

# How can the European Union adapt to climate change while avoiding a new fault line?

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## Executive summary

**Europe must increasingly** deal with the harmful impacts of climate change, regardless of its success in reducing emissions. These impacts have significant cross-border effects and threaten to deepen existing divisions. Cooperation on adaptation, which is mostly seen as requiring local or regional efforts, may be useful, but the role of the European Union is ill-defined.

**We give an** overview of how climate change might change Europe and how it might affect people and the economy. We also discuss what sort of adaptation policies are being pursued at EU level and on what grounds. We argue that a stronger adaptation governance framework would benefit adaptation efforts.

**We formulate three** ideas to strengthen adaptation. First is a three-layered governance framework based on intensive cooperation to establish binding adaptation plans. Second is an EU-level insurance scheme against damages from climate change, with the size of national contributions tied to the achievement of self-chosen targets in adaptation plans. Our final suggestion is to increase adaptation funding by targeting more spending under EU regional and agricultural policies specifically to adaptation in the most vulnerable regions.

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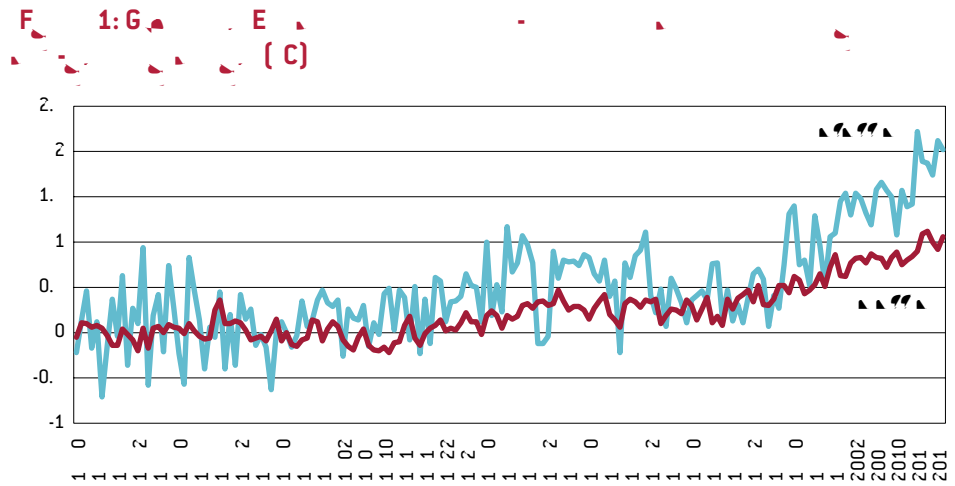
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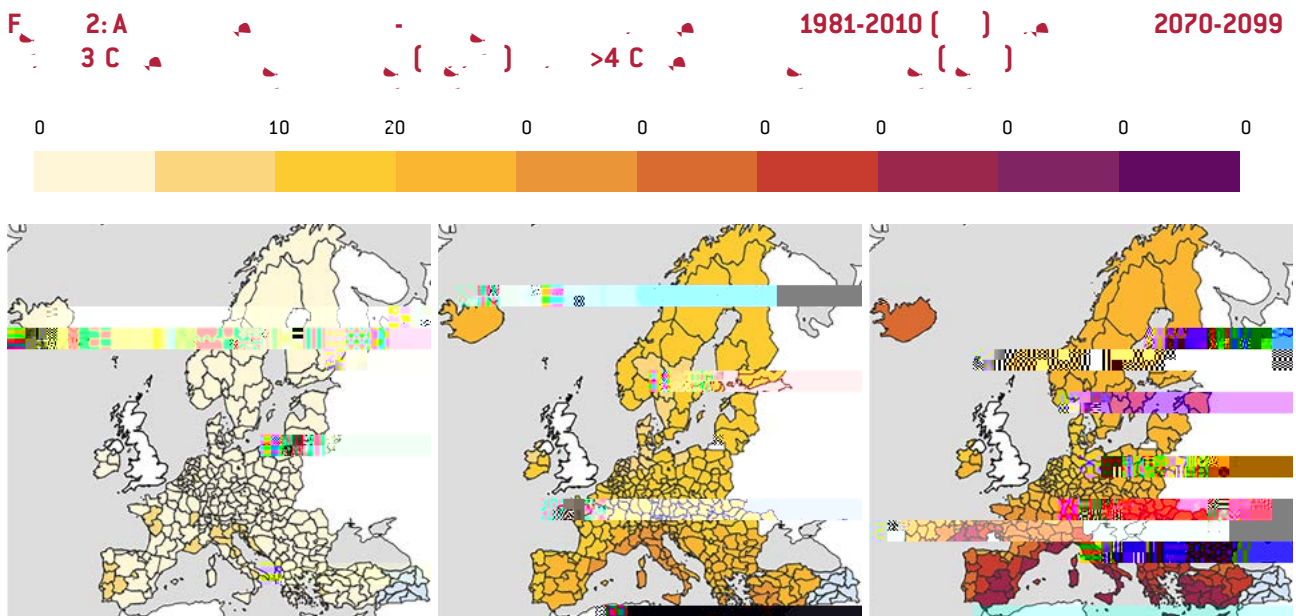




Source: Bruegel based on HadCRUT4 (mean) estimates reported by the European Environmental Agency (2021a).

Projections of different global warming scenarios for Europe teach us three main things about the future: that it matters greatly how successful efforts are to reduce greenhouse gas emissions, that all of Europe will be affected, and that in most scenarios, southern and south-eastern Europe will face the biggest impacts of climate change on multiple fronts.

Average temperatures will increase in all regions throughout this century, but patterns vary depending on the season. Winters will become warmer particularly in central and eastern Europe. Mountainous areas and the northern and southern edges of Europe will experience the largest temperature increases overall, especially in the summer, with mean temperatures that will be between 2°C and 2.5°C warmer than today by the end of this century, even



Source: Climate-ADAPT (2022b), based on Copernicus Climate Change Service data.

in a scenario in which global warming stays below 2°C<sup>2</sup> (Feyen et al., 2020; Climate-ADAPT, 2022a). Since southern Europe already has a warmer climate, it will be particularly affected by more frequent heatwaves that are harmful to human health (Figure2).

Precipitation will change too. In an optimistic emissions scenario compliant with the Paris Agreement (global warming stays below 2°C), most regions in Europe will see an increase in annual average precipitation, mostly in winter (roughly 5 percent to 10 percent more than today). Summer months may become dryer in the south however, particularly on the

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The responsibility for adapting to climate change is thus shared by member states and the EU. According to the subsidiarity principle, the EU should therefore intervene where member state action is not sufficient to achieve the desired objectives, while leaving other decisions as close as possible to citizens. This is typically a question of scale advantages and cross-border spillovers, as well as of how other EU competences are involved.

An important example where scale plays a role is in the sharing of scientific knowledge. While local and regional governments have the best insight into local environmental, social and economic circumstances, they often lack the scientific capacity to identify vulnerabilities in the face of climate change, or to develop adequate policy responses. There is a clear benefit in pooling capacities at EU level to expand scientific knowledge on current and future climate impacts through, for example, satellite-based earth observation programmes, which are beyond the capacity of national governments. Knowledge generated at EU level can then be used as a public good by all and applied to local situations (top-down). As adaptation interventions are still about learning-by-doing, there is also an interest in sharing local experiences at European level, in order to accelerate the learning process (bottom-up).

The EU can also use its administrative capacity to develop standardised methods that can be used by local or regional governments to carry out cost-benefit analyses of interventions and cost-effectiveness evaluations of policies, and to track adaptation progress. This would facilitate decision-making and enable cross-country comparisons for research and policy purposes.

Emergency response to major climate-related disasters is a very practical example where scale can make a difference. National response capacities can easily be overwhelmed by large-scale floods or forest fires. Since time is often of the essence, pooling resources for fast and decisive interventions can avoid substantial damages and loss of life.

Adapting to climate change requires cooperation across jurisdictions when effects are not limited to a single area. River management for irrigation, navigation and energy purposes during droughts is best done in cooperation.



#### 4.1 T EU

The first adaptation strategy was issued in 2013 and addressed three priority areas: encouraging national action, informing decision-making and promoting adaptation in key vulnerable sectors (European Commission, 2013). Progress was made in these areas through the adoption of strategies or plans by all EU members, the establishing of the Climate-ADAPT platform as a central source for adaptation-related information, and the integration of adaptation considerations into other EU policies.

The strategy was, however, judged to be only partly successful (European Commission, 2018). For instance, knowledge gaps were deemed to have been closed only partly while new questions arose in the meantime. Climate change risks and adaptation received more political attention, but participants in an EU consultation still noted a lack of commitment by governments (European Commission, 2021a). Moreover, the monitoring of actual progress remained elusive, and planning at local level progressed more slowly than hoped. More had to be done to integrate climate change adaptation into the EU's external policies, given the mounting evidence of the risk of international spillover effects through political instability, trade and migration.

The 2021 strategy seeks to fill these gaps (European Commission, 2021b). The European Commission aims to make adaptation in Europe “more resilient and more effective” while trying to minimise the risk of negative spillovers from climate impacts outside of Europe.

as the Commission intends to help regional and local governments in Europe. In addition, the need for scaling up adaptation finance is featured much more prominently, by using EU instruments for external action and by leveraging private sector investments. A third element is to boost adaptation diplomacy.

#### **4.2 EU**

EU funding for adaptation is not provided through any specific instrument but is spread over many different policies. The European Agricultural Fund for Rural Development, which falls under the Common Agricultural Policy, has a sizeable portion of its resources dedicated to adaptation. Also important is the EU's regional policy. The Cohesion Fund and the European Regional Development Fund respectively have at least 37 percent and 30 percent of funds earmarked to broad climate-related measures in the 2021-2027 Multiannual Financial Framework (MFF). Because there is not always a clear separation between mitigation and adaptation measures, and because official tracking estimates tend to overstate contributions to climate targets (Nesbit *et al.*, 2020), it is difficult to say exactly how much funding is dedicated to adaptation, but numbers from Olesen *et al.* (2017) and European Commission (2018) suggest that from 2014 to 2020, between €14 billion and €62 billion was allocated by the EU Structural and Investment Funds, which comprise the three mentioned funds, the European Maritime and Fisheries Fund and the European Social Fund.

Money also goes to innovative adaptation projects under the Horizon Europe programme,



collect and spread scientific knowledge (such as satellite imagery and model simulations).  
They should provide a platform through which national and sub-national governments can

be insured against catastrophic impacts. The returns on repairing infrastructure and providing emergency housing and aid are also much more obvious to voters than those on climate adaptation investments, even if the latter may in fact be quite significant (Global Commission on Adaptation, 2019). Committing more funds here might therefore be much more feasible politically.

The fund should be financed by national contributions, based on a conditional mechanism which incentivises adaptation investments ex ante. Countries that do not implement adaptation measures would pay more into the fund than countries that implement strong adaptation measures. When a disaster occurs, money can be reimbursed to the affected member state.

An exact recommendation for the fund's capacity is hard to give as it would depend on the agreed scope of eligible damages, but one might imagine an annual capacity of several billion euros by 2030, growing with nominal GDP (which means more exposed value). However, it does not need to be large enough to compensate for all damages in particularly bad years, and a certain percentage of self-payment should always be required.

If compensated damages in a certain year (as legally defined) exceed the fund's basic capacity, the EU could issue bonds to cater for such systemic shocks. The interest and repayment burden can be distributed between member states in the same way as the financing of the fund itself.

The advantage of combining a fund with a borrowing capacity for systemic shocks is that markets will only be called upon for insurance against massive climate risks. If climate risks become more frequent, the fund will become increasingly important and intertemporal insurance will be less important relative to constant payments from the fund for incurred and repeated damages.

The mechanism to divide contributions to the fund and interest payments among member states serves the second purpose of this proposal, which is to incentivise countries to invest in climate change adaptation, by making contributions depend on the achievement of targets as set out in the proposed national plans.

Adaptation plans must contain binding and verifiable targets. These could be proposed by countries at the beginning of a ten-year cycle, for five-year periods. The Commission could then be asked to give an objective assessment of their level of ambition, after which the plan is approved by the Council. Depending on whether the targets achieve a certain reference level, to be agreed in advance (for example in terms of estimated damages prevented), the Council decision could then also tie reductions of a country's contributions to the achievement of the targets. National contributions would initially include a risk premium to reflect countries' actual risk, which would decline as countries take steps to reduce climate vulnerability to a feasible extent. The system could thus evolve from risk-driven to solidarity-driven (eg based on GDP).

### 5.3 Funding

The proposals above may still not be sufficient to ensure adequate adaptation action in the most disadvantaged regions, particularly those in the south, which will suffer disproportionately from climate change. Yet, as explained above, political support for sharing the investment burden for climate adaptation seems unlikely.

For the next EU budgetary cycle, we recommend more resources targeted to adaptation through the EU's regional and agricultural policies. One could for example decide to increase the minimal share of climate-related spending, and within that category decide to focus mostly on mitigation in north-eastern regions, while focussing on adaptation in southern regions, including in the Balkan region. This would not undermine economic convergence or rural income support, given the supposedly high returns on investment of adaptation and the vulnerability of agriculture. Communicating the two numbers separately would also increase transparency. Better still would of course be to pursue to the maximum synergies between mitigation and adaptation, for example through nature-based adaptation solutions.

Another solution could be to propose an EU financial instrument for the protection of a limited list of infrastructure, supply chains, ecosystems and perhaps heritage sites that are of EU-wide relevance, such as seaports, energy linkages or corridors for migrating species. e



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