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5 – RESILIENCE

Overarching recommendations

> A 'Think Resilience' principle should be incorporated into public finance investment decision-making to encourage risk assessment and resilience stress tests for investments, complementing the 'Do No Harm' oath.

> The European Commission should propose a European public-private disaster risk finance pool to increase access to affordable and comprehensive insurance.

> The European Commission should support Member States to adopt national and regional investment plans for climate adaptation and resilience.

COVID-19 has demonstrated the importance of social and economic resilience. Action is needed now to finance Europe's resilience, and to protect against future risks.

The far-reaching economic and financial impacts of the COVID-19 pandemic demonstrate the importance of societal resilience and Building Back Better. Sustainability risks present further challenges for the future, which we need to prepare for now.

In the last decade, three European countries reached the global top 10 for economic losses from storms, floods and earthquakes over the last decade: France, Germany, and Italy.[180] Germany was the third most affected country in the world in 2018, when a heatwave led to over a thousand fatalities and severe drought prompted 8,000 farmers to call for emergency relief to compensate for their losses.[181] Europe then experienced its warmest year on record in 2019,

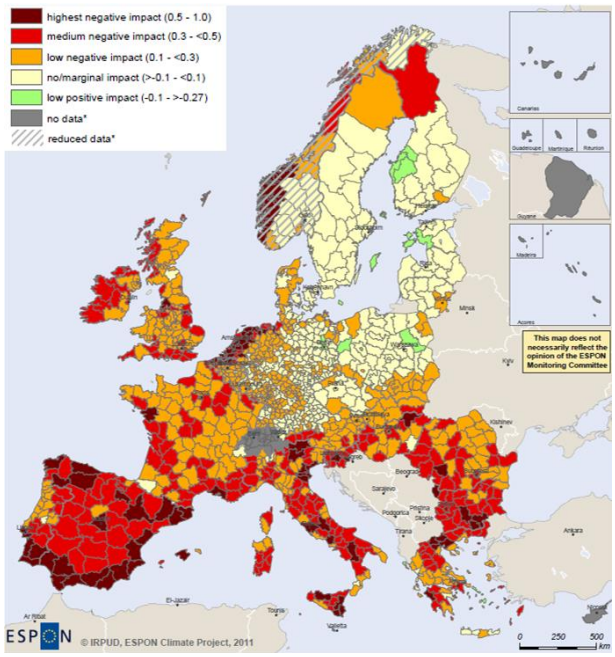
[180] UNDRR (2018) **Economic losses, poverty & disasters: 1998-2017**

[181] Germanwatch (2020) **Global Climate Risk Index**

following decades of worsening impacts.[182] Europe is experiencing an increased frequency of droughts[183] and 2020 has so far seen yet more extreme weather events. The aggregate potential impact of climate change is shown in Figure 5.

Across Europe, the reported economic losses from weather and climate-related extremes already cost €12 billion per year.[184] These economic losses would be even more staggering if the full picture of cascading and indirect losses had been considered. Indeed, these are a growing area of concern but are not yet integrated in financial decision-making.[185] For example, increasingly dry and warm conditions increase the risk of wildfires, which damage soil and can increase the risk of later landslides and flooding.[186]

Figure 5. Aggregate potential impact of climate change[187]



In addition, the incidence of such extremes is projected to worsen in the future. Under current climate commitments, the world is expected to warm up by

[182] Copernicus Climate Change Service (2020) **European State of the Climate 2019**

[183] DW (2020) **Central Europe to face extreme droughts without climate action**

[184] European Commission (2020) **Adaptation to Climate Change: Blueprint for a new, more ambitious EU strategy**

[185] UNDRR and E3G (2019) **Opportunities to integrate disaster reduction risk and climate resilience into sustainable finance**

[186] AghaKouchak A. et al (2018) **How do natural hazards cascade to cause disasters?**

[187] Espon Climate (2011) **Climate Change and Territorial Effects on Regions and Local Economies**

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3°C on average by the end of the century.[188] Climate impacts would expose the EU economy to an additional annual loss of at least €170 billion, or 1.36% of GDP, under global warming of 3°C.[189]

Despite these risks, Europe suffers from under-investment in climate resilience, particularly in vulnerable Southern European countries.[190] Indeed, a mere 2% from the proceeds of green bonds went into adaptation in 2017.[191] There is insufficient investment in nature-based solutions, such as afforestation and wetland restoration to tackle flooding and managed retreat in coastal areas to adapt to rising sea levels. In addition, agricultural subsidies are not aligned with climate and environmental goals,[192] adding further risks related to food supply chains and biodiversity loss.

Integrating climate resilience into wider EU recovery efforts

The COVID-19 pandemic has exposed the lack of resilience in our societies and the ways in which our economies function. In its recovery plan, the European Commission has recognised the need to recover better and build resilience.[193] However, it has not used the multi-faceted approach that is needed to build resilience against a range of challenges, including climate and environmental impacts.[194]

The Recovery and Resilience Facility, which will disburse a majority of funding, may contribute little to increasing climate resilience since it is currently absent from its assessment criteria.[195] Similarly, rescEU is restricted in its ability to improve climate resilience, contributing only to short term emergency response as opposed to long-term risk assessments.[196] Yet, Europe's ability to prevent

[188] IPCC (2018) **Global Warming of 1.5°C, Chapter 4, Strengthening and Implementing the Global Response**

[189] Ibid.

[190] Espon Climate (2011) **Climate Change and Territorial Effects on Regions and Local Economies**

[191] Climate Bonds Initiative (2018) **The Green Bond Market in Europe**

[192] European Commission (2019) **Evaluation of the impacts of the CAP on habitats, landscapes, biodiversity**; European Commission (2019) **Evaluation study of the impact of the CAP on climate change and greenhouse gas emissions**

[193] European Commission (2020) **Europe's moment: Repair and Prepare for the Next Generation**

[194] E3G (2020) **Why the EU Recovery Package won't prepare us for climate change – yet**

[195] European Commission (2020) **Proposal for a Regulation establishing a Recovery and Resilience Facility**

[196] European Commission (2017) **rescEU: A stronger collective European response to disasters**

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future crises will require the integration of climate and environmental resilience as part of wider socio-economic resilience.

The Technical Expert Group responsible for developing the EU taxonomy has attempted to take a systemic view of the role of climate change adaptation and resilience across economic activities. This is a helpful first step towards wider recognition within European policy that the impacts of climate change will potentially affect all financial investments and present a systemic financial risk.[197]

The European Commission should encourage risk assessment and resilience stress tests for investment ('Think Resilience').

> The COVID-19 pandemic reinforces the need to build economic resilience into all investments. The EU should support all public and private investments to be resilient to climate and environmental risks.

> This could be achieved using stress tests to make climate and environmental resilience a baseline requirement for investments – a 'Think Resilience' principle. This principle should complement the sustainability proofing guidelines currently being developed to ensure that investments are not only sustainable but also resilient.

> Technical support should be provided so that investors have the rights tools and methodologies to conduct assessments of climate and environmental resilience.

Improving monitoring of systemic climate risks

Risks are rising because of the growing number of assets exposed to hazards, the growing interconnectedness of markets and societies in a digitalised economy, and the inadequacy of prevention measures.[198] The costs of disasters with potential cascading and global effects are a real threat to economic stability and the well-being of societies, thus augmenting the need for resilience measures to protect from future disasters.

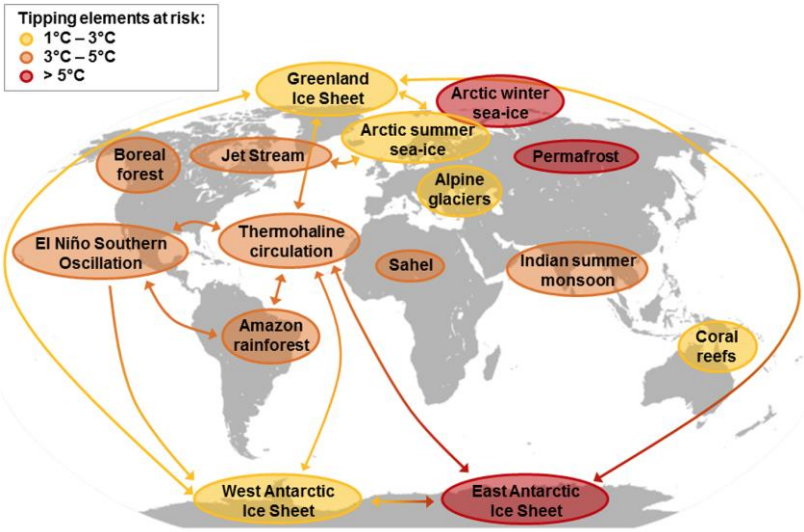
[197] UNDRR and E3G (2019) **Opportunities to integrate disaster reduction risk and climate resilience into sustainable finance**

[198] Ibid.

The material impacts of climate tipping points and second and third order effects could have significant repercussions. Non-linear responses to climate change could appear as "tipping elements" as shown in Figure 6.[199] Their precise occurrence is uncertain but the risks of breaching them, leading to irreversible climate change, increases as temperatures rise beyond 1.5°C. These could cause second and third order effects such as socio-economic, ecological, transnational and political changes, employment losses, food shocks, the spread of vector and waterborne infectious diseases, the loss of insects affecting ecosystem stability, migration flows, conflicts and failure to deal with climate instability.[200]

Most financial institutions lack climate-related physical risk models assessing the material impacts of climate tipping points and second and third order effects. At EU level, the European Environment Agency conducts reviews of climate vulnerabilities, but it does not account for second and third order effects. Climate-related physical risk models could assess the macro-economic impacts on existing infrastructure assets, services and users and inform public and private adaptation and resilience investments.

Figure 6. Global map of potential tipping points[201]



[199] Potsdam Institute for Climate Impact Research (2019) **Tipping Elements - the Achilles Heels of the Earth System**

[200] E3G (2019) **A New Resilience Agenda for Europe**

[201] Steffen et al. (2018) **Trajectories of the Earth System in the Anthropocene**

The EU should establish an independent Climate Risk Observatory responsible for monitoring systemic risks and identifying resilience priorities through evidence-based analysis.

> The EU should support transparent and open-source co-development of models by the private and public sectors. These should be used to develop an independent Climate Risk Observatory to conduct more comprehensive monitoring and assessment on climate vulnerabilities and risks across EU sectors and supply chains, and to identify resilience investment priorities and appropriate policy responses.

> A Climate Risk Observatory could create sectoral roadmaps for the EU Long-Term Strategy on climate change which identify material risks together with second and third order impacts. These could also be used as a benchmark to inform and assess national and regional adaptation and resilience action plans.

Reducing the risk of capital flight from vulnerable sectors and communities

Climate impacts could exacerbate geographical disparities and social inequalities within Europe. Climate impacts will differ across different regions, the hotspots being in the South, around the agglomerations and tourist resorts at the coastline.[202] Rising insurance prices could also widen the protection gap between the insured and uninsured. On average, only 35% of climate-related economic losses are insured, with proportions as low as 5% or less in Southern and Eastern Europe.[203]

There is a significant protection gap in Europe, where assets are not properly insured against climate impacts. This is particularly alarming for the most exposed sectors, such as farming and fishing, for vulnerable assets, such as coastal properties, and for low income households.[204]

[202] Espon Climate (2011) **Climate Change and Territorial Effects on Regions and Local Economies**

[203] European Commission (2020) **Adaptation to Climate Change: Blueprint for a new, more ambitious EU strategy**

[204] E3G (2019) **A New Resilience Agenda for Europe**

As climate-related disasters become more frequent and severe, insurance prices against their impacts are expected to increase. This means that more sectors will find it hard to insure their assets, leading to capital flight from those sectors exposed to physical climate risk, further widening the protection gap and depriving vulnerable communities from access to finance.[205] This could exacerbate geographical disparities and social inequalities within Europe.

The availability and affordability of disaster financial risk management tools differs widely across Europe. While the financial industry can play a leading role in managing the financial risk arising from adverse climate impacts by absorbing losses and promoting resilience, there are currently no public solutions to maintain and broaden risk transfer mechanisms.

The European Commission should raise awareness about climate physical risk and conduct assessments of vulnerable sectors and communities to address capital flight and financial exclusion.

> With climate impacts and climate disclosure both on the rise there is a need to prevent capital flight from the most vulnerable regions, especially in those Member States which are not ready to cope with the effects of climate change.

> A Climate Risk Observatory could be key in assessing the social and economic impacts of insurance coverage gaps and the risks of withdrawal of credit from vulnerable sectors and communities.

[205] UNDRR and E3G (2019) **Opportunities to integrate disaster reduction risk and climate resilience into sustainable finance**

The European Commission should develop a European public-private disaster risk pool to improve access to affordable and comprehensive climate risk insurance.

> The uneven distribution of physical climate impacts across Europe will be a cohesion challenge moving forward. Looking to the medium and longer-term, this can only be equitably addressed through a risk-sharing mechanism.

> The European Commission should develop a climate-related disaster risk pool by pooling risks and funds from private and public actors and insurance companies. This can provide a rapid and cost-effective protection against catastrophic events such as floods or fires, share the burden for disaster loss across European regions and transfer excessive risk to the reinsurance and capital markets.

> Work should start on this now in order to minimise future political tensions between or within Member States, and to equip the EU to show leadership and credibility on this issue in the international context.

Supporting Member States to produce improved climate resilience plans

Despite the growing threat of climate impacts, resilience efforts in Europe have so far been insufficient. The evaluation of the EU Strategy on Adaptation to Climate Change highlighted critical gaps,[206] evidencing the need to introduce reforms to the climate risk governance system in the EU. Even though there is a growing consensus that prevention is critical to reducing risks and provides large savings – every €1 invested in risk prevention saves €4 or more in disaster-response efforts[207] – the EU continues to rely on a reactive climate risk management approach rather than prevention.[208]

The fundamental problem is that institutions are not designed to deliver resilience across many sectors. In 2013, the EU launched an Adaptation Strategy to address climate risk prevention, encouraging Member States to develop

[206] European Commission (2018) **Evaluation of the EU Strategy on adaptation to climate change**

[207] European Commission (2020) **Funding opportunities for disaster risk management within EU cohesion policy**

[208] E3G (2019) **A New Resilience Agenda for Europe**

national adaptation plans. For Member States, ensuring that they have comprehensive national strategies for climate change adaptation and resilience could help develop project pipelines and attract investment.[209]

However, the presence of budgets for adaptation and mainstreaming across sectors such as agriculture, forestry, water, health and infrastructure and across policy instruments vary widely across countries.[210] Despite progress made in collecting information on climate vulnerability and impacts, there is a lack of data on investment needs across sectors – these range between €35 billion up to over €500 billion – and planned investments.[211]

There also remain shortcomings in the monitoring financial flows and assessment of their impact. Comprehensive monitoring of financial flows on climate change adaptation and resilience is lacking across all relevant sectors.[212] Moreover, there is no mechanism at the EU level to assess the impact of climate change adaptation and resilience initiatives in terms of vulnerability reduction.[213]

Amidst growing climate change impacts, resilience is becoming a bigger priority for the EU. Under the European Green Deal, the European Commission has committed to adopt a new, more ambitious EU Strategy on Adaptation to Climate Change.[214] The European Commission's Blueprint for the new EU Adaptation Strategy envisages improved knowledge of climate impacts, reinforce planning and climate risk management and accelerate action.[215]

[209] UNDRR and E3G (2019) **Opportunities to integrate disaster reduction risk and climate resilience into sustainable finance**

[210] European Commission (2020) **Promoting and supporting action within the EU**: National adaptation strategies and action plans

[211] Trinomics (2017) **Assessing the state-of-play of climate finance tracking in Europe;** European Commission (2020) **Commission Staff Working Document: Identifying Europe's recovery needs**

[212] Trinomics (2017), **Assessing the state-of-play of climate finance tracking in Europe**

[213] European Court of Auditors (2020) **Tracking climate spending in the EU budget**; European Parliament Research Service (2019), **Mainstreaming of climate action in the EU budget;** European Court of Auditors (2017) **Landscape review: EU action on energy and climate change**

[214] European Commission (2019) **The European Green Deal**

[215] European Commission (2020) **Adaptation to Climate Change: Blueprint for a new, more ambitious EU strategy**

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The European Commission should encourage Member States to adopt national and regional investment plans for systemic adaptation and resilience.

> Member States should be encouraged to develop action plans that stress test how their key economic sector, infrastructure and critical systems will withstand different global warming scenarios and identify short-to-medium term actions to reduce vulnerabilities through the support of the Climate Risk Observatory.

> The European Commission should unlock public and private capital by comprehensive engagement with Member States, regional and local authorities and public finance institutions on the formulation of investment plans for their adaptation and resilience action plans. These should make linkages with national budgets and capital-raising plans.

Increasing investment into projects that build resilience

Climate resilience remains under-explored by mainstream investors globally. Private sector finance for adaptation represents less than 1% of all climate-related finance.[216] Of green bonds more specifically, 5% were categorised as adaptation between 2010 and 2019.[217] The European Bank for Reconstruction and Development was the first financial institution to issue a climate resilience bond, worth $700 million, aligned with the Climate Resilience Principles issued in September 2019 by the Climate Bonds Initiative.

Sustainable finance is an important agenda for the implementation of climate adaptation and resilience. The Sustainable Finance Action Plan sought to develop several financial tools which will help increase investments in adaptation and resilience. The EU Green Bond Standard, which will be aligned with the EU taxonomy, will help to make it clear to investors how they can invest in adaptation and resilience. With InvestEU as the main instrument to leverage public and private investment, the Capital Markets Union and new measures under the Renewed Sustainable Finance Strategy, there is significant opportunity to increase investment into adaptation and resilience.

[216] IFC (2016b). **How Banks Can Seize Opportunities in Climate and Green Investment**

[217] Stockholm Environment Institute (2020) **Green Bonds: A Mechanism for Bridging the Adaptation Gap?**

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Adaptation and resilience efforts can offer positive benefits but monetising the benefit of projects proves difficult. The Global Commission on Adaptation estimates that investing $1.8 trillion globally in five areas could unlock benefits worth $7.1 trillion from now until 2030.[218] However, there is a lack of hard evidence for monetising the benefits of resilience in absence of a clear cashflow stream.[219] The public and private sectors need to co-invest since the payback period is much longer than typical infrastructure investments.

In addition, the small size of adaptation activities means that they are not considered cost-efficient on their own. Green bond issuances can be made up of small-sized standardised financial assets pooled into larger sized asset-backed securities containing resilience elements. In addition, issuers can invest in a portfolio of projects, only some of which need to include resilience elements.[220]

In general, there is a lack of regional and local technical assistance and blended finance facilities focusing on resilience in Europe. The Coalition for Climate Resilient Investment, a private sector led initiative, was launched in September 2019. It will develop case studies to build the business case, analytical tools alongside a range of instruments such as a technology transfer programmes, technical assistance facilities and blended finance facilities.[221]

The European Commission and European Investment Bank should strategically engage with public finance institutions to support project development capacity for climate resilience.

> The European Commission and the European Investment Bank should assist regions and cities in planning and developing resilience projects through support for improved regional and city-level urban planning.

> The European Commission and the European Investment Bank should strategically engage with public finance institutions and municipalities to identify a viable business case for resilience, provide blended finance and ensure local presence, particularly in vulnerable Southern European countries.

[218] Global Commission on Adaptation (2019) **Adapt now: A global call for leadership on climate resilience**

[219] Cambridge Institute for Sustainability Leadership (2018) **Financing climate adaptation: what's next?**

[220] Stockholm Environment Institute (2020) **Green Bonds: A Mechanism for Bridging the Adaptation Gap?**

[221] Willis Towers Watson (2019) **Private-sector led Coalition for Climate Resilient Investment brings together companies across the infrastructure investment value chain with assets totalling USD 5 trillion**

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The European Commission should encourage public finance institutions to prioritise resilience and to take steps to de-risk resilience finance.

> De-risking investments in adaptation and resilience finance – notably through credit enhancement of resilience bonds – can enable public finance institutions to leverage increased amounts of private finance.

> The European Commission should encourage public finance institutions to set specific targets for higher levels of adaptation and resilience finance and back the issuance of resilience bonds, as well as setting expectations of their intermediaries that resilience will be prioritised.