



Recognising and valuing the cultural significance of biodiversity in coastal marine territories through plural knowledges systems: Advancing the mission of the intercultural university of the peoples

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ABSTRACT

Contemporary societies are rich in social, cultural, epistemological, and biophysical diversity, occupying territories that call for recognition and a voice. This recognition is crucial for understanding the social, cultural, and political factors that drive environmental degradation and exacerbate climate change impacts. The Intercultural University of Peoples (IUP) is in the process of being established in Brazil to address this need, leading to the development of the action research project "Promoting the Cultural Value of Biodiversity and Sustainability in Coastal Marine Territories". This project emphasises the value of socio-biodiversity through local knowledges, especially that of traditional communities. Our goal is to develop tailored policies and programmes that support sustainability, health, and the rights of traditional communities, while aligning with IUP's mission. A key part of our approach is fostering a participatory ethos in coastal communities to drive sociobiodiversity conservation and climate action. Through this initiative, we aim to contribute to sustainable development grounded in the values and knowledges of local populations and to further the mission of IUP.

Social impact

The Brazilian territory boasts extensive coastlines and diverse marine ecosystems, which are interconnected with the land, including coral reefs, mangroves, and estuaries. Despite their recognised importance in terms of knowledges and conservation, coastal areas face significant environmental natural and human-induced ecological threats, such as habitat degradation, pollution, overfishing, and the effects of climate change [1], as well as the appropriation and destruction of various elements of nature, such as forests, waters, fauna and flora, the increasing

installation of industrial infrastructure, real estate speculation, privatisation of beaches, among others, which characterise the structural changes in the occupation and use of territories that we are witnessing and which are destroying the existing balances. In addition, these regions are home to various traditional and Indigenous peoples with significant cultural heritage and strong ties to the coastal marine environment, relying on its resources for their livelihoods, including fishing and tourism [2]. Traditionally, efforts to conserve biodiversity have focused primarily on saving species and ecosystems, with little regard for the socio-cultural elements of biodiversity, known as

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sociobiodiversity, and their inherent cultural value [3]. Sociobiodiversity refers to the complex interactions between human societies and the biodiversity of ecosystems, including traditional knowledges systems, cultural practices, and social structures [4]. One of the significant difficulties of ignoring sociobiodiversity and its cultural significance is the potential loss of traditional ecological knowledges and Indigenous wisdom, which have long served as effective resource management and conservation measures [5]. Another difficulty is the failure to recognise and integrate sociobiodiversity considerations into conservation policies and practices [6]. Many conservation programmes focus on scientific approaches, overlooking the need to engage local communities and incorporate their expertise and perspectives. This exclusionary strategy can lead to conflicts between conservation objectives and the rights and interests of local people, reducing the effectiveness and sustainability of conservation efforts. Therefore, maintaining socio-cultural heritage and Indigenous knowledges of coastal marine biodiversity is critical for sustainable resource management and biodiversity conservation [7]. However, current development and governance models often marginalise these perspectives, leading to biodiversity loss and weakened socio-cultural resilience [8]. Integrating multiple perspectives, such as traditional ecological knowledge and academic research, can enhance understanding and governance of coastal marine ecosystems while empowering local communities.

The project, entitled "Promoting the Cultural Value of Biodiversity and Sustainability in Coastal Marine Territories: Valuing Plural Knowledge and Practice through the Intercultural University of Peoples", integrated as an associated project led by the Centre for Functional Ecology of the University of Coimbra, Portugal, of the Marangatu Network, led by the Observatory of Sustainable and Healthy Territories of Bocaina (OTSS), a collaborative initiative between FIOCRUZ and local traditional communities, has played a key role in fostering participatory knowledge production and strengthening community-based sustainability. This focus aligns directly with the mission of the Intercultural University of Peoples (IUP), which promotes a holistic vision of the world and life. The IUP is an ongoing initiative currently being implemented, aiming to create an educational platform that fosters knowledge plurality and sustainability. By highlighting the epistemological, socio-cultural and ecological diversity that characterises the territories, the process of co-creating the basis of the IUP converges in promoting conservation strategies and participatory public policies tailored to the specificities of the territories of the Southeast region of Brazil. This link highlights the importance of integrating different forms of knowledge to achieve sustainability based on the plurality of life forms and equity. This project begins by acknowledging the diversity of knowledge that shapes cosmovisions [9], practices, and experiences, aiming to empower the Indigenous and traditional cultures of the Bocaina region in Brazil. The goal is to establish the foundations of the IUP, grounded in democratic principles and dedicated to preserving the tangible and intangible aspects of local cultures. Through this foundation, we aim to promote sustainability and health, supporting emancipatory living in resilient territories. Our approach is systematically structured around four key pillars: collective health, political ecology, critical and emancipatory education, and plural epistemologies alongside lay rationalities [9]. The direct benefits of the project include the preservation of coastal biodiversity, the strengthening of traditional communities and the creation of sustainable management strategies based on Indigenous and traditional knowledges. Indirectly, the project contributes to more inclusive public policies and the recognition of epistemological diversity in environmental conservation.

Methodology

The methodology for establishing the basis of the IUP is available in the full report authored by Alves [10]. It is structured into three distinct phases, each designed to ensure participatory engagement and the inclusion of the diverse perspectives that exist in the territory:

- i. In the first phase (September 2023–March 2024), relevant experiences from other universities and intercultural projects were collected and analysed to serve as references for the structure of the IUP. At the same time, a working group was formed to develop the basis for the creation of the IUP. This group defined the team's functioning, the organisational structure of the IUP, and an activity plan to guide the project. An important outcome was planning the International Seminar "Interconnections in the 21st Century," designed to promote dialogue between community members, local organisations, and academia on common issues.
- ii. The second phase (February 2024 to October 2024) focused on co-creating the foundations of the IUP, starting with the territories of Bocaina and Serra do Mar in Brazil and extending to Serra da Malcata in Portugal. Over a period of seven months, this phase involved extensive meetings with members of various institutions and representatives from different communities (Quilombola, Caiçara, and Indigenous) in different municipalities of the territory, through the members of the Forum das Comunidades Tradicionais, who were integrated into the aforementioned working group. These co-creation meetings facilitated discussions around the initial document, enabling participants to refine the University's guidelines.
- iii. The third phase (October 2024 to present) is ongoing and relates to establishing the future path. This phase aimed to scale up the co-creation process to other levels (regional, national, and international) through the organisation of a dedicated Workshop for the IUP. An essential component of the IUP's methodology is ensuring that Indigenous knowledges holders play a central role in the design and implementation of educational programmes. This includes co-teaching strategies, oral knowledge transmission, and collaborative curriculum development.

Defining the basic guidelines of the IUP is crucial to align its vision, mission, and goals with the needs of the communities and territories it serves. The IUP's vision focuses on promoting intercultural dialogue, valuing ancestral knowledge, and promoting socio-environmental sustainability. Strategic partnerships with academic institutions, NGOs, and local communities will be crucial for knowledge exchange and collaborative projects. A monitoring and evaluation system will be established to adapt the structure and practices of the IUP in response to community feedback.

Results and implications

The co-production sessions involved a diverse range of community representatives and organisations, whose collective insights were instrumental in shaping the founding document of the IUP. IUP's vision of serving as a bridge between diverse territories and peoples emphasises the importance of reconciling ancestral and contemporary knowledge. This quest for sustainability and equity is reflected in the university's mission to create a dynamic learning environment that values cultural diversity and promotes critical pedagogy. This includes recognising and valuing the socio-cultural knowledge and diversity of local communities, including their invaluable insights into ecosystems, biodiversity and sustainable practices. Such collaborative processes enhance the appreciation and recognition of the cultural significance of coastal zones, contributing to a more holistic view of sociobiodiversity.

The principles outlined in the foundational document—mutual respect, sustainability, community engagement, and innovation—serve as essential guidelines for the University's operations. The University sets a standard for ethical conduct that reflects its values, including empathy, justice and integrity. These guiding principles are crucial to fostering a culture of collaboration and inclusivity, ensuring that all stakeholders, particularly marginalised voices, are actively engaged in the educational process. This approach enriches the learning experience and fosters a sense of belonging and ownership among participants.

The establishment of the basis of IUP represents a transformative approach to education that transcends traditional models, emphasises emancipatory and differentiated education, and seeks to challenge normative pedagogical practices and develop innovative learning strategies that respond to the unique characteristics of each territory. This commitment to a holistic and interdependent understanding of education by integrating cultural, ecological, and social dimensions has the potential to foster more resilient and adaptive communities. As the University moves forward, an emphasis on collaboration, respect for diversity, and community engagement will be critical to ensuring that its educational initiatives are relevant and transformative. Another expected impact is the registration and dissemination of traditional knowledges, ensuring that these valuable insights are preserved and shared for future generations. This strengthens the link between communities and nature, offering a unique perspective on biodiversity from the viewpoints of society, science, and decision-makers.

During this period, an important outcome was the organisation of a series of international seminars "Interconnections in the 21st Century"⁶; dedicated to the articulation of knowledge and the foundation of the IUP, promoting a transdisciplinary approach that brought together members of local communities, representatives of organisations, and academics from diverse fields in both Brazil and Portugal, with the following topics discussed: "Education and Cultural and Ecological Diversities", "Methodological Decolonisation, Ethics, and Integrity in Research II", "In Search of Land and Recognition in the 21st Century", "Health, Suffering, and Sustainability", "Methodological Decolonisation, Ethics, and Integrity in Research" and "Social Inequalities, Interculturalities and Environmental Diversity". In these gatherings, the articulation of knowledge was achieved through a diverse composition of participants, enabling an authentic exchange between cultural, ecological, and institutional perspectives and experiences. This convergence of knowledge between Brazil and Portugal highlights the importance of genuinely intercultural education and a science committed to the plural realities of people and territories, underscoring the significance of transnational and transdisciplinary collaboration.

Building on the foundation laid by the IUP initiative, several research projects have been developed and approved. They are actively advancing the University's mission. A key example is the "Marangatu - Citizen Science Network for Territorial Governance and Promotion of Policies for the Preservation and Valorisation of Coastal Marine Sociobiodiversity", approved by CNPq (Brazil). This project will play a central role in shaping the IUP by demonstrating how community engagement and ecological governance can be integrated into a continuous dialogue. Marangatu is a practical model of shared governance and territorial management, showing a way forward for the development of the IUP in line with the principles of pluriversality. The Marangatu project recognises and values the socio-cultural diversity of coastal communities, using interdisciplinary and participatory approaches that emphasise traditional and Indigenous knowledge. The project aims to co-create conservation strategies tailored to local territories. Integrating diverse knowledges along with cultural and biophysical specificities is essential for achieving equitable territorial governance and strengthening the bond between communities and nature.

In summary, the contributions of community members, combined with the unified vision, mission, principles, values and goals, form a solid foundation for the IUP. This collaborative and inclusive approach is crucial for developing sustainable, equitable, and culturally rich educational practices that cater to the diverse needs of communities. Embracing intercultural dialogue and cooperation allows the university to play a meaningful role in shaping a more just, empathetic and sustainable future.

⁶ Detailed information about the seminars mentioned, including topics, participants, and recordings, is available at: <https://www.facebook.com/SESrg.CFE>.

Contributions

All authors contributed critically to the drafts and gave final approval for publication. The authors' order reflects the contribution level to this paper.

CRediT authorship contribution statement

Fátima Alves: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Diogo Guedes Vidal:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Methodology, Investigation, Formal analysis. **Rosário Rosa:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization. **Helena Freitas:** Writing – review & editing, Visualization, Validation. **Hermano Castro:** Writing – review & editing, Visualization, Validation, Supervision, Conceptualization.

Ethics Statements

The Authors have read and follow the ethical requirements for publication in *Societal Impacts* and confirm that the current work does not involve human subjects, animal experiments, or any data collected from social media platforms.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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