Montreal CIP Conference 2010

Climate change & the built environment

A European Union perspective

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Outline of presentation

- What is the EU?
- Why does EU need to act?
- What is EU doing?
  - Adaptation
  - Mitigation
- A low carbon vision for 2050

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What is the EU?

Economic & political union

27 member countries

4 candidate countries / 5 potential candidates

Population: 501m (Canada: 34.3m)

Area: 4.3m sq km (Canada: 9.9m sq km)

GDP /capita $29.7k (Canada: $38.0k)

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Why does EU need to act on climate change?

- Climate change transcends national boundaries
- Some sectors operate at EU level
- Not all states have national strategies
- EU action can help disadvantaged areas
- Action at EU level helps achieve better results & better quality of life for all

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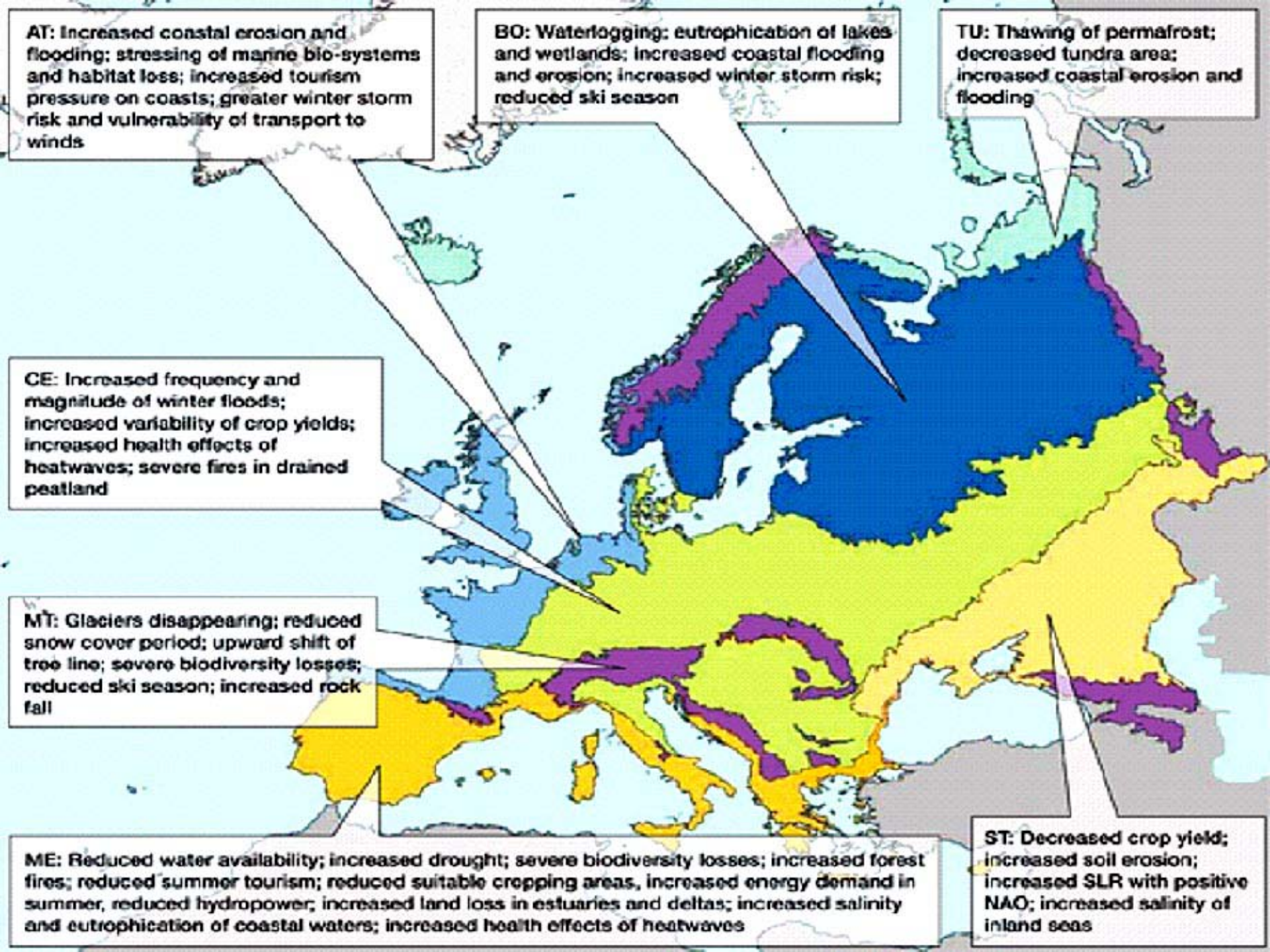
AT: Increased coastal erosion and flooding; stressing of marine bio-systems and habitat loss; increased tourism pressure on coasts; greater winter storm risk and vulnerability of transport to winds
BO: Waterlogging; eutrophication of lakes and wetlands; increased coastal flooding and erosion; increased winter storm risk; reduced ski season
TU: Thawing of permafrost; decreased tundra area; increased coastal erosion and flooding
CE: Increased frequency and magnitude of winter floods; increased variability of crop yields; increased health effects of heatwaves; severe fires in drained peatland
MT: Glaciers disappearing; reduced snow cover period; upward shift of tree line; severe biodiversity losses; reduced ski season; increased rock fall
ME: Reduced water availability; increased drought; severe biodiversity losses; increased forest fires; reduced summer tourism; reduced suitable cropping areas, increased energy demand in summer, reduced hydropower; increased land loss in estuaries and deltas; increased salinity and eutrophication of coastal waters; increased health effects of heatwaves
ST: Decreased crop yield; increased soil erosion; increased SLR with positive NAO; increased salinity of inland seas

EU climate change targets

- Reduce green house gas emissions to 20% below 1990 levels by 2020
- Reduce to 30% if part of international agreement

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What is EU doing on climate change adaptation?

- White Paper on Adaptation published April 2009
- Sets out an Adaptation Framework to improve the EUs resilience to deal with impacts of Climate change
- Respects subsidiarity and overarching objectives of sustainable development

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EU Adaptation Framework

Two phases

- Phase 1 – Building up the Knowledge Base (2009-2012)
  - Improving knowledge of impacts and
  - consequences of CC
  - Integrating adaptation into EU policies
  - Employing policy instruments to ensure effective
  - delivery
  - Stepping up international cooperation
- Phase 2 – Implementation (2013 onwards)

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EU Adaptation Framework: Building up the knowledge base

- Clearing House Mechanism to be established by 2011

- Models, methods, data sets. prediction tools and indicators to be developed by 2011

- Impacts on individual sectors/policy being reviewed:

  - health / social policy
  - Agriculture / forestry
  - Biodiversity / ecosystems/ water
  - Coastal / marine areas
  - Production systems and physical infrastructure

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EU Adaptation Framework: Implementation

- Impact and Adaptation Steering Group set up
  - technical groups for key sectors
- Adaptation to be mainstreamed into all EU external policies
- EU Working with Global Climate Change Alliance and other programmes to support developing countries

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What is the EU doing on mitigation? METREX CO2 80/50 Project

- 30 month project (2008-2010) involving 21 metropolitan regions
- Aim: to devise strategies for achieving 80% reduction in greenhouse gas emissions by 2050
- 100 metropolitan regions in EU are responsible for 75% of CO_2 emissions
- Pilot project - unified method for measuring greenhouse gas emissions - GRIP

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METREX CO280/50 Project

- Will help major urban areas reduce emissions, secure low carbon futures and protect competitive positions
- Based on 7 European climatic zones
- 3 stages:
  - Year 1 – assessments and inventories using GRIP
  - Year 2 – mitigation scenarios and integrated mitigation strategies using GRIP
  - Year 3 – disseminate outcomes

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Greenhouse Gas Regional Inventory Project (GRIP)

- Looks at interdependencies of CO_2 emissions, energy conservation, and use of renewables
- Model can compare variety of reduction and substitution strategies
- Uses regionally compiled data
- Different scenarios for a region can be analysed

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Greenhouse Gas Regional Inventory Project (GRIP)

Three stage process – from technical data compilation to political decision

Stage 1 –
Regional energy data compiled and input

Stage 2 –
Scenario workshop with regional stakeholders

Stage 3 –
Discussion and consensus on specific strategies to put to decision makers

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GRIP – Glasgow and Clyde Valley Pilot Study

- One of 4 pilot regions
- 3,405 sq Km, 1.75m population
- GRIP Methodology to give GHG inventory for 2004
- Inventory for 6 main GHGs
- Covers 4 sectors: energy, industry, agriculture, waste

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GRIP – Glasgow and Clyde Valley Pilot Study- results/ next steps

- Overall emissions – below national average
- Energy – just below national average
- Waste – in line with national average
- Industry – below national average
- Agriculture – above national average

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European renewable energy Super grid

- 9 countries around N Sea & Baltic signed up
- Grid would connect renewable energy sources eg hydro in Norway, offshore wind in UK, solar in S Europe
- Would balance power across Europe to help achieve secure energy supplies
- May enable power trading between countries which will help competitiveness
- Initial Super grid plan to be prepared by end of 2010

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European Low Carbon Futures
DESERTEC project

- Linking renewable energy opportunities in Middle East and North Africa (MENA) with EU
- Solar radiation in MENA deserts twice S Europe
- Political / socio / economic benefits for MENA
- Technologies already in place
- Algeria, Jordan, Libya, Morocco & Tunisia interested

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A PROPOSED
ENERGY SUPER-GRID
Renewable-energy proponents are talking about a massive electricity grid in which concentrating solar power (CSP) plants in North Africa and the Middle East would feed power as far afield as northern Europe. The system would also hook in solar photovoltaic (PV) systems and other renewable-energy resources.
Solar (CSP)
Solar (PV)
Wind
Hydro
Biomass
Geothermal

European Low Carbon Futures
Energy Islands

- Single floating structure with variety of renewable energy conversion schemes
- Uses wind, solar, wave, heat exchange
- Potential for hydroponic plant production
- Designed for tropics but variant for higher latitudes being developed

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European Low Carbon Futures
Masdar City

- Flagship project for WWF One Planet Living Programme
- Planned to be the world's greenest city
- Zero carbon, zero waste, car free
- Solar power for electricity and desalination
- Target size: 6 sq km, population 50,000

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European Low Carbon Futures
Masdar City- 10 Guiding Principles

Zero carbon	Sustainable water
Zero waste	Habitats and wildlife
Sustainable transport	Culture and heritage
Sustainable materials	Equity and fair trade
Sustainable food	Health and happiness

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EC Covenant of Mayors

- Voluntary commitment to go beyond EU objectives in reducing CO_2 emissions.

- What is required?:
  - Aim to reduce CO_2 emissions by more than 20% by 2020
  - Prepare baseline inventory
  - Submit Sustainable Energy Action Plan
  - Prepare implementation reports every 2 years
  - Promote Local Energy Days
  - Spread the message

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A low carbon vision for 2050 ...

- Self sufficient and secure renewable energy
- Integrated transportation- walking, park & ride, bus, tram, light rail, metro
- Mixed use, higher density and public transport focussed urban areas
- Local food economies & low carbon agriculture
- Recycling the primary source for raw materials
- Planned low carbon settlements

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A low carbon vision for 2050...

- EU renewable energy grid
- Low carbon energy supplies – local supply
- Energy efficient buildings
- Local CHP
- Carbon management embedded in spatial policies
- Integrated spatial planning and transportation

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Thank You!

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