

POLICY BRIEF

Collaboration between knowledges for science with excellence and impact

International dialogue and the strengthening of a plural science



**Conectando saberes para ciência
com impacto na Amazônia**
Diálogo Nórdico-Brasileiro



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HIGHLIGHTS

- Sciences must always be in dialogue, engaging with and recognizing diverse forms of knowledge.
- Indigenous, Quilombola, and Traditional Peoples' sciences have endured and coexisted alongside biodiversity for millennia, actively generating social technologies, species management strategies, territorial governance models, and knowledge in fields such as ecology, botany, astronomy, chemistry, and forest resilience, expertise that must be thoroughly studied to ensure the conservation of humanity and all beings.
- The modus operandi of modern Western science, its funding models, systems of recognition, deadlines, productivity indicators, etc., needs to be rethought to adapt to a new paradigm of how to conduct plural and impactful science and research in the face of the climate crisis.
- The Amazon rainforest and the global climate change demonstrate that they are at or very close to tipping points, requiring immediate action to halt deforestation and the burning of fossil fuels.
- In addition to strong short-term measures to prevent such catastrophe, deep structural changes are needed to ensure the long-term stability of the Amazon rainforest and the global climate.
- Actions that advance excellent, impactful science for forest preservation and planetary defossilization require global collaboration, respecting and incorporating the right of peoples to Good Living¹.

SUMMARY:

This policy brief, the result of international cooperation between Brazil and Nordic countries, presents the lessons learned and reflections of a diverse group composed of academic and non-academic researchers, Indigenous leaders, funders, and government representatives. The document calls for a rethinking of the current modus operandi of academia and funding agencies, aiming for a model that pursues excellence and impact while upholding the well-being of all living beings and the Planet Earth, in a just and pluralistic manner. Integrated sciences can strengthen connections among diverse

knowledge systems and enhance the excellence and impact of research for the benefit of people and nature.

CONTEXT:

If greenhouse gas emissions continue at their current pace, the impacts of global warming will be severe. Beyond the urgent need to prevent crossing tipping points in the Amazon rainforest and the global climate system, long-term stability will require changes in global governance and in how priorities are defined. The inclusion of knowledge produced by Indigenous Peoples, Quilombola communities, and Traditional Populations in public policy is essential for achieving long-term environ-

mental stability in the Amazon. Specifically regarding Amazon preservation, it is crucial to emphasize how the knowledge systems of Amazonian peoples can contribute to high-quality research and public policy worldwide.

For sciences to have a lasting impact, it is necessary to value knowledge diversity symmetrically, understanding and recognizing Indigenous, Quilombola, and Traditional knowledge not as mere “sources of local data,” but as complete knowledge systems. These are ancestral sciences that encompass social technologies, species management strategies, territorial governance models, and a profound understanding of ecology, botany, natural chemistry, and forest resilience, fundamental pillars for forest conservation and the sustainable development of humanity. Diverse sciences must engage in respectful, plural dialogue with these knowledge systems, fostering genuine exchange between different ways of knowing and caring for the world. Such transformation requires rethinking the current *modus operandi* of academia, which does not engage in dialogue with other knowledge systems. It is necessary to revise funding models, deadlines, indicators, and academic recognition. Transdisciplinary and plural collaborations require flexible approaches capable of engaging with the temporalities, governance structures, and collective modes of knowledge production of Indigenous Peoples, Quilombola communities, and Traditional Populations.

By opening real spaces for dialogue and co-creation, academia can move beyond extractivist and colonial paradigms and build shared foundations for understanding and action, strengthening both the diverse essence of human knowledge and the ethical legitimacy of efforts to conserve and restore life on the planet. In the Amazon, connecting knowledge systems is not merely a matter of epistemic justice; it is an imperative for securing a prosperous future for the region and for the planet. The concept of Good Living² is grounded in harmony between people and nature. It advocates for a collective, sustainable, and balanced life in which individual well-being depends on the well-being of

the community and the environment. Academia and decision-makers must therefore understand and respect practices rooted in a way of being that values respect, reciprocity, and responsibility toward all forms of life. Global commitments should secure this undertaking.

Recognized worldwide for its importance to the climate, culture, and life on Earth, the Amazon is pivotal to humanity's future. Protecting the forests and ensuring the well-being and Good Living of the people who inhabit them are interdependent goals. Conservation and restoration strategies must bring together different forms of knowledge to develop solutions that are effective, just, and enduring. Over the past centuries, scientific production within universities has often advanced in isolation from other ways of understanding the world, leading to the appropriation, devaluation, marginalization, or neglect of the knowledge held by Indigenous Peoples, Quilombola communities, and Traditional Populations. However, the knowledge systems of these peoples have sustained life and biodiversity for millennia, developing sophisticated understandings of ecological dynamics, forest resilience, and species management.

OBJECTIVES

1. Promote fair and equitable scientific cooperation, enhancing the exchange of experiences, methodologies, and technologies between Brazil, the Nordic countries, and across the globe, with a focus on solutions that generate high social and environmental impact.
2. Foster meaningful collaboration and engagement among academic institutions, research centers, governments, and Amazonian community organizations, based on reciprocity, co-production of knowledge, and the strengthening of local capacities.

3. Encourage strategic, interdisciplinary, and plural research in the Amazon, on topics such as biodiversity, climate change, bioeconomy, and social technologies, aiming to bridge knowledge gaps and translate research findings into public policy.

4. Support the integration and dialogue between science and public policy by creating effective channels for dialogue, knowledge transfer, and coordination among researchers, policymakers, and community leaders, aiming at policies grounded in recognition, evidence, and oriented toward Amazonian populations.

LESSONS FROM THE AMAZON TO THE WORLD AND THE NEED FOR MEANINGFUL INTERNATIONAL COLLABORATIONS

The long-term excellence and impact of scientific research can be significantly limited by monocultural approaches, and studies based on a single perspective are less likely to generate lasting transformations. Real and sustainable impact becomes more tangible when different forms of knowledge are integrated, and the results are meaningful to a broader audience — beyond the researchers directly involved. Furthermore, the research planning and development process must be meaningful, involving all relevant actors and knowledge systems from the earliest stages of conceptualization.

We recognize that there is already a strong community of researchers dedicated to the sciences that address the impacts of climate change and the global implications for biodiversity, health, well-being, food security, and human vulnerability. However, it is essential to acknowledge that traditional knowledge has historically been appropriated without credit and has served as the foundation for scientific and technological advances of great excellence and impact. One example is the

development of anti-malaria drugs, whose scientific “discovery” was rooted in pre-existing Indigenous knowledge, as well as the “discovery” of natural resource management techniques derived from centuries-old practices of Indigenous peoples. Researchers from Indigenous, Quilombola, and Traditional Populations produce knowledge as an intrinsic part of their ways of life. Yet, formal recognition of these researchers remains the exception within academic spaces. Their knowledge must be legitimized, valued, and integrated into the scientific and public policy discussions of dominant society.

In the Amazon, there are already initiatives that break away from monocultural scientific paradigms, and these examples have the potential to be scaled up across the region and globally. Examples include research developed within the scope of population monitoring of the Pirarucu in the Juruá River region³; the monitoring of the impacts of the Belo Monte Hydroelectric Dam on vegetation, fisheries, and ways of life along the Xingu River^{4,5}; and the development of mechanisms, technologies, and social strategies to prevent and mitigate deforestation⁶.

However, the historical deficit of investment in Research & Development in the Amazon poses challenges related to funding, as well as to the training and retention of local researchers. A targeted approach is needed to reduce this gap and to strengthen research institutions in the region, both academic and those led by Indigenous, Quilombola, and Traditional peoples.

Moreover, collaborative partnerships and new mechanisms and parameters for research funding are essential to enabling impactful solutions for the Brazilian Amazon. This includes fostering innovative environments, research networks, incubators, technology hubs, and the integration of national and international efforts. Current parameters used to allocate research funding, such as current indicators and recognition systems, do not account for research of this nature and must be revised.

GENERAL RECOMMENDATIONS

- Establish international cooperation agreements between institutions in Amazonian countries and those in the Global North.
- Encourage international actors to become familiar with projects that are either already funded or have funding potential, to promote engagement based on a respectful, in-depth understanding, fostering scientific, cultural, and political awareness.
- Consolidate mechanisms that ensure plural dialogue and the inclusion of Indigenous, Quilombola, and Traditional knowledge systems, and encourage international actors to fund projects that incorporate such knowledge.
- Promote new perspectives on collaborative and innovative funding mechanisms that ensure equity, participatory monitoring, and knowledge exchange.
- Restructure scientific recognition and resource distribution systems, especially those used as indicators of excellence and prestige and applied in evaluations for academic positions and research funding, such as co-authorships, academic indexes, citations, and patents, so that the effective intellectual contributions of researchers from Indigenous, Quilombola, and Traditional populations are properly recognized.
- Expand or facilitate access to technologies that can strengthen the conceptual foundations of the Good Living perspective.
- Respect the knowledge of Indigenous, Quilombola, and Traditional peoples, ranging from genetic heritage associated with traditional knowledge, to the patrimonialization⁷ of tangible and intangible knowledge, and the conservation of seeds in gene banks as fundamental actions to prevent the appropriation and misuse of the collective knowledge of ancestral peoples.
- Urgently implement a range of necessary measures to halt the loss of the Amazon rainforest.

- Confront the major actors responsible for large-scale deforestation and forest degradation in the Amazon, with the commitment of all countries to reducing fossil fuel use and advancing the energy transition.

SPECIFIC RECOMMENDATIONS

- Innovate in the strategy and evaluation criteria of funding agency calls by incorporating new demands, both from a scientific standpoint (recognizing the plurality of science) and from an operational standpoint (developing payment mechanisms that allow transfers to researchers outside academia). We also suggest that, in the case of international calls focused on Amazonian countries, deadlines should be flexible and appropriate, and recognition indexes and evaluation of expected results and outputs should go beyond academic publications and the English language.
- Promote the visibility of plural research outcomes, especially by highlighting the knowledge of Indigenous Peoples, Quilombola communities, and Traditional Populations within collaborative partnerships.
- Encourage the production of project outputs in multiple languages to expand access to and impact of results, including translation into Indigenous languages and avoiding the devaluation of local languages.
- Expand investment in advanced education for Indigenous Peoples (master's, doctoral, and postdoctoral levels) and create mechanisms to ensure the retention of these professionals in the Amazon, especially in the interior regions of the states and within Indigenous, Quilombola, and Traditional territories.
- Promote the training and valorization of Indigenous, Quilombola, and Traditional Population human resources, respecting the demands identified by these groups and expanding opportunities for education, technical training, access to scholarships, and incentives for community leaders, women, and youth.

- Flexibilize and simplify administrative requirements related to funding allocated to local community monitors, researchers, leaders, elders, youth, and women, such as grants and financial support. Develop support plans through calls for proposals that do not overburden communities with administrative demands.
- Promote understanding and adaptation by funding agencies to the “Amazon factor⁸” (including bureaucracy, the difficulty of justifying high costs for accessing remote areas, long travel times, and the need to establish cultural ties) stemming from local idiosyncrasies.
- Develop funding mechanisms directed toward Indigenous, Quilombola, and Traditional Population organizations, preferably through direct channels.
- Promote specialized innovation environments and collaborative research networks, connecting science and technology institutions with community organizations to accelerate the development and dissemination of solutions to Amazonian challenges.

including material and immaterial goods tied to the identity, memory, and traditions of communities.

- ⁸Amazon factor refers to the unique logistical, administrative, and cultural challenges that affect research and project implementation in the Amazon region, including long distances, high transportation costs, bureaucratic constraints, and the need to establish culturally respectful relationships.

TRANSLATION NOTES

- ¹Good Living: is the chosen translation for *bem viver*, a Latin American concept rooted in Indigenous and Andean worldviews (*buen vivir*). It refers to collective, sustainable, and harmonious ways of life in balance with nature, where individual well-being is inseparable from the well-being of the community and the environment. The term is widely used by scholars and international organizations in academic and political contexts. It has been preserved in English to reflect its cultural, philosophical, and territorial specificity, and should not be confused with more general expressions such as well-being or living well.
- ⁷Patrimonialization is used here as a direct translation of *patrimonialização*, a term commonly used in Portuguese to refer to the legal, cultural, and institutional recognition of knowledge, practices, and expressions as cultural heritage, both tangible and intangible. It encompasses protection and legitimization of collective knowledge and cultural assets,

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