

The Belt and Road Initiative: Environmental Implications and Prospects for Change

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For most people, the mental image evoked by the Belt and Road Initiative (BRI) is that of a series of lines, spreading across a blank map of Eurasia. These lines—and the dots they connect—take a variety of patterns and colours, indicating the different infrastructures part of the initiative: highways and railways, oil and gas pipelines, ports and logistical hubs, electric power plants and hydropower stations. As we focus on the concrete products of the BRI, all neatly laid down before our eyes, we run the risk of overlooking its implications for places and territories affected by the initiative. To avoid this, we need to realize that the space on which the BRI is unfolding is all but blank. On the contrary, that map is covered with thick forests and vast steppes, crossed by countless rivers, and home to multiform expressions of life—human and more-than-human. In fact, BRI corridors cross key hotspots of biological and cultural diversity. It is therefore no surprise if the initiative is causing concern among a large community of scholars, activists, and sustainability practitioners.

This issue of *EURICS Brief Analyses* aims at sharing these concerns with a wider audience interested in knowing more about the impacts of the BRI, while providing tools to interpret its significance for global sustainability. To this end, I am going to address three interrelated questions: What are the major environmental impacts of the BRI? What is being done to overcome them? Are these attempts likely to foster sustainability transformations? The relevance of these questions goes beyond the analysis of the BRI per se. In fact, addressing them can provide insights on current social-ecological patterns across a vast area of the globe.

What Are the Major Environmental Impacts of the BRI?

To answer the first question, we should start by framing the BRI for what it is: an infrastructural development scheme, designed to foster economic cooperation and growth. Regardless of the origin of funding, large infrastructures inflict considerable damage to the environment, due to both direct and cumulative impacts. Moreover, they are often controversial in terms of environmental justice, since their negative impacts tend to weigh disproportionately on local communities, while most benefits accrue to faraway people who do not directly witness or suffer the environmental degradation caused

by infrastructure construction and operation. The higher the power imbalance between project proponents on one side—States and companies—and local populations on the other—including both human and more-than-human entities—the bigger the environmental and social issues brought about by these projects. Against this background, the equation “large infrastructures \cong development” informing the BRI is inherently problematic.

As shown more in detail in Table 1, the wide range of infrastructures supported by the initiative has negative impacts for the environmental quality of air, water, and soil.

Table 1. BRI Impacts on the Environment

Dimension	Impacts
Biosphere	<ul style="list-style-type: none"> • Loss and fragmentation of habitats • Direct killing of animals • Biodiversity loss
Hydrosphere	<ul style="list-style-type: none"> • Water pollution • Water scarcity • Destruction of water ecosystems
Lithosphere	<ul style="list-style-type: none"> • Soil contamination • Soil erosion
Atmosphere	<ul style="list-style-type: none"> • Air pollution • Greenhouse gases emission
Biocultural sphere	<ul style="list-style-type: none"> • Displacement of local communities • Marginalization of traditional knowledge and customary governance institutions

Same applies to climate change, since construction of big infrastructures is highly carbon intensive. Along with urbanization, large infrastructures are also a leading cause of harm to biodiversity, since they degrade or destroy habitats essential for life to thrive. The BRI is no exception. On the contrary, the initiative overlaps with areas that are key to global biodiversity and are extremely vulnerable to human intervention, both in South-East Asia, Central Asia, the Irano-Anatolian region, and the Caucasus.

Similar considerations can be done with regard to cultural diversity and the capacity of local communities and indigenous peoples to keep cultivating their ways of life in dignified ways, improving their livelihoods without being displaced and/or constrained to embrace (post) industrial modernity. The initiative may have significant impacts on these aspects too, since it crosses areas under customary tenure by local communities and indigenous peoples. A recent case epitomizing the thorny issues brought about by BRI projects is the Batang Toru hydropower project in North Sumatra, which has spurred an outcry from activists and local communities due to its negative impacts across the environmental and social dimensions.

BRI Green Agenda:

Project Screening and Leveraging Finance

For its very nature, the BRI is thus likely to have negative consequences on the environment. Efforts, however, are being put in place to offset these impacts. There are two

major areas worthy of mention in this respect. The first relates to environmental planning and management, while the second concerns the potential of green finance. Regarding the first, efforts are being made to develop screening mechanisms to assist decision-makers in choosing which projects should be included in BRI funding pipelines, based on their foreseeable environmental impacts.

A consistent effort towards this end has been made by the BRI International Green Development Coalition (BRI-IGDC), a network of sustainability organizations, practitioners, scientists, and policy-makers co-chaired among others by China’s Ministry of Ecology and Environment, the World Wildlife Fund, and the World Resources Institute. The BRI-IGDC has been designing a framework to benchmark BRI projects against impacts on environmental quality, climate change, and biodiversity. While not binding for parties involved in the BRI, this “traffic light system” has had the merit of flagging investments that are inherently problematic from an environmental standpoint, such as hydropower and coal (see Table 2).

Project screening has been an important aspect also for organizations funding the initiative, some of which have been designing and implementing environmental and social safeguards. Among others, the Asian Infrastructure Investment Bank (AIIB) adopted in 2016 its Environmental and Social Framework (ESF). The framework is largely informed by similar systems adopted by multilateral development banks—the World Bank in particular—and provides guidance for projects screening and assessment. One of the key principles adopted in AIIB’s ESF is the importance of host countries’ regulatory systems as sources of legally binding procedures to assess and manage environmental impacts.

This is an aspect that many observers tend to overlook when dealing with BRI’s environmental implications—perhaps blinded by China’s role in it. And yet, it is important to be mindful that environmental decision-making responsibilities are first and foremost in the hands of the governments hosting the projects. When things go wrong and negative impacts befall natural environments and humans, this is caused by a synergy of failures—and interests—at both ends of the process, the local and the Chinese.

The fact that many large infrastructures have a transboundary footprint adds complexity to issues of environmental planning. This is of particular importance in the case of water and has often spurred controversy about BRI investments, such as in the case of the Selenge River between Mongolia and Russia. In fact, many activists claim that the initiative—and the major environmental headaches it creates—makes even more evident the importance of adopting common transboundary planning approaches, such as those already provided by the United Nations Economic Commission for Europe (UNECE) Conventions.

Table 2. BRI-IGDC Traffic Lights System for BRI Projects

Category	Projects
 Green Positive impacts, to be encouraged	<ul style="list-style-type: none"> • Energy: solar, wind, geothermal, mini/micro-grid • Transport: electric transportation infrastructure • Logistics: green ports and facilities • Other: forestation
 Yellow Neutral impacts	<ul style="list-style-type: none"> • Transportation: urban freight transportation with emission standards above Euro IV (or similar) • Waste management: waste-to-energy projects
 Red Negative impacts, need stricter supervision	<ul style="list-style-type: none"> • Energy: hydroelectric, coal, gas-fired • Transportation: railway construction, urban freight transportation with emission standards below Euro IV (or similar) • Logistics: ports and facilities whose construction involve the use of fossil fuels • Other: large livestock and poultry breeding plants, mining, petrochemicals, industrial park construction

Green finance represents another area of interest with regard to BRI and sustainability. A major development in this respect was the issuance of [China's Central Bank Green Bond Catalogue](#) in 2015. The catalogue—which was then revised in 2020-21—is consistent with global trends in establishing green investment taxonomies (see e.g., [the EU taxonomy for sustainable activities](#)) and signals the willingness of gradually phasing out investments in polluting industries.

The Chinese banking system has been actively shaping this climate, seizing the opportunity given by the BRI to devise ad hoc financial products. The Industrial and Commercial Bank of China —China's largest bank—issued [the first BRI green bond](#) in 2017, to support projects in the renewables, low-carbon energy and transportation, and water management. This was followed in 2019 by the issuance via its Singapore Branch of [an inter-banking green bond](#) to support BRI-related projects. Such developments are consistent with China's increased commitment to decarbonization, at least in the international climate arena. The announcement made by Xi Jinping before [Glasgow's COP 26](#) about China's decision to [halt new coal power plant constructions abroad](#) can be seen in the light of this broader context.

Decarbonization, however, is not the only hotspot of debate in BRI-related green finance. The ongoing 15th meeting of the [UN Conference of the Parties to the Convention on Biological Diversity \(CBD COP15\)](#)—taking place in the Chinese city of Kunming—is testimony to the incorporation of biodiversity concerns in green finance, and the role China may play in this. During the preparatory talks for the conference, Xi committed 1.5 billion yuan (approximately 200 million Euros) to establish a [Kunming Biodiversity Fund](#). While pointing out that this is a drop in the ocean, commentators have also praised the move as it could leverage more resources. The outcomes of the CBD COP15 are therefore to be closely monitored, as they may yield significant news about biodiversity finance in connection with the BRI.

Are These Attempts Likely to Foster Sustainability Transformations?

Overall, the BRI has been incorporating elements of environmental sustainability. In some quarters, these elements have been defined as “transformative,” especially with respect to their potential of promoting more sustainable solutions for transportation and energy. As a matter of fact, to look into the transformative potential of the BRI, we need first to clarify the meaning and implications of “transformation.” Despite the term being used as a buzzword with a generic meaning of (positive) change, scientists, practitioners, and activists have long been [debating about what transformations for sustainability should entail](#).

Systems thinking—and in particular the work of [Donella Meadows](#), lead author of the seminal volume [The Limits to Growth](#) in 1972—has provided the most consistent and durable blueprint for transformative change. According to this approach, transformation is about pervasive and systemic change of social-ecological practices, institutions, and mental models. In keeping with this view, the deepest leverage points to generate change for sustainability are the values, mindsets, and worldviews that inform individual choices and collective decisions, shaping our vision of the future. There are several examples of transformative approaches to sustainability: [ecofeminism](#), [indigenous movements](#), [commoning](#), [de-/post-growth movements](#), and [integral ecology](#)—just to mention a few—all offer visions that are radically different from the status quo. They powerfully question extractivist assumptions which have been dominating human-nature relations in most industrialized societies.

Seen from this perspective, the BRI and its green agenda(s) are hardly transformative. In fact, they echo an incremental approach to change, as embraced by a large part of the global political, economic, and sustainability establishment. This approach is based on three key ingredients. First, it endorses the logic of indefinite growth on a finite planet, marginalizing all possible alternative agendas of de-growth, post-growth, and the like. BRI is clearly about material growth—and somehow about how to redistribute it better, at least on paper.

Second, it understands environmental sustainability as a matter of mitigation: damage to nature is the inevitable byproduct of development, which we should try to contain within acceptable limits. By so doing, it leaves unexplored the terrain of regeneration, whereby humans work with nature—i.e., as an integral part of it—to ensure the thriving of life. Clearly, an initiative based on the role of infrastructures to promote growth such as the BRI can hardly pursue the logic of regeneration, while it may put in place measures to mitigate impacts, as we have seen in the previous paragraph.

The third ingredient is the key role of technological innovation in incremental discourse and practice. Also in

this case, the BRI green agendas resonate strongly with incremental positions, whereby technology advancements are at the core of the initiative. These elements are often accompanied by the predominance attributed to technocratic structures and processes in decision-making. This is a general trend, but of particular interest in the case of China, whose political system heavily relies on a technocratic apparatus that curtails the space and prospects for political debate.

A Few Conclusive Thoughts and Directions for Future Research and Action

The history of human civilization is dominated by a relentless encroachment of natural habitats and exploitation of resources. By looking at this long-term pattern, one cannot help but being concerned about what the future holds for our species. For many people today, it is difficult to imagine the possibility of a longer-range future (let us say 500 or 1,000 years from now) for humans on the planet. And yet it is clear that there is a significant difference between ourselves and generations who have lived before us. This difference lies in the evolution of both knowledge and ethics. We have an unprecedented scientific understanding of social-ecological systems and we know what we should do to avoid ruining them. Research also tells us that technology alone is not enough to revert destructive trends and that we have to shift to more holistic models of change, putting at the centre stage ethical understandings of reality.

This approach is sinking in across wide sectors of society, which are embracing radical requests for change. The *Fridays for Future* and *Extinction Rebellion* movements are an indication of how much this awareness is spreading among younger generations. When discussing the implications of the BRI for sustainability, it is through the lenses of emer-

gent ethics and novel knowledge that we should scrutinize the initiative. Right now, what we can see through these lenses is a familiar recipe for growth. As familiar as it may be, it is not reassuring: quite on the contrary, it is of great concern because it endorses obsolete social-ecological patterns, whose harms are shown by countless evidence.

This calls those among us who do research on the BRI to a big responsibility towards society and knowledge. We should seize the BRI as a window of opportunity to step up an engaged scholarship, aimed at investigating and enabling visions for a truly transformative governance of the environment. Seeds of this agenda for research and action are being disseminated by practitioners, researchers, and activists who feel part of a community of life brought together by the BRI—and the environmental concerns it generates. The Cansiglio “Charter of Values” for the Mutual Benefit and Well-being of Living Communities along the New Silk Roads—co-created during a study retreat I organized in 2019—is a small but meaningful testimony of these efforts. Hopefully, these brief notes will contribute to enlarging this community, engaging like-minded women and men who wish to explore social-ecological transformation along the BRI.

To go further

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