

POLICYBRIEF

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What "Nexus"? Towards Resource Nexus Standardization

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The Policy Brief:

- Proposes a new definition of the Nexus
- Identifies steps for the operationalisation and certification of the Resource Nexus
- Demonstrates how a Resource Nexus Framework can improve policy coherence, manage trade-offs, and unlock synergies across sectors and scales

Context

"Nexus"-based management of environmental and natural resources has emerged as a promising approach to address the interconnected dynamics between environmental and socio-economic systems. It was introduced at the 2008 World Economic Forum in Davos and the 2011 Bonn Conference, on "the Water, Energy and Food Security Nexus - Solutions for a Green Economy". However, despite its growing popularity in academic and policy circles, the Nexus has struggled to translate into tangible, on-the-ground impact due to several key challenges, including fragmented governance structures, a lack of clear definitions, best practices and standards, and insufficient practical guidelines.



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This policy brief is targeted at the European Commission and national governments (as providers of funding and subsidies), as well as the private sector. The European Commission developed the European Water Resilience Strategy to tackle water scarcity, pollution, and efficiency, with a focus on innovation and a circular economy. Unexplored solutions could be identified by adopting a Nexus approach. Such integrated approaches could also emerge through the concept and its linkages with other environmental resources, through the source-to-sea approach.

This policy brief specifies the requirements for adopting a Resource Nexus approach. It also responds directly to the outcomes of the Dresden Nexus Conference (April 2025), with an international call for a clear, operational, and governance-ready definition of the Nexus and its principles, one that can support strategic decision-making across sectors and scales. A comprehensive Resource Nexus Framework is proposed for effective resource management and governance. This framework encompasses a broader range of resources and systems, extending beyond the Water-Energy-Food (WEF) Nexus. At the heart of this approach is the need to explicitly manage trade-offs and unlock synergies, ensuring that policies do

flexible and adaptive, allowing it to evolve and incorporate new areas of focus as they emerge.

It emphasizes their connection to both biophysical processes and socio-economic dynamics and human wellbeing (physical and mental health).

To operationalize this vision, we recommend the development of (i) clear criteria to define what qualifies as a Resource Nexus project, and (ii) certification systems to ensure consistency, transparency, and quality in implementation.

Such measures will enable governments and international organizations to identify high-impact.

We need a new definition of the Nexus

The proposed definition will guide the following principles and recommendations in implementing a Nexus approach:

1. We recommend that a broader Resource Nexus Framework be adopted. This framework aims to catalyze inclusive, evidence-based, community-

engaged, and resource-efficient system transitions toward sustainable and resilient societies. It can support integrated resource management and governance, including the implementation of the One Health (Planetary Health) approach by exploring the linkages between human, animals, and the environment. The Water-

Energy-Food (WEF) Nexus and the Water-Energy-Food-Ecosystem (WEFE) Nexus are expressions of this broader Resource Nexus Framework. Nexus approaches are not limited to water, energy, food, and ecosystems alone, but can also encompass resources such as soil, biota, material, oceans, and the sea. A Nexus approach could focus on rural areas, as well as urban areas and the marine environment. The definition should also continue to embrace future growth areas in this rapidly evolving system's field.

A Resource Nexus Framework includes often-overlooked systems such as soil, biota, marine ecosystems, and material resources. It should be flexible and adaptive, allowing it to evolve and incorporate new areas of focus as they emerge.

not advance one sector at the expense of another. Equally important is the role of inclusive governance empowering communities, institutions, and stakeholders to co-create sustainable and context-specific solutions.

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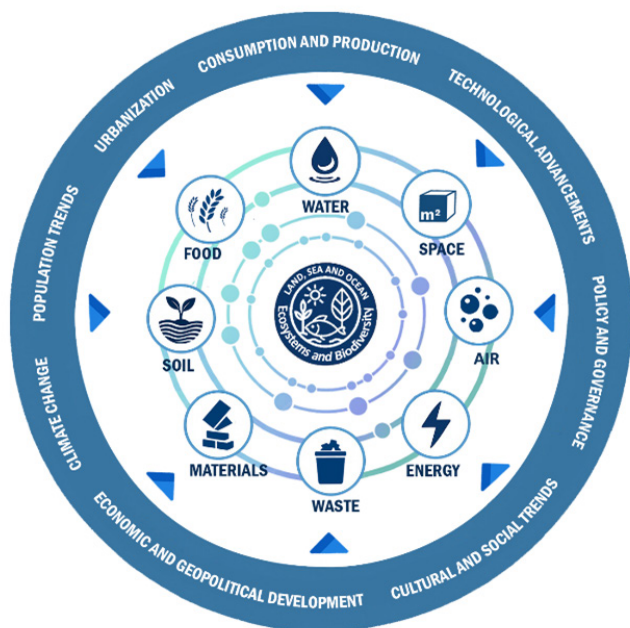


Figure 1: Resource Nexus

2. Environmental assets are integrated with biophysical resources and socio-economic systems. This integration recognizes that they collectively contribute to human well-being, economic development, and societal functioning. Thereby, they support a holistic approach to sustainability. It is essential to explicitly consider trade-offs and synergies among environmental resources. Understanding the trade-offs will be essential for identifying policies that need correction, and synergies will guide recommendations for more coherent policies.

3. It is important that at least two resources are involved when following a Nexus approach. Different local contexts will influence the choice of environmental resources. The central role of governance needs to be emphasized in managing interlinkages equitably and in guiding decision-making. Human health, for example, is a key outcome or impact area of resource management. Effective governance creates the enabling conditions for improved public health. Adopting a Nexus needs to augment and align with the global development agenda, such as the SDGs. For the upcoming revision of the post-2030 sustainability agenda, a clear

commitment to a Nexus goal could be envisioned.

4. Nexus-related interventions make use of transdisciplinary approaches wherever possible. Nexus work intends to support a just transition towards sustainable practices that safeguard the lives and livelihoods of current and future generations. This includes actors from policy, civil society, and practitioners, and is crucial for a holistic understanding of the problems faced and the locally viable solutions. It could subsequently also bridge concepts and analytics into action. Discussion events will be important to identify priority actions with stakeholders.

From concept to action: two recommendations for follow-up

1. Criteria for a Nexus definition:

A project can truly be recognized as a Resource Nexus initiative when it embraces the full complexity and interdependence of our most vital resources. These are not just environmental assets; they are the foundation of human well-being and economic resilience. To qualify a project as following the Nexus approach, it must integrate at least two interconnected resource systems. It must also bridge the gap between the biophysical resources and the socio-economic conditions of the communities that rely on them. Equity and inclusivity are essential. Resource Nexus projects must ensure that marginalized voices are heard and that benefits are shared fairly. Strong governance is also a key mechanism that encourages collaboration across sectors and ensures accountability at every level. This holistic, systems-based approach is what enables lasting, transformative impact, something donors can be proud to support.

2. Resource Nexus project certification:

We recommend a standardization scheme for Resource Nexus projects to ensure consistency, transparency, and impact across initiatives supported by public and donor funding. Standardization of a Resource Nexus entails harmonizing the various aspects of project design, assessment, and implementation. A confirmed definition of a

Figure 2: Science-policy actions for Resource Nexus Standardization

<p>Standardize Quantitative Resource Nexus Assessments</p> <p>Objective: Enable consistent and comparable measurement across countries, regions, and projects.</p> <p>Policy priorities:</p> <ul style="list-style-type: none">• Agree on common system boundaries (spatial and temporal scales)• Adopt a core set of harmonized indicators• Use standard units, normalization methods, and baselines• Require data quality and uncertainty disclosure <p>Policy value: Ensures credible evidence and comparability for planning and investment decisions.</p>	<p>Standardize the Assessment of Trade-offs and Synergies</p> <p>Objective: Make cross-sector impacts visible and measurable.</p> <p>Policy priorities:</p> <ul style="list-style-type: none">• Establish common definitions of trade-offs and synergies• Apply standard analytical approaches (e.g., scenario analysis, multi-criteria assessment)• Quantify direction and magnitude of interactions• Integrate risk and uncertainty analysis <p>Policy value: Supports identification of win-win solutions and avoidance of unintended consequences.</p>
<p>Standardize Integration for Decision-Making</p> <p>Objective: Translate complex analysis into actionable policy insights.</p> <p>Policy priorities:</p> <ul style="list-style-type: none">• Use transparent aggregation and weighting rules• Apply consistent visualization and reporting formats• Align outputs with policy and planning cycles <p>Policy value: Improves uptake of Resource Nexus evidence in policy formulation.</p>	<p>Standardize Governance and Reporting</p> <p>Objective: Ensure legitimacy, transparency, and replicability.</p> <p>Policy priorities:</p> <ul style="list-style-type: none">• Define minimum reporting standards• Promote open data and model transparency• Embed stakeholder engagement protocols <p>Policy value: Strengthens accountability, trust, and cross-sector coordination.</p>

Resource Nexus approach will enable capturing the range of Nexus applications in a standardized process. Harmonization and standardization of the various Nexus approaches within a Resource Nexus Framework could be a crucial step towards certifying such a Framework. A trajectory towards certification will be a demanding staff effort, including agreement at the political level. This is not an easy task, but initial steps towards certification could significantly support Nexus implementation. Certification is foreseen as a long-term objective. Related to this,

it is not foreseen to identify a new entity for its implementation, but rather to explore whether an existing institution could take on this role.

Steps towards standardization of a Resource Nexus project will require assessing its pros and cons, based on a relevant policy debate. Initial steps to advance the two recommendations for follow-up will be taken by 2026 and are expected to be presented and discussed in a science-policy debate.

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