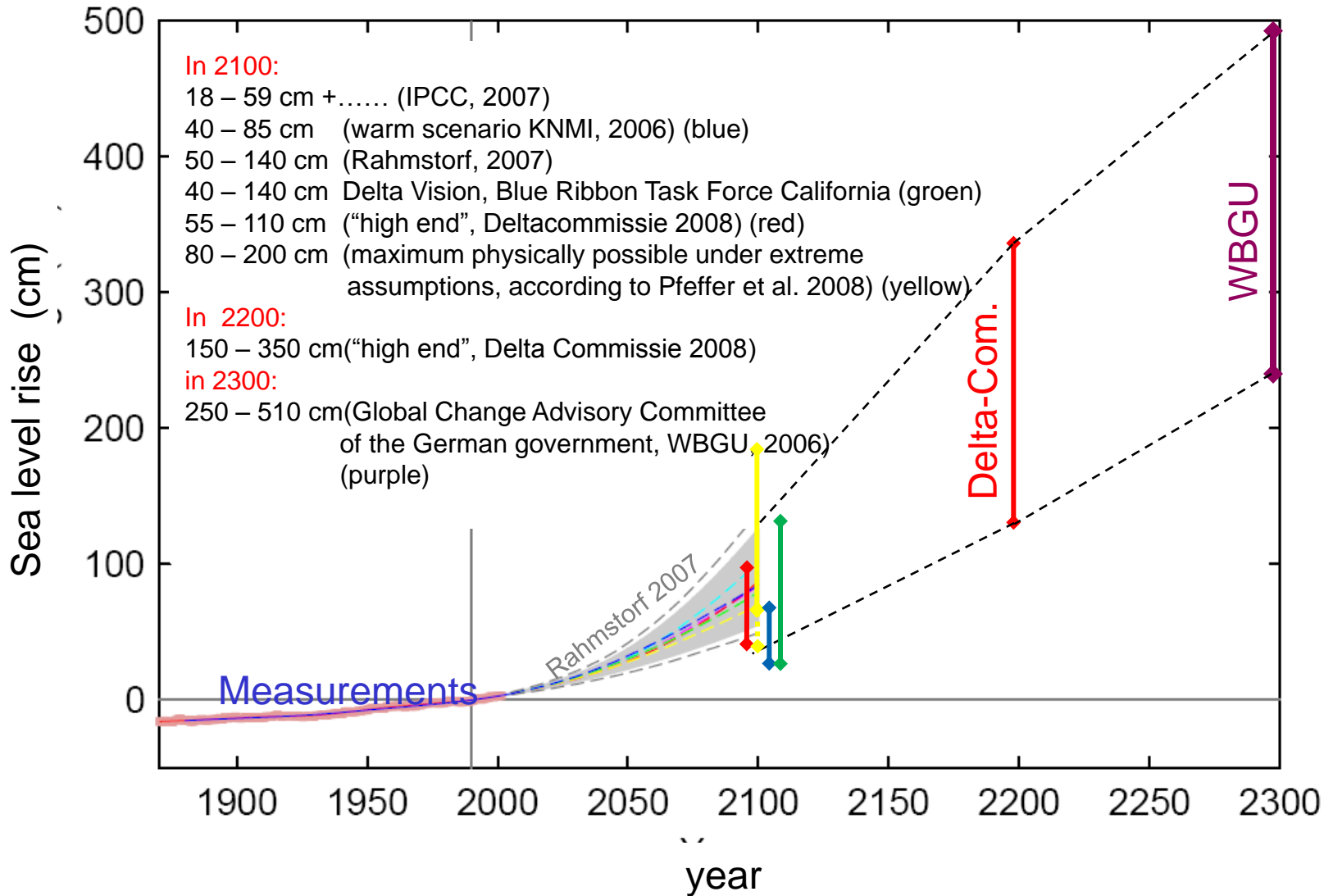


Focus on sustainability and solidarity



Independent regional blocks

Recent estimates of (upper limits) of global average sea level rise



Impacts and implications for development in coastal areas

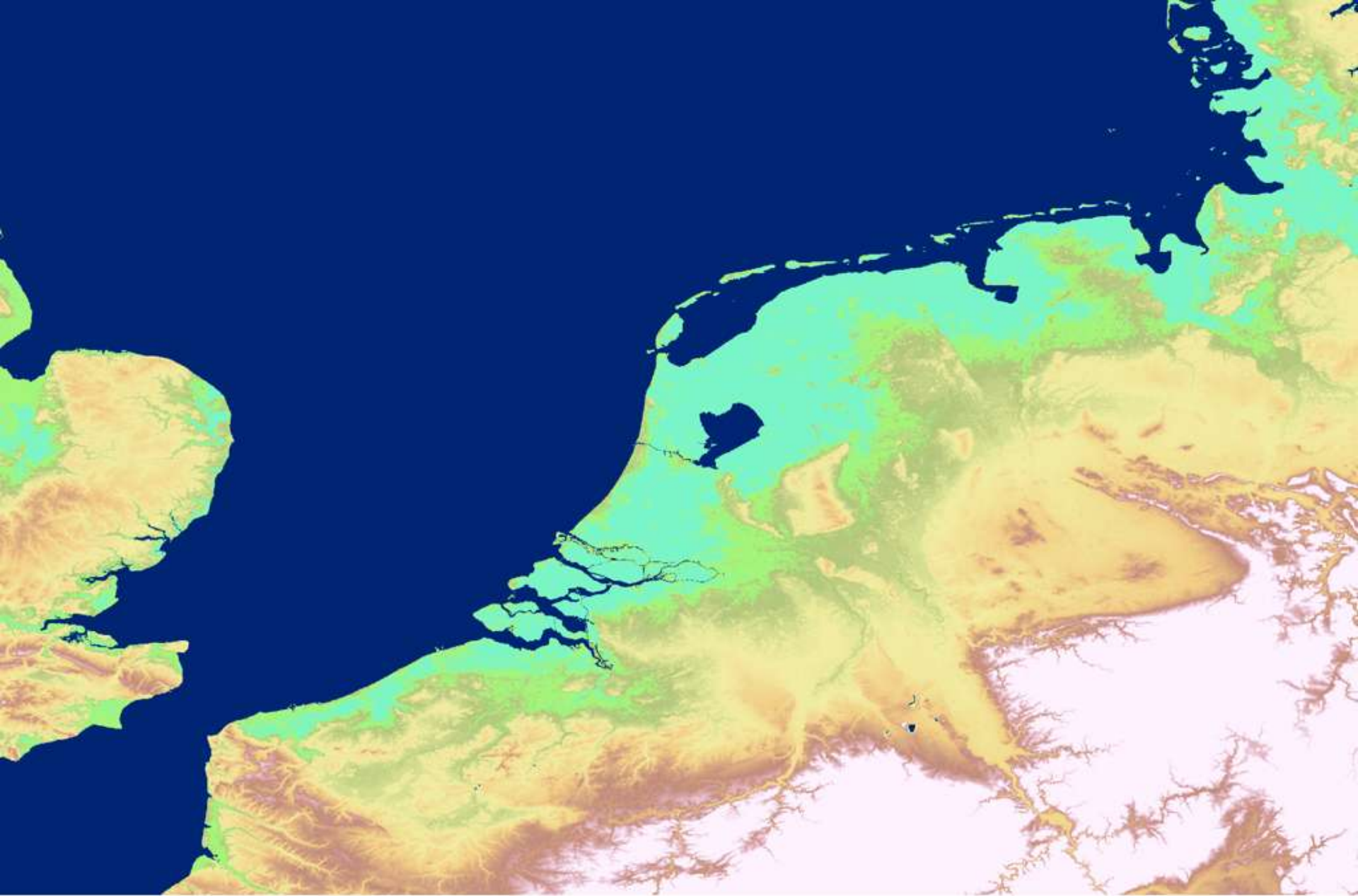
- Increased risk of flooding;
- Increasing areas with brakish water;
- Implications for investments in particular in:
 - Urban development and infrastrucuture
 - Agricultural production

Policy Debates in the EU on Planning for adaptation to climate change

- How to describe, deal with and communicate uncertainty in climate and extreme events;
- Issues:
 - Adaptation by experience or
 - Adaptation by anticipative interventions;

 - Special plans, funds and regulations or
 - Mainstreaming existing plans, funds and regulation

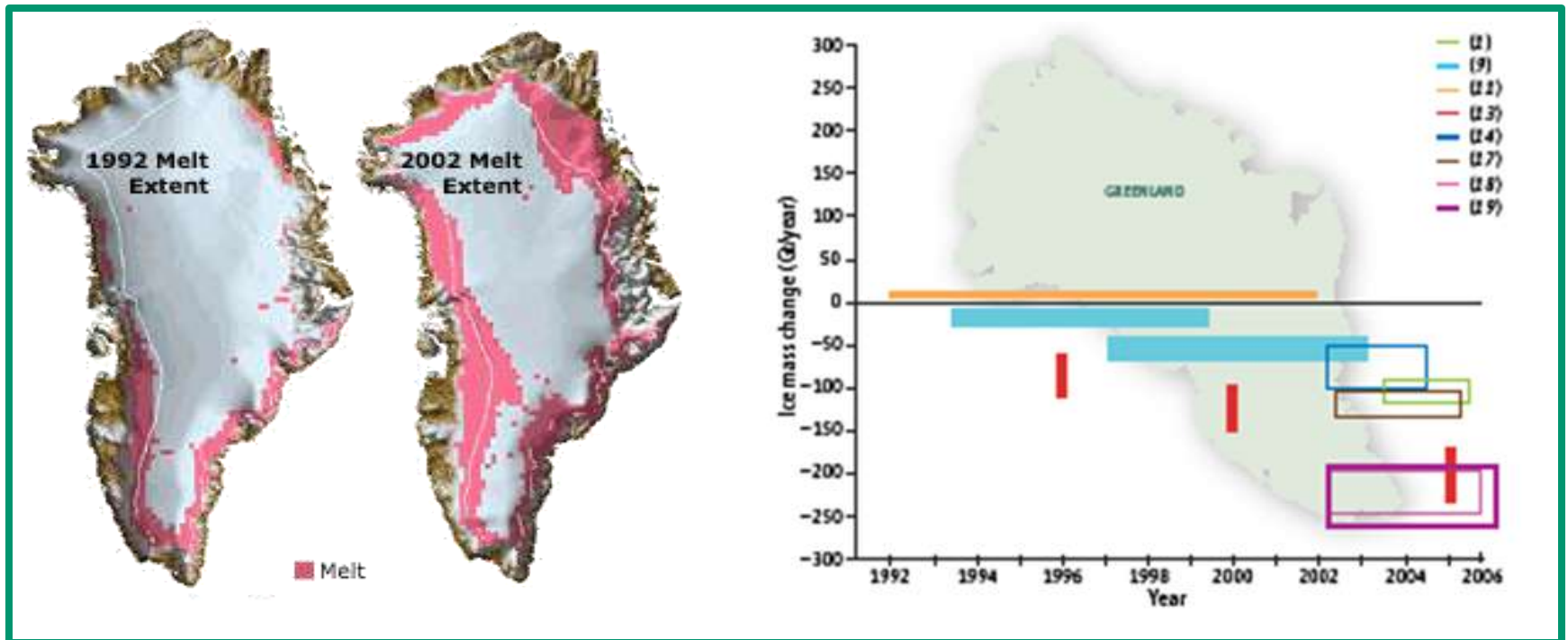
 - Policy focus on reducing risk and /or
 - focus on opportunities in spatial policies and technical innovation;



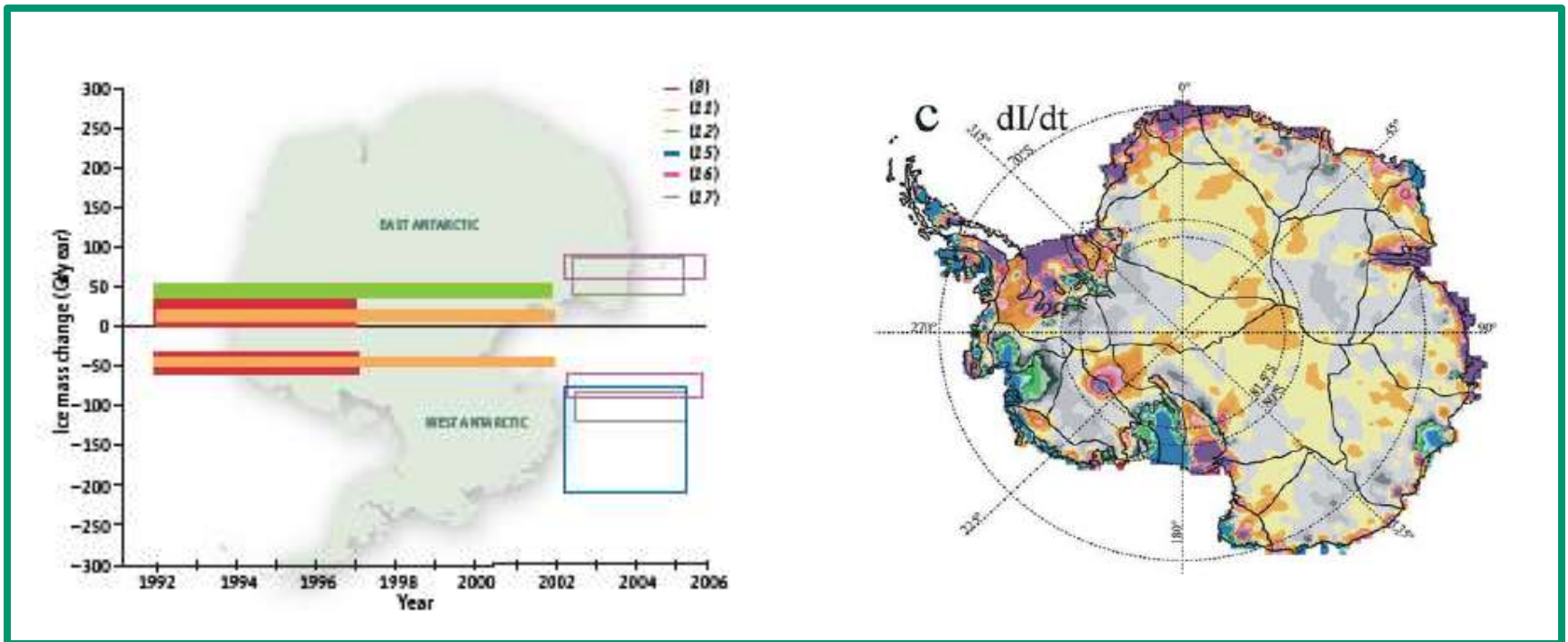
Legend



Smelten van de Groenlandse ijskap



Afsmelten van de Antarctische Ijskap



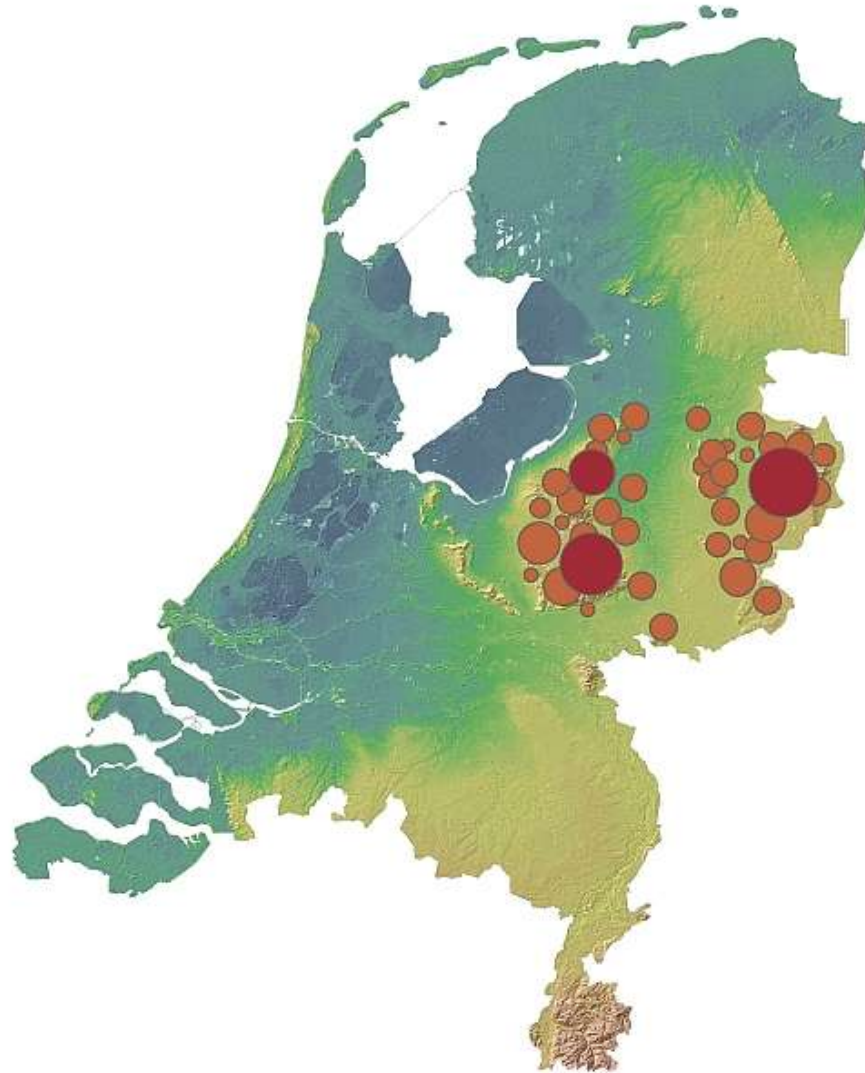
Focus in the Netherlands regarding adaptation to climate change

- Climate change calls for a long term strategy regarding:
 - Spatial Planning and Floodprotection:
 - Fresh water management and conservation;
 - Urban development and
 - Nature management
- **Climate change policy focus is on oportunities, R and D and investments.**

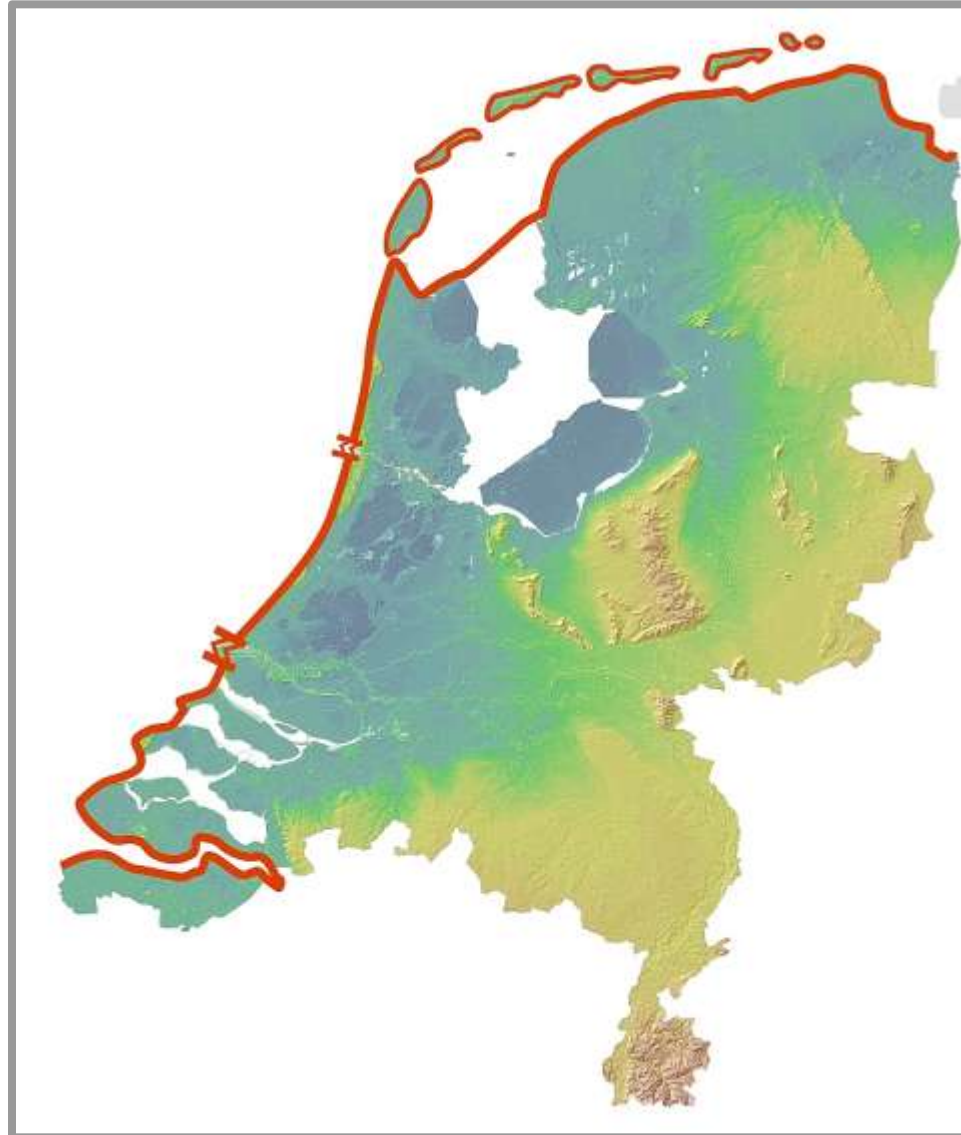
Optie 1: “Aanvallend verdedigen”:



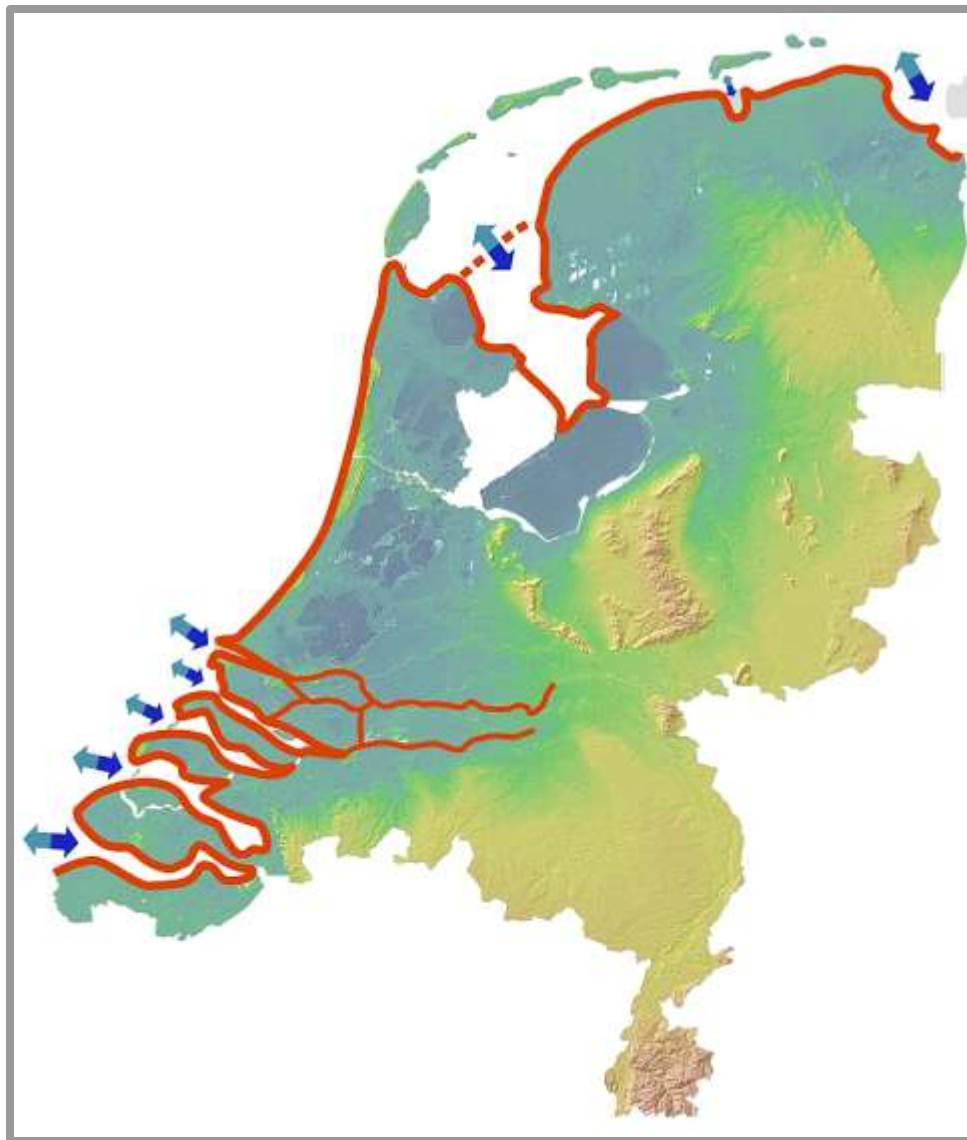
“Verhuizen naar hoge gronden”



Optie 2: “dichte” variant



Optie 2: “open” variant



Present approach to adaptation in the Netherlands

- Delta committee report is a major milestone: solving present problems in a future context.
- In implementation the focus is on articulating “spatial planning” choices for the future and reinforcing existing policies in particular in the field of:
 - **Flood protection**
 - **Fresh water management**
 - **Urban development**
 - **A major effort in the field of Research and Development of new techniques and practices in coastal protection, watermanagement and agriculture**

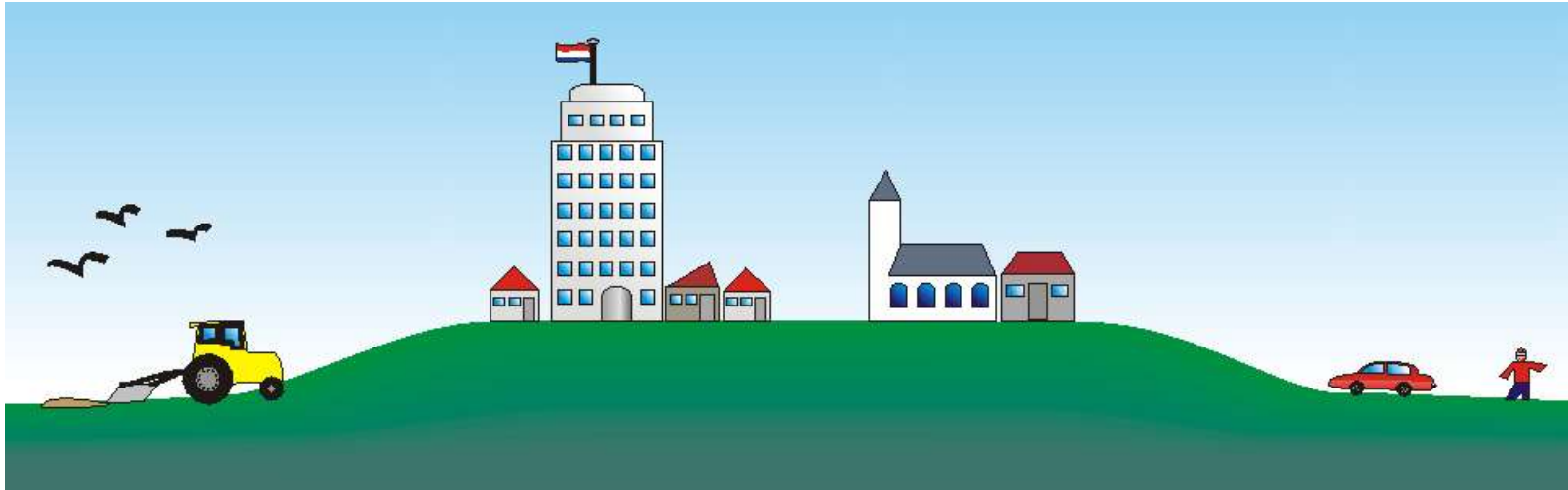
National Research programma Knowledge for climate founding partners:



National Research Programme Knowledge for Climate characteristics:

- **Driven by research needs at the level of regional and national stakeholders: “hotspots”**
- **Multidisciplinary and multi-sector, spatial investment orientation;**
- **Research focussing on economically vital areas: Rotterdam, Schiphol, Haaglanden and particularly vulnerable areas: Waddenzee region, south-western delta;**
- **Including International cooperation in research: international hotspots.**

Modern urban mounds



Floating cities and greenhouses



Image courtesy Dura Vermeer

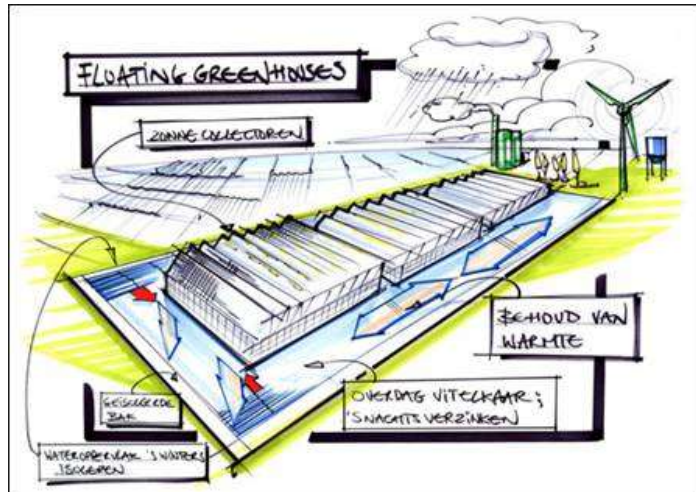


Image courtesy www.tuinbouw.nl



Image courtesy www.drijvende_kas.nl

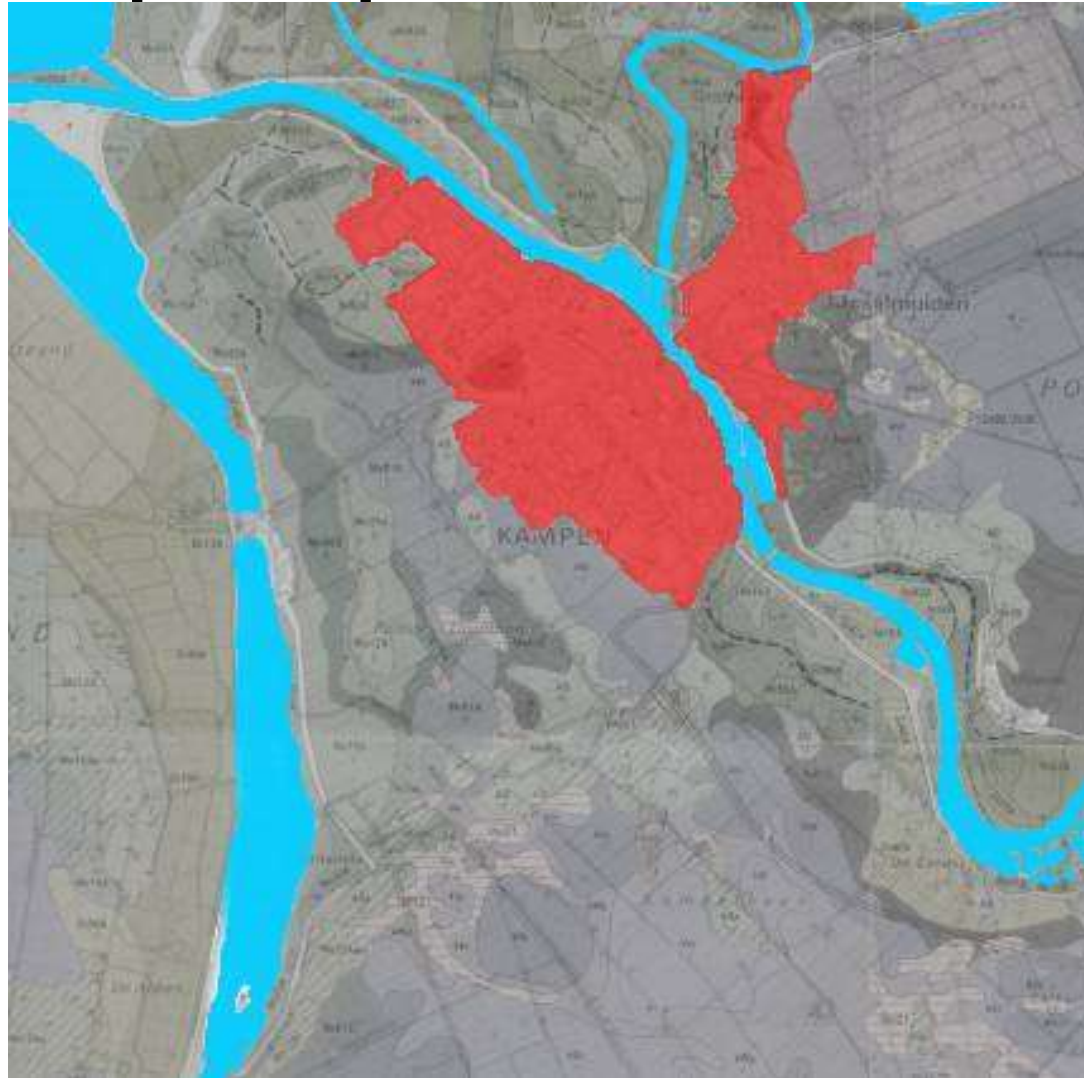
Salt water and brackish agriculture



Salt water Aquaculture



Kampen present situation



Kampen by-pass: Green river concept



Situatie bij een normale rivierafvoer (ca 200 dagen per jaar)



Hoogwaterbeeld

Development of World Cities

2015

World Cities
exceeding
5 million residents



Data source:
U.N. Population
Division

Developing an international alliance of delta-areas.

- An international framework for cooperation of researchers, consultants, policy makers and their governments, at national, provincial/district and city level;
- Developing and sharing research and experience on integrating climate change concerns and development priorities;
- Raising awareness for the particular situations of coastal and lowlying areas;
- Sharing ideas and proposals regarding international policies on climate change and adaptation at international meetings and climate change negotiations, such as the Bali-Copenhagen proces.

Delta's with early interest in Delta Alliance

- California Delta / Sacramento;
- Nile Delta;
- Mekong Delta;
- Netherlands Delta / Rhine, Meuse and Scheldt;
- ++++++
- ++++++

Hotspot Jakarta

