

DEVELOPING SUSTAINABLE, CLIMATE-FRIENDLY EUROPEAN TRANSPORT INFRASTRUCTURE FOR BIODIVERSITY USING SCENARIOS

POLICY BRIEF



EXECUTIVE SUMMARY

By exploring plausible futures between biodiversity and transport infrastructure, the BISON scenarios make it possible to anticipate future relationships between biodiversity and ecosystem services, on the one hand, and transport infrastructure, on the other.

The BISON scenarios provide information on development trajectories that follow different possible sustainability paths. All the trajectories involve trade-offs. The scenarios presented here help explain why some trajectories are not sustainable and highlight the way forward to make transport infrastructure sustainable for biodiversity.

KEY POLICIES RECOMMENDATIONS

To achieve transformative changes in transport and biodiversity, it is essential that strong political will facilitates cross-sectoral planning and stakeholder cooperation, and harmonises regulations to improve the effectiveness of cross-sectoral cooperation and its implementation. The policy tools for achieving this are as follows:

Financing: Encourage all public players and companies involved in the various phases of creating transport infrastructure to allocate a portion of their budget towards funding biodiversity actions, similar to their current efforts to reduce their carbon impact. Additionally, it is crucial to establish shared Key Performance Indicators (KPI) for climate and biodiversity. Moreover, leveraging the support of programmes like InvestEU can provide valuable resources and assistance in achieving these objectives.

Cooperation: Provide training and skills development for all professionals, both private and public, as promoted in the EU's Green Infrastructure Strategy.

Sobriety planning: Planning actions and integrating them into large-scale, long-term ecological strategies to achieve Goal A of the Kunming-Montreal Global Biodiversity Framework, which aims to ensure that all ecosystems are maintained, enhanced or restored by 2050.

Capacity building: Ensure the effective implementation of the European Supply Chain law and Goal D of the Kunming-Montreal Global Biodiversity Framework. Infrastructure companies need to develop a comprehensive understanding of their dependencies and the influence they have on biodiversity.

NAVIGATING SUSTAINABLE FUTURES: THE POWER OF SCENARIOS IN BALANCING BIODIVERSITY AND TRANSPORT INFRASTRUCTURE

To foster the development of sustainable transport infrastructure that prioritises biodiversity, it is imperative to comprehend and effectively manage the intricate connections between human activities, biodiversity and "ecosystem services". By doing so, we can identify appropriate responses and solutions across various scales. Scenarios provide a crucial tool in this endeavour, as they not only raise awareness but also enhance understanding and empower individuals in domains such as transport infrastructure and biodiversity. These subjects can be challenging to grasp due to their potentially negative or pessimistic implications. Scenarios equip people with the capacity to anticipate, make informed decisions and collaborate effectively.

Furthermore, they shed light on the inherent tensions between stakeholders with divergent interests and worldviews. Importantly, scenarios also highlight our ability to adapt to new, ecologically-focused public policies.

The BISON scenarios provide a glimpse into the "possible", the "desirable" and conversely, the futures we must strive to avoid. These scenarios represent a remarkable opportunity to gain a comprehensive understanding of the diverse potential trajectories concerning the link between biodiversity and transport infrastructure across Europe. They serve as invaluable resources for making sustainable decisions in both the private and public sectors.

MAIN FINDINGS

These scenarios have been developed using a classic foresight approach, involving a 3-stage process consisting of hypothesis formulation, creation of mini-scenarios and development of global scenarios.

SCENARIO 1: COPING WITH EMERGENCIES

In the 2020s, no environmental anticipation due to global change (extreme weather conditions, etc.) has really been anticipated. The maintenance of transport infrastructures has become problematic. Combined with increasingly frequent crises such as epidemics, shortages of primary resources and rising energy prices, mobility has declined considerably by the 2030s. Environmental management standards and regulations have become increasingly disjointed in response to economic challenges and emergency situations.

Between 2025 and 2050, the transport infrastructure sector contributes to the isolation of wildlife populations and the deterioration of habitat quality. The decline in whole swathes of economic activity, reduced or slower mobility, particularly in rural areas, and frequent natural disasters mean that more and more transport infrastructure is being abandoned because it is too expensive to maintain. Paradoxically, these disused technical facilities may become beneficial for biodiversity, as they provide new wildlife habitats. Biodiversity is slowly beginning to recover in certain areas that have been particularly depopulated by this process.



SCENARIO 2: BUSINESS AS USUAL

Although European populations are becoming increasingly aware of biodiversity issues, the European Union is failing to implement any real ambition to restore biodiversity. Over the 2020s, freight finds digital solutions to support its multimodal transition, with certain advantages in terms of reducing carbon emissions. However, this trend does not apply to the mobility of individuals, which remains as in 2020. In the transport infrastructure sector, this situation is reflected in the partial integration of biodiversity into practices, particularly during the design phase; data is collected but not properly exploited to improve biodiversity management; biodiversity sometimes competes with grey solutions or renewable energy solutions; and private funding exists but is limited. Anthropogenic pollution increases in 2045, causing environmental and health problems for both humans and non-humans.

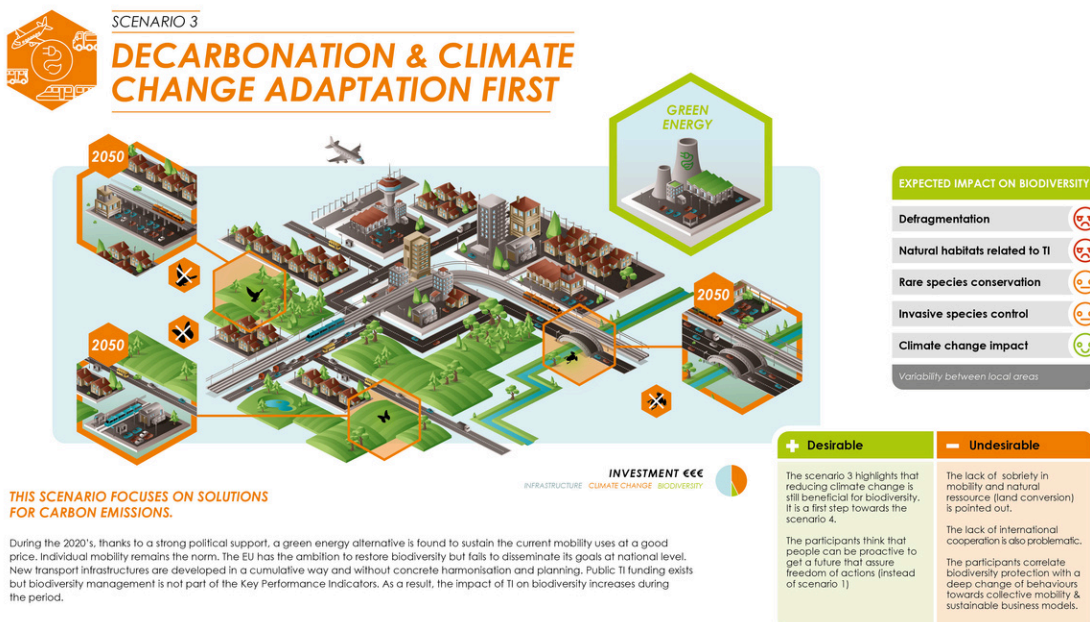
By 2050, biodiversity has been lost by around 50% compared with the baseline year of 2020, leading to concrete failures in the provision of ecosystem services. As the transport infrastructure sector is not directly affected by this situation, no real change in its usual activities is envisaged, and biodiversity remains a pious hope.



SCENARIO 3: FOCUS ON SOLUTIONS FOR CARBON EMISSIONS

In the 2020s, with strong political support, a green energy alternative is found to support current uses of mobility at a good price. Individual mobility remains the norm, however. The European Union has the ambition to restore biodiversity but fails to disseminate its objectives at national levels. New transport infrastructures are being developed cumulatively, without any concrete harmonisation or planning. Public funding for transport infrastructure exists, but biodiversity management is not one of the key performance indicators. As a result, the impact of infrastructure on biodiversity continues to increase.

As in Scenario 2, the loss of biodiversity by 2050 is around 50% compared with the reference situation in 2000, and the services provided by ecosystems are significantly diminished. The adverse effects of carbon storage actions on the provision of ecosystem services and on the water cycle emerge as a major challenge for the next 50 years.



SCENARIO 4: FINDING SOLUTIONS TO ALL ENVIRONMENTAL CHALLENGES

In the 2020s, a European strong political makes cross-sectoral planning and stakeholder cooperation the two fundamental principles of their programmes. In terms of regulation, strong work is done to harmonise regulations for more cooperation efficiency and cross-sectoral implementation. In the transport sector, public transport as a service is becoming the norm and transport companies are developing cooperative business models to facilitate the move to multimodal. Local and circular economy is being encouraged. At the same time, new and existing transport infrastructures have received public and private funding and benefitted from real-time risk management that anticipates adaptations to climate change and the need to protect biodiversity. Synergies between nature-based solutions and ecological connectivity objectives are found in the design and adaptation of infrastructure-related habitat.

By 2050, the transport infrastructure sector has achieved its "net biodiversity gain" target with stable maintenance costs and improved resilience indicators for adaptation to climate change. Investment banks have committed early to sustainable infrastructure funding at a supranational level, defining key performance indicators related to biodiversity. A common fund for biodiversity and climate change related to new and existing infrastructure has been effective since the beginning of the 2030s. Biodiversity has begun to recover.



POLICY RECOMMENDATIONS

To achieve the transformative change envisioned in the best-case scenario (Scenario 4) for biodiversity and transport infrastructure, four strategic guidelines have been formulated by the BISON partners and external experts. These strategic guidelines are as follows:

Financing: Encourage all public players and businesses to allocate a portion of their budget towards financing actions in favour of biodiversity, similar to their efforts to reduce their carbon impact. Programmes such as InvestEU offer opportunities to mobilise public and private funds to support the enhancement of nature and biodiversity through green infrastructure projects along road or rail verges, and blue infrastructure projects such as canals or rivers, as part of new solutions for green business models.

Cooperation: Organise training and skills development programmes for all professionals, both private and public, who are involved in activities that affect species and ecosystems, and particularly those in regional planning and development. As outlined in the EU's Green Infrastructure Strategy, professionals working with green infrastructure need to acquire adequate skills and competences to adopt innovative approaches alongside technological advancements. It is imperative to address any skills shortages through retraining initiatives and further education for skilled personnel. This approach will help establish a well-trained workforce in the medium term, capable of effectively addressing biodiversity concerns and implementing sustainable practices.

Sobriety planning: Design actions and integrate them into comprehensive, large-scale and long-term ecological strategies. This approach will help achieve Goal A of the COP15 agreement, which means a significant increase in the quantity, quality and connectivity of green and blue spaces within urban and densely populated areas. By prioritising biodiversity considerations in urban planning, native biodiversity, ecological connectivity and integrity will be strengthened. Moreover, this approach also aligns with the Trans-European Transport Network (TEN-T) policy, which emphasises that, when planning infrastructure, Member States and other project promoters should pay particular attention to risk assessment and adaptation measures to adequately improve resilience to climate change and environmental disasters.

Capacity building: To ensure a successful implementation of the European Supply Chain law and Goal D of Kunming-Montreal Global Biodiversity Framework Target 15, infrastructure companies should prioritise training their procurement and operational teams. By providing comprehensive training, infrastructure companies can empower their teams to make informed decisions and take proactive measures to mitigate negative impacts on biodiversity throughout the supply chain. This includes raising awareness of the potential ecological consequences of sourcing practices, construction activities and operational processes.