

How to adapt to climate change?

-regional strategies and possibilities in the Stockholm region-

- A shortbackground
- The regional perspective in Stockholm
- Regional adaptation work
- The adaptation picture 2011
- The local adaptation perspective

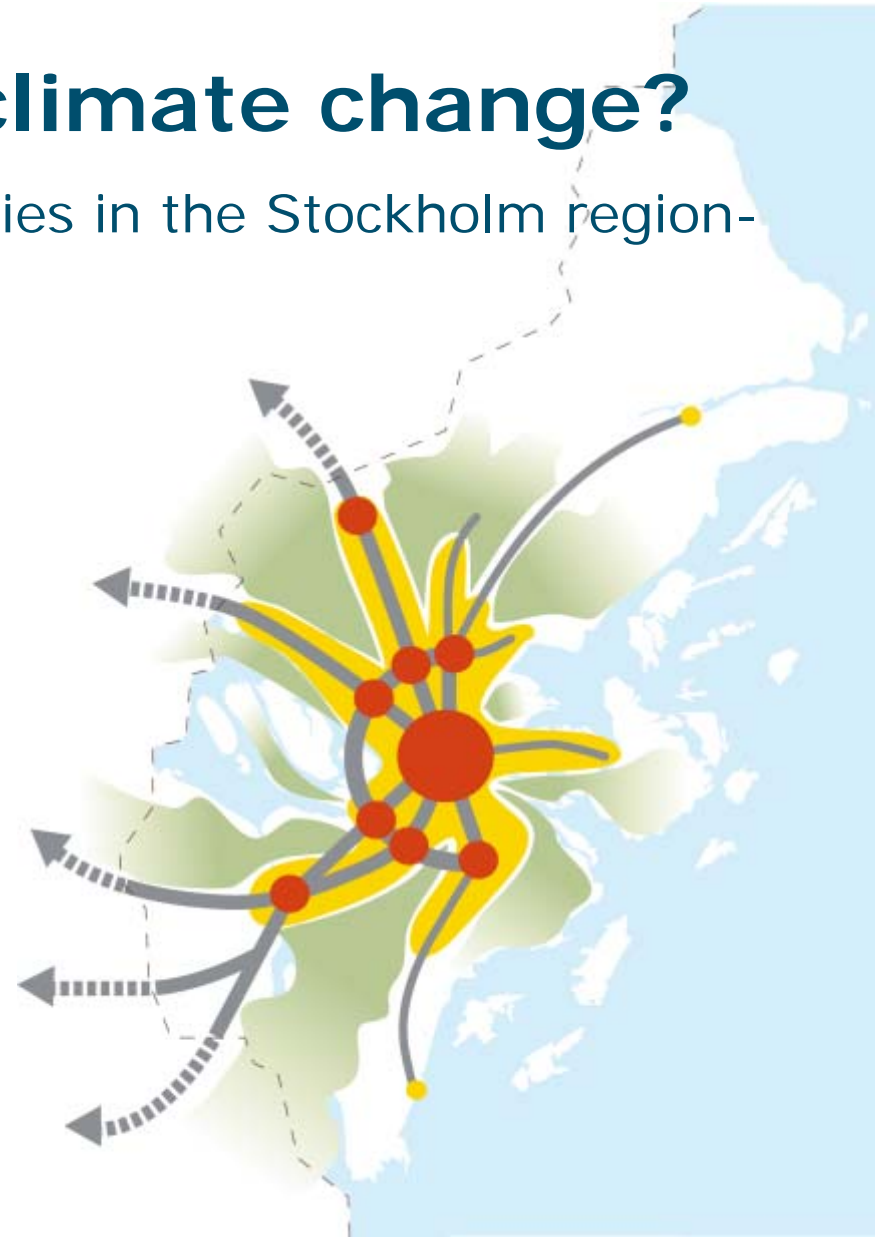
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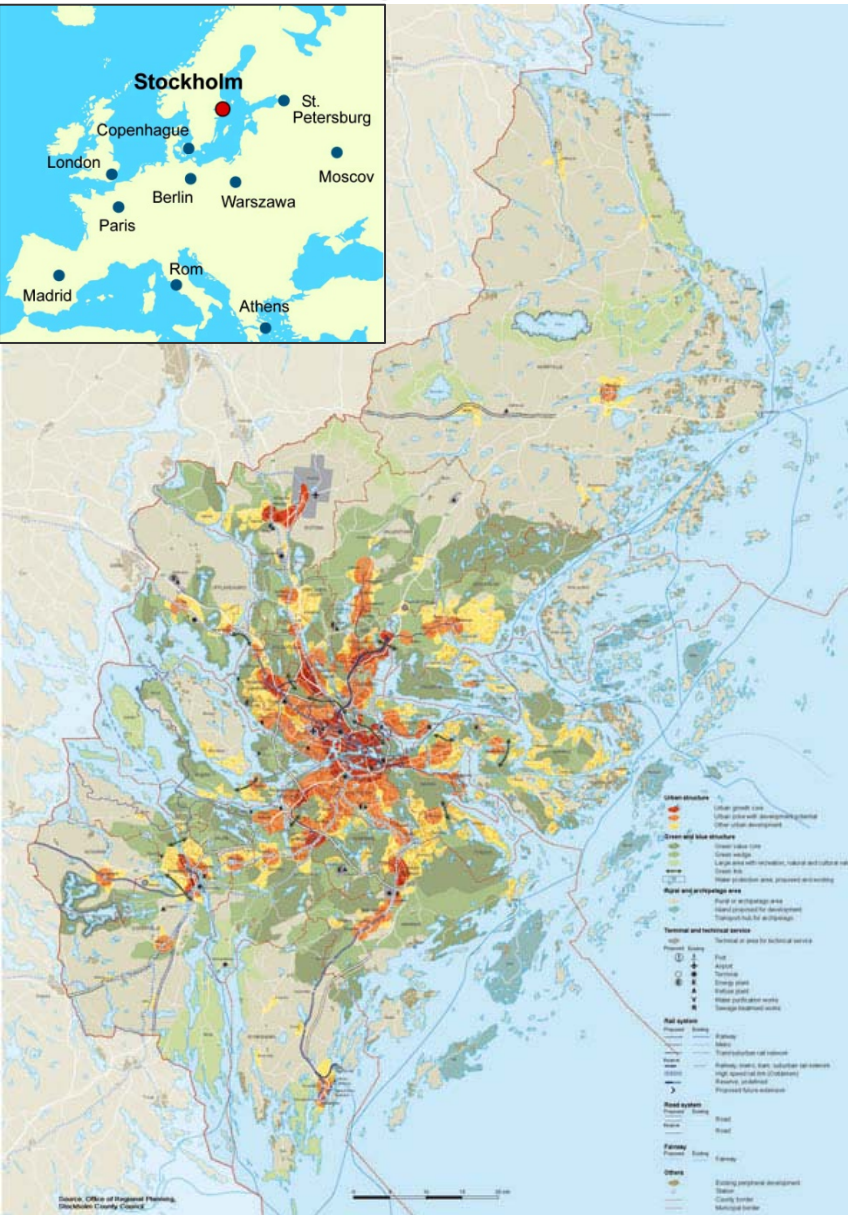
The national level and the preconditions

Starting point: Sweden facing climate change – threats and opportunities (SOU 2007:60)

- Improved Planning and Building Act 2011 (from 2008: § regarding adaptation)
- Laser scanning of Sweden – new Digital Elevation Model (2009-16)
- The County Administrative Boards: regional co-ordination and support to local level (extra funding 2009-2011)
- National Platform för Disaster Risk Reduction
- Adaptation web portal
- Numerous research projects and government authority projects



Stockholm County Council



Stockholm County – 26 municipalities

- 2 million inhabitants,
1 million dwellings
- 6500 km², 180 km N-S
- The biggest city is Stockholm, appr 810 000 inh
- Annual population growth appr 40 000 at present
- Population density:
 - County 285 inh/km²
 - Stockholm 4 100 inh/km²
- A monocentric region, large rural areas (60% forest & agriculture)
- Good public transport
- A unique system of regional greens wedges, and a rich blue system

The regional Development Plan for the Stockholm Region



VISION

Europe's most attractive metropolitan region

OBJECTIVES

An open and accessible region

A leading region for growth potential

A region with a good living environment

A resource-efficient region

STRATEGIES

Increase sustainable capacity and quality within strategical areas

Develop ideas and capacities ability for renewal and innovation

Secure values for the future

Develop a polycentric structure within a dense region

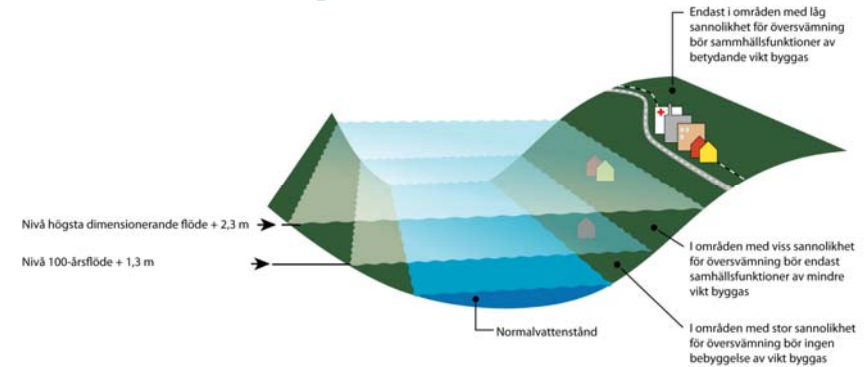
Strengthen solidarity

Secure the individuals growth potential

Reducing climate impact and adapt to climate change, while still promoting economic growth

Adaptation in the Regional Development Plan

STRATEGY 3



- Include adaptation in long term decisions on new infrastructure investments
- Safeguard drinking water supply from lake Mälaren
- Handle flood risks in municipal planning – margins +2,3 m (lake Mälaren) and minimum + 2 m for coastal areas
- Adapt the water and sewage systems to new water volumes
- Strategic use of multifunctional greenery etc
- Adapt existing structures to future risks
- Integrate the adaptation perspective in everyday decision making

The regional level in Stockholm: the County Council and the County Administrative Board



Integrate the adaptation perspective in regional spatial decisionmaking and regular planning processes

Interact in the planning process to secure the intentions of the Planning and Building Act (Adm Board)

Coordinate the regional perspective in order to assist the local level

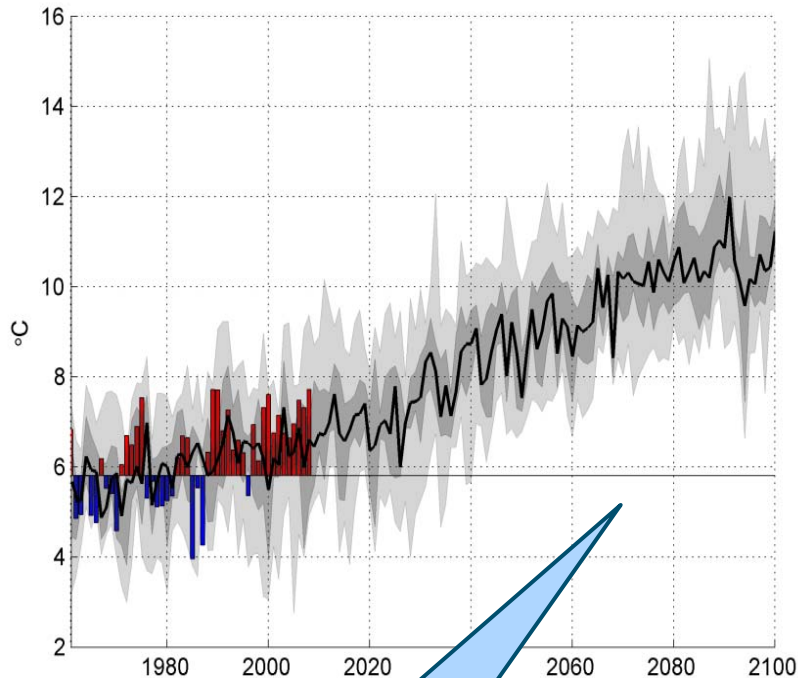
Stimulate dialogue and political awareness

Increase the competence and knowledge:

- A serie of seminars during 2010 and 2011
- Regionalized data / specific analysis
- Offer surveys and reports



The regionalized picture



Improved regionalized data in 2011.

Av temp: gradually increasing during the century, 4-6 deg until 2100. The largest increase during winter.

! **Heat:** Increase from 5 to approx 30-40 hot days. From 1 period every 2nd year to 10-15 periods.

! **Vegetation period:** Major prolongation with approx 100-140 days at the end of the century (today 195 days)

Av rain: Increase with 10-30 % at the end of the century. The largest increase during winter.

Extreme rain levels: Approx 20 % increase during the century.

! **Snow:** Average number of days with snow, 65-100 days decrease.

Ground water level: increased during winter, decreased during summer.

Fire risks and wind: (ongoing research).

The local picture in a regional context

- Uncertainty of the responsibilities – who to decidewhat?
- Mitigation is muchmoreestablishedthan adaptation, especially on politicallevel
- Adaptation issues ineverydaywork, but lack of adaptation strategiesand/orstrategicadaptation work.
- Strong belief inimprovedbuildingtechnique– business as usual (high pressure for water front developments).
- A strong need for increasedco-operationbetween public sector and energy-and water companies.
- A broad variation in approach and attitudes to recommendations and research results.
- Municipal comprehensiveplanning – adaptation takesplace
- RUFs is used for it´s recommendations