

ESPON CLIMATE - Climate Change and Territorial Effects on Regions and Local Economies: Interim Report Summary

The report notes the DG Regio (2009) study, *Regions 2020 – The Climate Challenge for European Regions*. However ESPON CLIMATE promises to provide “a more differentiated, comprehensive, and multi-scaled analysis”.

The core ideas in the project are that the impacts of climate change depend on exposure to climatic stimuli on the one hand, and on the sensitivity to climate stimuli on the other hand. Thus, a strong impact can be either a result of high exposure or high sensitivity or both. However, the impacts also depend on the adaptive capacity of a region, which in turn is influenced by human and institutional factors.

Climate Stimuli

In part the climate change in a region is influenced by climate change globally; but the impact of global change is not even. Different regions face different situations. The researchers use a model (the “CCLM model”) to predict across the ESPON space for the period up to 2100 variables like the change in annual mean temperature, or change in mean annual surface runoff, based on IPCC scenarios.

Based on the model, the UK and Ireland (and especially Scotland, West Wales and the North of England) are expected to experience relatively low temperature rises compared to other ESPON countries. However the decrease in annual mean number of frost days is relatively high in the uplands in Scotland. Overall at European scale the broad picture is of a hotter, drier south and a warmer, but wetter north-west. On this basis a European typology of climate change is developed and Europe is divided into six climate change regions. Rather surprisingly, this separates the UK into two of the six: the lowland areas are “North-Western” like Ireland and the north and west of France, while the upland areas of Wales, England and Scotland are in with southern Sweden, Germany, Poland and neighbouring states as “Northern Continental”.

Sensitivity to Climate Change

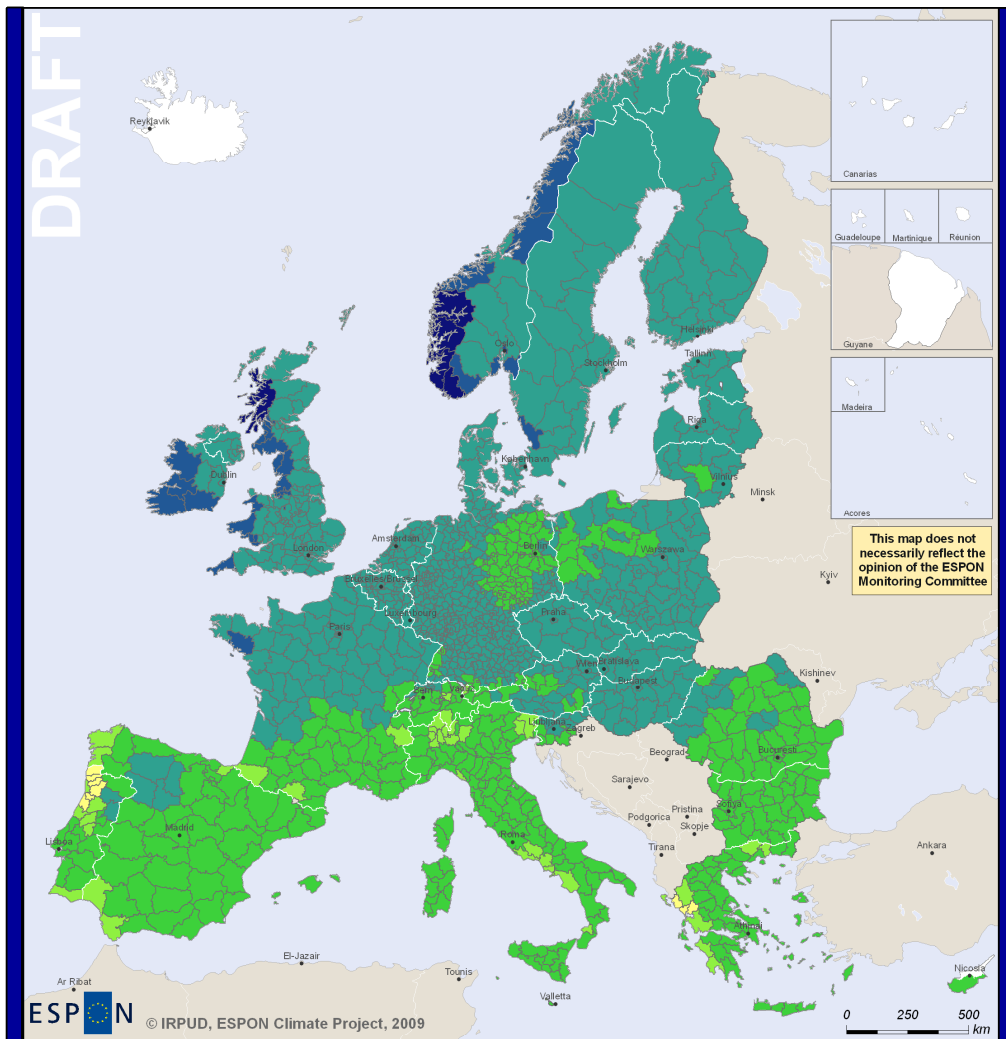
Five sensitivity dimensions were explored: physical (settlements and infrastructure), environmental, economic, cultural and social, and a first list of possible indicators has been produced for each of these. However, a number of issues still have to be resolved, not least questions of data availability, data aggregation and weightings (a Dephi survey of experts is proposed to tackle this), questions about appropriate thresholds (at what point does a quantitative change become a real problem?) and scientific validation.

The sensitivity of a number of economic sectors to climate change is also being studied. Thus agriculture is most significant to GDP in southern and eastern Europe, the very areas likely to be most severely affected by climate change. Forests are expected to expand in the north and contract in the south. There are multiple potential positive and negative impacts on fisheries and aquaculture and the livelihoods associated with the industry. The economic effects of climate change on tourism seem to hinge on whether the tourist season stays fixed on the summer months or shifts to autumn and spring: the central European ski industry is likely to suffer. On energy, increased demand is expected in the south of Europe due to need for summer cooling, but the north may cut its demands for winter warming.

Adaptive and mitigation capacity

One key question yet to be resolved is how to identify and develop indicators for adaptive capacity. A first set of possible indicators is outlined. These are: hospital beds and doctors; road access; public attitudes towards the political / administrative system; public information on climate change; public attitudes towards climate change; public participation in political processes;

Similarly the aim is to develop indicators of mitigation capacity at a regional scale. The EU Sustainable Development indicator set is useful here, and the preliminary list of mitigation indicators is: existing amount of greenhouse gas emissions; renewable energy potential; energy saving potential; policies and measures in use for climate change mitigation; and ability and willingness to act/pay for mitigation measures. Because of the difficulty of accessing such data at regional level, case studies will be used.



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Origin of data: own calculations based on Lautenschlager et al. 2009

Change in annual number of days with heavy rainfall

