
A new deal for Nature – Promote a Better Built Environment

Multiple interlinkages exist between biodiversity, ecosystems and landscapes on the one hand, and diverse forms of infrastructure on the other hand, including water and sanitation, transport, buildings, energy, food systems, telecommunications and waste management.

The importance of the sector for biodiversity is underlined by both the scale of infrastructure development (estimates suggest that 75% of the infrastructure that will be in place by 2050 does not exist today) and the longevity of infrastructure assets. Integrated, forward-thinking approaches are thus critical to its sustainability.

The situation today

There are many types of infrastructure, including transport, energy, communications infrastructure, urban/social infrastructure, water and marine infrastructure. While most of them rely heavily on engineered structures (referred to as grey infrastructure), nature-based infrastructure is increasingly being used as well. For example, natural infrastructure, such as mangroves and forests, has been used to provide key services such as water treatment or coastal protection, while green infrastructure (drawing from natural processes) can be used for water purification or water management. These approaches not only reduce the need for built infrastructure but can also provide additional ecosystem services.

Infrastructure has both direct and indirect impacts on biodiversity and ecosystem services and its development is cited as one of the major drivers of biodiversity loss at the global level. For instance, the construction of linear infrastructure (such as roads) often leads to the fragmentation of habitats as well as water pollution, which threatens marine animal populations. In its turn, the infrastructure sector is dependent on ecosystem services, including those natural resources to build and maintain the infrastructure itself.

Although estimates vary, the demand for infrastructure at the global level is likely to increase, due to growing needs in terms of urbanization, transports and energy distribution (particularly in Asia, Latin America and Africa). One projection indicates that the investment needed each year between 2016 and 2030 will nearly double compared to current levels (\$6.9 trillion compared to \$3.4 trillion). However, supply is unlikely to be able to keep up, leading to infrastructure gaps.

Many actors are involved in and/or impacted by infrastructure projects, with each playing a potential role in mainstreaming biodiversity in the sector. These include national and subnational governments, development banks and other financial institutions, indigenous peoples and local communities, non-governmental organizations, conservation groups, protected area and biodiversity resource managers, academia, research institutions and the private sector.

Where we need to be by 2030

Sustainability needs to be incorporated into infrastructure from the earliest planning stages, when as many options as possible are still politically, economically, and technically feasible. Infrastructure should be planned in a way that eliminates or minimizes threats to the diversity of genes, species and ecosystems. Infrastructure is essential to support human development, but it is just as important to mainstream biodiversity and ecosystem services into its design, planning, construction, maintenance, and decommissioning.

In addition, infrastructure projects, designed to function over multiple decades, need to integrate climate resilience. Nature-based solutions are increasingly recognized for their potential role in disaster risk reduction (DRR), climate change resilience and urban regeneration, and they can replace, or complement, grey infrastructure. Nature-based solutions can also deliver co-benefits such as emissions reduction and carbon storage, livelihood generation and biodiversity conservation. Maintaining or restoring natural infrastructure is often less costly than "grey" infrastructure alternatives, especially once cross-sectoral co-benefits are taken into account. As such, they should be scaled-up in public procurement policies and planning.

Finally, innovative financing solutions need to support biodiversity and ecosystem sustainability in the infrastructure sector. Estimates suggest that the future infrastructure investment gap will amount to \$5.5 trillion per year between 2017 and 2035. To bridge such gap, fiscal policies can leverage public sector finance, opening a window of opportunity to create incentives for less costly but green alternatives, at the same time protecting natural habitats, creating jobs and boosting the economy. In addition, innovative ways of combining public finance with concessional/development finance and private finance are needed. Blending public capital and concessional climate finance with private capital can help to reduce risks for private investors. In such cases, multilateral development banks (MDBs) can serve as cornerstone investors in new markets, signalling to other investors that the risks are often less than perceived.

What UNEP advocates for

COMMITMENT

Application of integrated approaches to sustainable infrastructure planning and development that consider the interlinkages between different infrastructure systems, sectors, phases, governance structures, and aspects of sustainability, and incorporate sustainability concerns at the earliest stages of planning.; Mainstreaming Nature-based Solutions (NbS), while avoiding/minimizing detrimental impacts of grey infrastructure projects on ecosystems and biological diversity.

AWARENESS

Of the centrality of infrastructure to the SDGs and its potential impacts on biodiversity; Involvement of and incentives for all stakeholders to adopt existing tools and safeguards for mainstreaming biodiversity in the sector. Promotion of synergetic opportunities among tools, such as Environmental Impact Assessment and Strategic Environment Assessment, and public participation.

FUNDING

Innovative financing solutions to support biodiversity and ecosystem, to meet the future demand for infrastructure while triggering a virtuous cycle of sustainability and cross-sectoral integration.

Key UNEP reports

- Mainstreaming biodiversity in the infrastructure sector: Fostering system-level approaches (2018)
- Integrated approaches to sustainable infrastructure (2019)
- The Weight of Cities: Resource Requirements of Future Urbanization (IRP, 2018)
- Infrastructure at odds with biodiversity? (2017)
- Sustainable Infrastructure and Finance (2016)
- The IPBES' 2019 Global Assessment Report on Biodiversity and Ecosystem Services

Relevant United Nations Environment Assembly (UNEA) resolutions

- **UNEP/EA.4/L.6** Sustainable Infrastructure
- **UNEP/EA.4/L.4** Sustainable Mobility
- **UNEP/EA.4/L.13** Sustainable Management for Global Health of Mangrove
- **UNEP/EA.4/L.14** Sustainable coral reefs management
- **UNEP/EA.4/L.19** Conservation and Sustainable Management of Peatlands
- **UNEP/EA.1/L.08** Ecosystem-based adaptation

SDGs served



UN Environment and Yale University's Ecological Living Module - the tiny house which is fully powered by renewable energy and is constructed from locally-sourced, bio-based renewable materials. Photo by David Sundberg/Esto

