

China's Ecological and Environmental Code: A Codified Model for Ecosystem-Based Impact Assessment

Implications for Global Environmental Governance

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Executive Summary

On 12 March 2026, China adopted its Ecological and Environmental Code, codifying "ecological and environmental impact assessment" (EEIA) as a legal framework that places ecosystem integrity at the center of development decision-making. Unlike traditional Environmental Impact Assessment (EIA) systems that focus primarily on pollution control, China's EEIA systematically integrates ecosystem structure, functioning, and biodiversity into project and planning assessments. Over the past two decades, this legal shift has been underpinned by China's broader ecological civilization agenda, large-scale forest and watershed restoration programmes such as the Grain for Green initiative, major desertification control efforts, and intensified environmental pollution control measures that together signal a strategic move toward ecosystem- and environment-centred development. The Code links EEIA with spatial planning, national ecological databases, and lifecycle monitoring systems, creating one of the first comprehensive legal frameworks for ecosystem-based impact assessment globally. If effectively implemented, this model could accelerate the shift toward nature-positive governance in countries updating environmental legislation and inform international climate-biodiversity finance mechanisms under the Kunming-Montreal Global Biodiversity Framework.

Keywords: ecological impact assessment, ecosystem-based governance, environmental law codification, China, global environmental governance, EEIA, biodiversity

Policy Messages at a Glance

- **China's new Code formally defines "ecological and environmental impact assessment" (EEIA), making ecosystems—not just pollution—core legal objects of evaluation.**
- **EEIA is embedded upstream in strategic planning (territorial, sectoral, watershed), enabling ecosystem considerations to shape development pathways before project approval.**

- **The Code mandates national ecological databases and standardized indicators, creating institutional demand for large-scale ecosystem monitoring infrastructure.**
- **China's integrated ecosystem-based assessment model contrasts with pollution-oriented EIA (e.g., US NEPA) and biodiversity-triggered systems (e.g., EU, Australia), offering a reference for countries modernizing environmental legislation.**
- **If effectively implemented, the EEIA framework could inform evolving international approaches to nature-positive governance and climate-biodiversity finance architecture.**

Background

On 12 March 2026, China's National People's Congress adopted the Ecological and Environmental Code (生态环境法典), the country's first comprehensive codification of environmental legislation, marking a major milestone in its environmental governance system. As China's second statutory code after the Civil Code (2020), the new law consolidates decades of environmental regulations into a unified legal framework for ecological protection, pollution control, and green development, and positions environmental law as a core pillar of national development policy.

A notable innovation of the Code is the strengthening of ecological and environmental impact assessment within China's environmental governance system. While Environmental Impact Assessment (EIA) has been widely implemented around the world for decades, most systems primarily address pollution control and environmental quality and focus on regulating emissions and environmental standards at the project level. Ecological impacts—such as ecosystem degradation, biodiversity loss, and landscape fragmentation—are often treated as secondary considerations or regulated through separate biodiversity laws, planning instruments, or conservation policies.

China's Ecological and Environmental Code codifies a different approach by formally defining "ecological and environmental impact assessment" (EEIA, 生态环境影响评价) and placing ecosystem integrity at the center of development decision-making. This shift reflects a broader global transition toward ecosystem-based environmental governance as governments confront accelerating climate change, biodiversity loss, and environmental degradation, and it offers an example of how ecosystem-level considerations can be structurally embedded in environmental legislation rather than added as an afterthought.

Evolving political commitment and institutions

Over the past two decades, China has increasingly attached high importance to ecosystem protection and ecological development, progressively elevating ecological civilization (生态文

明) to a core national development 理念 and governance objective. In his 7 September 2013 speech at Nazarbayev University in Kazakhstan, President Xi Jinping emphasized that “we want both lucid waters and lush mountains and gold and silver mountains; but if we must choose, we would rather have lucid waters and lush mountains, because lucid waters and lush mountains are invaluable assets in themselves,” vividly expressing the leadership’s strong commitment to advancing ecological civilization. This expression has since become a guiding development concept and is widely promoted in Chinese government media and policy documents as a shorthand for aligning economic growth with ecological integrity.

This political shift has been accompanied by a progressive upgrading of China’s environmental governance institutions. In 1998, the former National Environmental Protection Agency was elevated to the State Environmental Protection Administration as a ministerial-level body under the State Council, consolidating and strengthening national environmental management functions. In 2008, it was further upgraded to the Ministry of Environmental Protection as a full constituent department of the State Council, enhancing its regulatory authority and policy coordination role. In 2018, a major State Council institutional reform established the Ministry of Ecology and Environment (MEE), integrating responsibilities for environmental protection, climate change, marine environment, and other cross-cutting ecological functions into a unified “super-ministry” model for ecological and environmental regulation. These political and institutional developments laid an important foundation for the subsequent codification of ecosystem-based impact assessment in the Ecological and Environmental Code.

With less than about 9–10 percent of the world’s arable land and nearly one-fifth of the global population, China has had to pursue food security under tight land and water constraints, making the protection of fertile land, water resources, and ecosystem services a strategic development imperative. Beyond institutional upgrading, China has also implemented large-scale ecological restoration, desertification control, and environmental protection programmes that have significantly strengthened its natural capital base. Since 1999, the Grain for Green (Grain to Green) Programme—one of the world’s largest ecological restoration initiatives—has converted large areas of sloping and degraded cropland into forest and grassland, reducing soil erosion, improving watershed protection, and supporting rural livelihoods in participating regions. In parallel, major desertification control projects—such as the Three-North Shelter Forest Programme and targeted sand-stabilisation measures in deserts including Kubuqi and other northern drylands—have helped to halt the historical expansion of desertified land and contributed to a measurable net reduction in the extent and intensity of desertified areas since 2000. Together with other national forestry and ecological engineering programmes, these efforts have driven a sustained net increase in forest cover and forest stock volume, with forest cover rising from about 16–17 percent of China’s territory in 1990 to around 23–24 percent in recent years. Over the same period, intensified air pollution and environmental control measures have led to marked reductions in key

pollutants such as PM2.5 even as GDP has continued to grow, underscoring a broader policy shift toward integrating ecological and environmental objectives into development planning.

Key Innovations

1. Reframing EIA as Ecological and Environmental Assessment

The Code reframes the traditional Environmental Impact Assessment system as **ecological and environmental impact assessment (EEIA)**, defined as the analysis, prediction, and evaluation of ecological and environmental impacts of plans and development projects, combined with mitigation measures and follow-up monitoring.

Importantly, the legislation requires assessment of impacts on "various ecological environmental factors and the ecosystems they constitute." This formulation explicitly recognizes ecosystems—not only pollution emissions—as core objects of evaluation.

In practice, the Code expands the traditional EIA model into an integrated ecological-environmental assessment framework in which ecosystem structure, ecological interactions, and ecosystem functioning must be considered alongside environmental quality indicators.

2. Embedding EEIA into Strategic Planning Systems

The Code extends EEIA beyond individual projects to **strategic development planning**. Ecological assessments are required during preparation of:

- Territorial spatial planning
- Regional and watershed development plans
- Sectoral plans in energy, agriculture, forestry, transport, and tourism
- Industrial parks and development zones

Embedding EEIA at the planning stage allows ecological considerations to influence development pathways before specific projects are approved. This upstream approach aims to reduce cumulative ecological risks and prevent environmentally damaging development patterns from being locked in at the strategic level.

3. Building Scientific and Data Infrastructure for EEIA

To support EEIA implementation, the Code mandates the development of **national ecological databases, standardized indicators, and environmental information-sharing mechanisms**.

These provisions aim to improve the scientific consistency, transparency, and credibility of ecological assessments. They also create strong institutional demand for large-scale ecological monitoring and ecosystem observation systems, which are increasingly important

for tracking biodiversity change, ecosystem health, and progress toward national and international biodiversity targets.

4. Extending EIA to Lifecycle Governance and Accountability

The Code establishes a governance cycle that extends beyond project approval to **long-term ecological monitoring and accountability**. Major projects must disclose ecological impact reports, consult the public, and undergo expert review.

Developers are required to implement ecological protection measures during construction and operation, while authorities conduct follow-up monitoring to detect unforeseen impacts. If ecological damage occurs, corrective measures must be implemented.

Together, these provisions create a complete regulatory cycle:

impact prediction → regulatory approval → ecological monitoring → adaptive mitigation

International Comparison

Existing Assessment Models in OECD Jurisdictions

Environmental impact assessment is widely used internationally, but explicit ecosystem-level assessment frameworks remain unevenly developed across jurisdictions.

European Union

The European Union operates advanced environmental assessment systems through the Environmental Impact Assessment Directive and the Strategic Environmental Assessment Directive, complemented by biodiversity protections under the Habitats Directive and the Birds Directive. These frameworks require biodiversity considerations to be incorporated into project and planning assessments, while implementation is carried out by competent authorities in EU Member States under the common standards established by EU law. Ecological evaluation is therefore distributed across several complementary legal instruments and governance levels within the EU environmental policy framework.

United States

The United States pioneered environmental assessment through the National Environmental Policy Act (NEPA). NEPA requires federal agencies to evaluate the environmental impacts of major federal actions before making decisions, typically through Environmental Assessments (EA) or Environmental Impact Statements (EIS), and to provide opportunities for public review and comment. The system is widely characterized as procedural, emphasizing transparency, analysis, and informed decision-making rather than prescribing specific environmental outcomes. Substantive ecosystem protection is instead governed through separate legislation, including the Endangered Species Act and the Clean Water Act.

United Kingdom and Ireland

Ecological Impact Assessment (EclA) methods widely used in the United Kingdom and Ireland

are developed and maintained by the Chartered Institute of Ecology and Environmental Management (CIEEM), a professional body representing ecologists across the UK, Ireland, and internationally. The CIEEM EclA Guidelines provide structured methodological guidance for evaluating impacts on habitats, species, ecological functions, and connectivity. In practice, EclA operates as professional best-practice guidance embedded within planning and environmental impact assessment processes, rather than as a statutory legal framework in its own right. This case illustrates both the strengths and limitations of guidance-based professional standards in environmental assessment, particularly where ecosystem integrity is not explicitly defined as the primary legal object of protection.

Australia

Australia's environmental impact assessment system is governed federally by the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), which requires ecological assessment when proposed projects are likely to have a significant impact on legally defined matters of national environmental significance, including threatened species and ecological communities. The system therefore operates largely through regulatory "triggers," activating ecological evaluation when specific protected values may be affected rather than requiring systematic assessment of ecosystem integrity across landscapes.

Emerging Integrated Ecosystem-Based Model in China

China's Ecological and Environmental Code represents one of the first attempts to codify ecosystem-based impact assessment within a comprehensive environmental legal framework. By linking EEIA with spatial planning, monitoring systems, and ecological protection mechanisms, the Code introduces a governance model that integrates ecosystem considerations throughout the development process, from strategic planning to project-level assessment to long-term accountability.

Table 1. Typology of Environmental Assessment Models

Model	Primary Focus	Examples
Procedural environmental assessment	Environmental impact analysis, transparency, and decision-making procedures	United States (National Environmental Policy Act), adopted in many countries
Biodiversity-triggered assessment	Ecological assessment activated when protected species, habitats, or biodiversity thresholds are affected	EU (Habitats Directive and Birds Directive), Australia (Environment Protection and Biodiversity Conservation Act 1999)
Integrated ecosystem-based assessment	Ecosystem integrity or ecological civilization treated as a systemic legal objective of environmental governance	China (Ecological and Environmental Code)

Implications and Policy Recommendations

Internationally, environmental assessment systems have evolved from pollution-focused EIA to increasingly sophisticated approaches that incorporate biodiversity and ecosystem considerations. However, most systems remain either procedural (emphasizing process over outcomes) or fragmented (addressing ecosystems through separate conservation laws rather than integrated assessment frameworks).

China's Ecological and Environmental Code represents one of the first attempts to codify ecosystem-based impact assessment within a comprehensive environmental legal framework. By systematically linking EEIA with spatial planning, national ecological databases, lifecycle monitoring, and adaptive mitigation, the Code introduces a governance model that integrates ecosystem considerations throughout the development process. This approach aligns conceptually with the Kunming-Montreal Global Biodiversity Framework's emphasis on mainstreaming biodiversity across sectors and the emerging global discourse on nature-positive development.

If effectively implemented, the Code could accelerate the shift toward ecosystem-based legal frameworks internationally by demonstrating how ecosystem-level assessment can be systematically embedded in environmental law and development planning, rather than treated as a secondary consideration addressed through fragmented biodiversity protection instruments.

Policy Recommendations for International Actors

For international organizations (UNEP, CBD Secretariat, OECD):

- **Encourage countries updating EIA and SEA legislation to explicitly define ecosystems as legal objects of assessment**, drawing on China's EEIA framing and structure to move beyond pollution-focused or biodiversity-triggered models.
- **Support the development of international guidance on integrating EEIA principles into national environmental legal frameworks**, including model provisions for ecosystem-level assessment, planning integration, and lifecycle governance.
- **Facilitate knowledge exchange platforms for countries piloting ecosystem-based assessment approaches**, enabling peer learning on implementation challenges, indicator development, and institutional coordination.

For countries modernizing environmental legislation:

- **Consider codifying ecosystem integrity as a core legal object of environmental assessment systems**, not only through separate biodiversity laws but as an integrated component of development planning and project approval processes.
- **Invest in national ecological data infrastructures as a core public good** underpinning ecosystem-based assessment, including long-term monitoring

systems, standardized indicators, and accessible environmental information platforms.

- **Design lifecycle governance mechanisms that extend environmental accountability beyond project approval** to long-term monitoring, adaptive mitigation, and ecological restoration when damage occurs.

For multilateral development banks and climate-biodiversity finance mechanisms:

- **Pilot ecosystem-based assessment approaches in MDB-financed programmes and national climate-biodiversity plans**, using China's EEIA as a reference for integrating strategic planning, standardized assessment, and monitoring accountability.
- **Align environmental and social safeguard systems with ecosystem-based assessment principles**, ensuring that ecosystem structure, functioning, and biodiversity are systematically evaluated alongside social and pollution impacts.
- **Support capacity development for EEIA implementation in countries accessing climate and biodiversity finance**, including technical assistance for ecological indicator development, monitoring infrastructure, and institutional coordination across planning, environment, and biodiversity agencies.

For researchers and practitioners:

- **Monitor and evaluate the implementation of China's EEIA framework over the coming years**, documenting lessons learned, implementation challenges, and ecological outcomes to inform international policy development.
- **Develop case studies comparing ecosystem-based assessment models across jurisdictions**, analyzing the effectiveness of different legal and institutional approaches for achieving ecosystem integrity and biodiversity outcomes.

Conclusion

China's Ecological and Environmental Code introduces a systematic legal framework for ecosystem-based impact assessment that places ecosystem integrity at the center of development decision-making. By codifying EEIA, embedding it in strategic planning, linking it with national ecological databases, and extending it to lifecycle governance, the Code offers a reference model for countries seeking to move beyond pollution-focused or fragmented biodiversity-triggered assessment systems.

The international significance of this development lies not in prescribing a single global model, but in demonstrating that ecosystem-level considerations can be structurally integrated into comprehensive environmental legal frameworks. As countries implement the Kunming-Montreal Global Biodiversity Framework and update environmental legislation to

address accelerating climate and biodiversity crises, China's EEIA approach provides concrete institutional and legal architecture that may inform the evolution of ecosystem-based governance globally.

Effective implementation will be critical. The success of China's EEIA framework will depend on the quality of ecological databases, the rigor of assessment methodologies, the capacity of regulatory agencies, and the transparency of monitoring and accountability mechanisms. International observation and knowledge exchange in the coming years will be essential for understanding whether this codified ecosystem-based assessment model can deliver measurable ecological outcomes and serve as a replicable reference for global environmental governance.

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