



EUROPEAN UNION



# EU MISSIONS

ADAPTATION TO CLIMATE CHANGE



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## Strengthening climate-proofing in EU-funded transport infrastructure projects in Poland

Raising awareness is a critical step toward effective climate adaptation measures

*Climate-proofing new projects to create climate-resilient infrastructure requires a shift in mindset and comprehensive frameworks, taking effect from the beginning of the planning process.*

### Key Learnings

- **Raising awareness boosts Transformation:** To build climate-resilient cities and transport infrastructure requires shifting mindsets in the investment design process. Raising awareness and communicating new knowledge to investors and designers fosters climate adaptation action.  
**Engagement and Training:** Engaging environmental scientists and designers ensures the needed support from the beginning. Training designers on climate-proofing is crucial to enable informed decisions about suitable materials and solutions, ensuring the best possible adaptation outcome.
- **Cost-effectiveness:** Adapting projects to climate change notably reduces infrastructure maintenance costs as climate-proofing necessitates more durable materials adapted to more extreme weather events.

## About the region

The Republic of Poland is located in Central Europe and spans an area of approximately 312,679 km<sup>2</sup>, making it the seventh largest country on the continent. Its population is estimated at 38.5 million people, with a density of about 120 people per square kilometre. The landscape is predominantly lowland, with mountainous regions in the south, such as the Carpathians and Sudetes, and a northern coastline along the Baltic Sea. The country's highest point is Rysy (2,499 meters), and its longest river is the Vistula (1,047 km). Poland experiences a temperate climate, with warm summers (20 to 30 °C) and cold winters (-3 to -8 °C), but is increasingly vulnerable to climate hazards ([Central Statistical Office – Poland in Numbers 2025](#)).

## Climate Hazards

Extreme Heat, Flooding, Storms

## Sector

Transport, Financial, Buildings

## Key system

Critical Infrastructure, Local Economic System



Figure 1: Map of Poland. Image Credit: [Britannica](#).

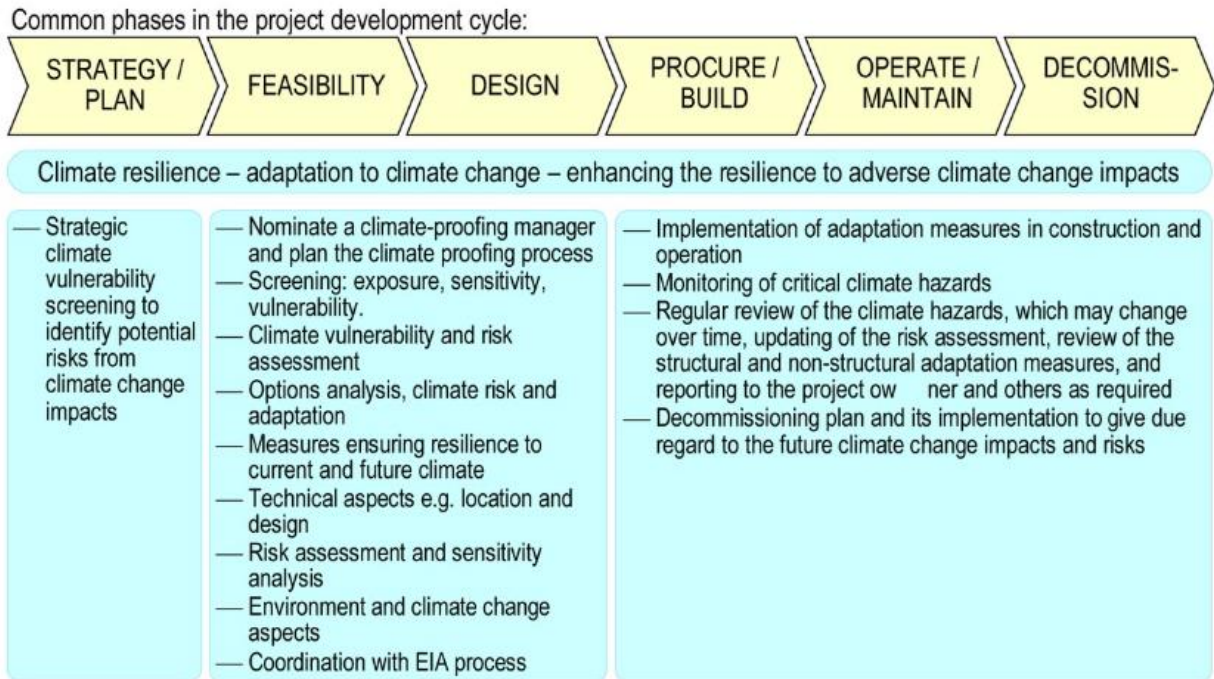
## Climate Threats

Since 1950, Poland has experienced notable climate changes, with data showing a steady rise in average temperatures of over 2°C. This warming has led to an increase in hot days, tropical nights with temperatures above 20°C during the night, and extreme rain events, while frost days have significantly declined. Seasonal variability has intensified, with drier summers and wetter winters, increasing drought and flood risks. In response to the increasing damage flooding, storms, and extreme heat are causing to infrastructure, the European Commission requires climate-proofing to ensure EU-funded projects are adapted to expected risks.

## Climate-proofing increases infrastructure resilience

In response to the climate hazards Poland is facing, the Polish Centre for EU Transport Projects – an implementing body for the Recovery and Resilience Facility and the Cohesion Fund – applies a thorough approach to assess climate-proofing. This analysis is an essential process that ensures infrastructure project resilience – whether local (the reconstruction of the railway station building in Chelm), regional (railway works online no. 11 on the Łowicz Główny – Skierniewice section) or national (the construction of the A2 motorway, section Minsk Mazowiecki – Sielce). Comprehensive and high-quality climate-proofing by design engineers and architects is crucial to protect long-term investments and support sustainable

development. It entails identifying potential climate-related risks and incorporating appropriate adaptation measures into every stage of project planning and implementation (Figure 2).



The diagram is indicative and entails some flexibility as to when certain activities should be undertaken in the project cycle.

Figure 2: Overview of links between Project Cycle Management and adaptation to climate change. Image Credit: COMMISSION NOTICE Technical guidance on the climate proofing of infrastructure in the period 2021-2027 (2021/C 373/01).

## Funding and Conducting Climate-Proofing

Ensuring that infrastructure is resilient to climate change is essential to prevent costly damage and maintain its safety and functionality over time. In Poland, the [national Centre for EU Transport Projects](#) oversees financing primarily from the EU Cohesion Fund and the Recovery and Resilience Facility. Within the European Funds for Infrastructure, Climate, Environment 2021–2027 programme, one of the key evaluation criteria ([long list](#)) for funding applications is “climate resilience”. Experts in the Environmental Protection Unit are responsible for reviewing and approving applications under this criterion.

Every infrastructure project with a projected lifespan of at least five years must demonstrate climate resilience by carrying out a climate-proofing analysis following the European Commission’s *Technical Guidance on Climate Proofing* (2021). This methodology is transparent and consists of two main phases:

**Phase 1 – Screening.** At this stage, the project’s sensitivity to forecasted climate hazards is assessed, along with data related to the location as part of the exposure analysis. The outcome of this phase is an evaluation of the project’s (including its individual components) vulnerability to specific extreme weather events.

**Phase 2 – Detailed Analysis.** This phase focuses exclusively on those extreme weather events for which the project’s vulnerability was assessed as medium or high. It involves evaluating potential impacts, likelihood, and overall climate risks.

Climate hazards identified as high-risk require appropriate adaptation actions and measures. By supporting beneficiaries in climate-proofing and in implementing adaptation measures, the Centre for EU Transport Projects ensures that infrastructure better withstands extreme weather conditions, thereby minimising the risk of disruptions and enhancing transport efficiency. Climate-proofing transport projects makes them economically more viable.

As a practical example, analysing the climate impacts on the national road network in Poland identified several weather-related events that adversely affected road infrastructure, leading to pavement deterioration, traffic interruptions, and emergency maintenance operations. The high costs of repairs and traffic interruptions associated with these events were among the key arguments for implementing adaptation measures. Adapting road projects to climate change is economically justified, as it helps reduce future [expenditures](#).

### **Challenges to successful climate-proofing**

The European Commission's *Technical Guidance on Climate Proofing (2021)* provides a clear, structured two-phase approach: first, assessing a project's vulnerability to climate hazards, and second, evaluating the associated risks to inform adaptation measures. When applied early in the project cycle, this methodology enables meaningful design improvements and ensures infrastructure is genuinely resilient to future climate challenges.

A practical illustration is the reconstruction of Rzeszów railway station in Poland. Even though construction had already started, the climate analysis led to beneficial adaptations, such as replacing lawns with biodiverse plantings to enhance water retention and introducing monitoring and operational measures for extreme weather. These enhancements improved the station's resilience and demonstrate how climate proofing can deliver tangible benefits at any stage of a project.

Experience shows that the most effective climate proofing is context-specific, multidisciplinary, and innovative. By integrating accurate climate data and diverse expertise into project design, infrastructure can go beyond traditional standards, unlocking opportunities for long-term durability and efficiency. Early and thorough assessments provide investors, designers, and operators with a clear understanding of climate risks, allowing them to implement targeted solutions that enhance safety, functionality, and cost effectiveness.

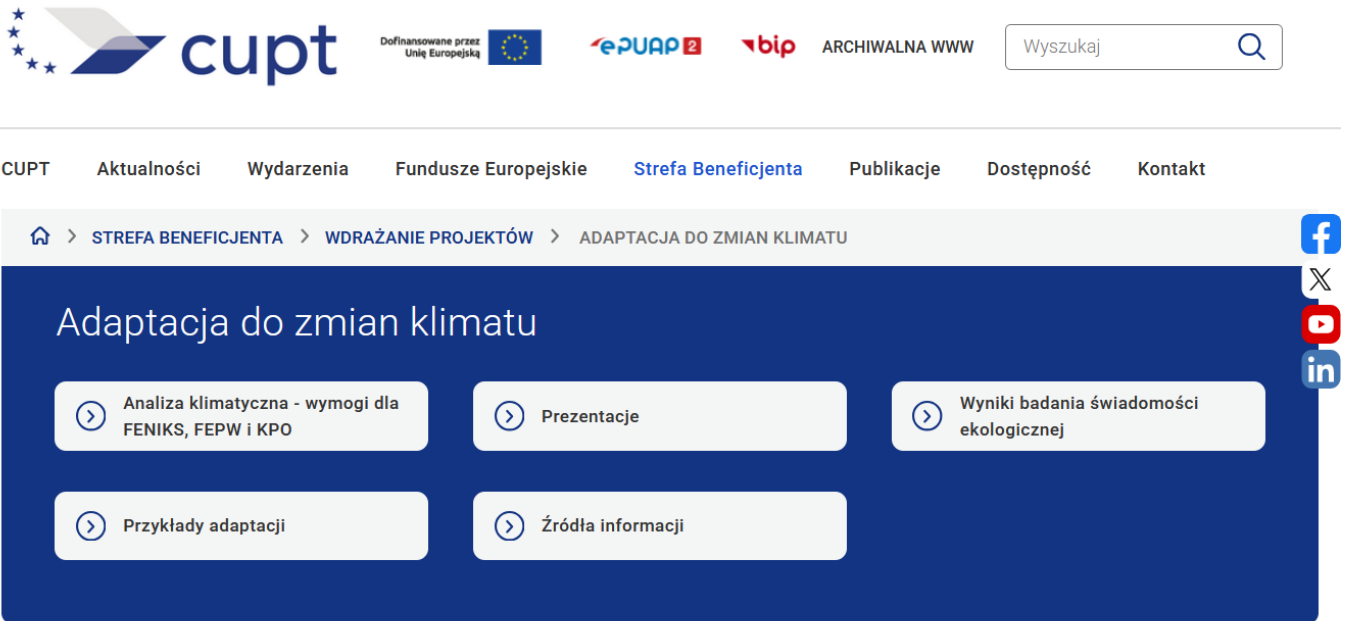
Ultimately, climate proofing is not just about meeting standards; it is an opportunity to innovate, improve resilience, and future-proof infrastructure for evolving environmental conditions.

### **Raising awareness and showcasing examples for effective climate-proofing**

The Centre for EU Transport Projects is working to improve the quality of climate-proofing in EU-funded infrastructure by raising awareness among developers and providing practical support. A dedicated Climate Adaptation Expert Team manages these efforts, offering resources and training to help project teams integrate resilience measures from the outset.

A dedicated website hosts a knowledge base with EU-aligned guidelines, reliable climate data sources, and examples of adaptation measures tailored to transport projects, from flood-resistant road designs and heat-resilient materials to green corridors and retention systems. Regular free online workshops

complement these resources, walking participants through the European Commission’s climate-proofing methodology and illustrating both good and poor practices.



Zmiany klimatyczne to jedno z najpoważniejszych wyzwań, przed którymi stoi współczesny świat. Wzrost temperatury, zmniejszenie się opadów w niektórych regionach, lokalne podtopienia, coraz bardziej ekstremalne zjawiska pogodowe, takie jak huragany, susze czy powodzie – to tylko niektóre z konsekwencji globalnego ocieplenia. W kontekście urbanistyki, infrastruktury, rolnictwa czy przemysłu, zmiany klimatyczne stają się

**B** dłącznym elementem planowania i projektowania. Dodatkowo oddziałują negatywnie na zdrowie i życie ludzi, szczególnie coraz częstsze fale

**B** ow, czy powodzie.

Figure 3: Screenshot of EU Transport Project homepage. Image Credit: [CUPT](#).

Experience shows that each training cycle brings stronger engagement and questions from participants, which has translated into higher-quality climate analyses in funding applications. While encouraging investors and designers to fully embrace climate-proofing remains a long-term challenge, building awareness and offering concrete tools is already strengthening the resilience of future infrastructure projects and protecting communities against climate risks.

*"There is no doubt that climate change is accelerating, leading to an increase in extreme weather events. A shift in approach and growing awareness of the importance of adaptation measures are essential to effectively address these challenges."*

*Krzysztof Rodziewicz, Head of Transport Analysis Department, Centre for EU*

## Summary

Strengthening climate-proofing in EU-funded transport infrastructure in Poland shows the value of early awareness, expert input, and training for designers to embed resilience from the start. While challenges such as late or superficial analyses and resistance to new approaches remain, projects like railway station reconstructions prove that effective measures, from biodiverse planting to water retention and weather monitoring, can be integrated even at later stages. Key outcomes include the creation of a Climate Adaptation Expert Team, practical guidance and online resources, and regular training workshops, which are already improving project quality and building more resilient transport infrastructure.

## Further information

The work presented in this adaptation story concerns projects funded under the European Funds for Infrastructure, Climate, Environment 2021–2027 (FEnIKS) programme and the National Recovery and Resilience Plan (KPO).

- <https://www.cupt.gov.pl/en/>
- <https://ec.europa.eu/newsroom/cipr/items/722278/en>
- <https://www.feniks.gov.pl/strony/dowiedz-sie-wiecej-o-programie/nabory/kryteria-wyboru-projektow/>
- [JASPERS Analysis](#)

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