### Biocultural innovation in the Colombian Pacific Coast: Limits and potentialities for autonomous well-being

Innovación biocultural en la costa pacífica colombiana: límites y potencialidades para un bienestar autónomo

#### Juan David Reina-Rozo<sup>ab</sup>

ABSTRACT	RESUMEN
Biocultural approaches have consolidated as a hybrid study area and advocacy from academia and social move- ments. Within this conceptual framework, biocultural innovation emerges as <i>new ways of doing things</i> based on diverse knowledge production (including the traditional), created landscapes, cultural and spiritual values, and cus- tomary norms. These processes translate into new knowl- edge, resources, capacities, and practices applied in the relationship with a territory. This paper aims to explore the possibilities of Biocultural Innovation (BI) in com- munities living in rural coastal environments, particularly on the Colombian Pacific Coast. To this end, we propose four community opportunities related to the biocultural paradigm: (a) community biocultural protocols; (b) nature seen as the subject of rights; (c) communal innovation practices created by grassroots communities; and (d) col- lective repositories of local knowledge. In conclusion, BI is an emerging research topic by communities and academia as a process to safeguard and foster their knowledge and culture intrinsically related to biodiversity toward autono- mous well-being	Los enfoques bioculturales se han consolidado como un área híbrida de estudio y promoción desde la academia y los movimientos sociales. Dentro de este marco concep- tual, la innovación biocultural surge como <i>nuevas formas</i> <i>de hacer las cosas</i> basadas en diversos modos de producción de conocimiento (incluido el conocimiento tradicional), paisajes creados, valores culturales y espirituales, y normas consuetudinarias. Estos procesos se traducen en nuevos conocimientos, recursos, capacidades y prácticas aplicadas en la relación con un territorio. Este trabajo pretende ex- plorar las posibilidades de la Innovación Biocultural (IB) en las comunidades que habitan los ambientes rurales costeros, particularmente en la costa pacífica colombiana. Para ello, se proponen cuatro oportunidades comunitarias basadas en el paradigma biocultural: 1) protocolos biocul- turales comunitarios; 2) la naturaleza vista como sujeto de derechos; 3) prácticas de innovación comunal creadas por las comunidades de base, y 4) repositorios colectivos de conocimiento local. En conclusión, la IB ha sido materia de investigación emergente por parte de las comunidades y la academia como un proceso para salvaguardar y fo- mentar sus conocimientos y cultura, intrínsecamente rela-
<b>KEYWORDS</b> : rurality; coastal communities, traditional/ ancestral knowledge; biocultural heritage.	cionados con la biodiversidad hacia el bienestar autónomo. PALABRAS CLAVE: ruralidad; comunidades costeras, co- nocimiento tradicional/ancestral; patrimonio biocultural.

a Universidad Nacional de Colombia. Bogotá, Colombia. ORCID Reina-Rozo, J. D.: 0000-0001-8146-674X

b Autor de correspondencia: jdreinar@unal.edu.co

Recepción: 24 de marzo de 2022. Aceptación: 13 de noviembre de 2022.

#### Introduction

Innovation has become a result pursued by private and public organizations, especially universities. We are in an era of questioning the hegemonic development model. The debate over its tools, such as technology and innovation, is necessary. Indeed, the latter is the one that has sparked the most debate due to its close linkage with development. As such, some authors claim that we are in the age of the cult of innovation (Leary, 2019a, 2019b). Therefore, this article is drawn from recent debates on the decolonization of innovation, the re-communalization, and the creation of alternatives to development from traditional territories (Kalema, 2019; Jiménez & Roberts, 2019; Jiménez et al., 2022; Maldonado-Villalpando et al., 2022). Hence, the following question can be posed: can conventional innovation be decolonized and generate viable, feasible, and plural alternatives from rural communities to the dominant technological and development model?

Innovation has consolidated as a powerful narrative at the academic, economic, and governmental levels. However, even this concept is often associated with the conventional development paradigm, including unconstrained economic growth in a finite world and the globalization of people, knowledge, and power, which community organizations need to question. So, it is essential to focus on the biocultural approach: the interrelationships between humans and ecosystems, abandoning anthropocentrism and moving towards biocentrism. In a world of social, environmental, and climatic crises, it is a priority to rethink innovation from a post-development or post-growth perspective in conjunction with community and rural processes. Understanding Biocultural Innovation (BI) processes at the community level is the first step to finding their potential and challenges.

Especially in science and technology sphere, research has contributed to strengthening the hegemonic narratives around development or progress. Hand in hand with its positivist past and present, engineering has been a cornerstone of this economic and social model, linking technology and innovation as elements for infinite economic growth as advocated in the seminal works of Schumpeter (1934). However, in the last decade, alternative and critical currents have emerged concerning the place of technology and innovation in the genesis of fair and sustainable futures (Maldonado-Villalpando & Paneque-Gálvez, 2022; Peña-Torres & Reina-Rozo, 2022). In this sense, new questions arise around the implications of research in discussions on environment and development, particularly from economics, environmental and rural studies, and human and political sciences. Nevertheless, from the basic and applied sciences, reflection and action are still restricted when questioning the Western development template and its social, cultural, and environmental implications (Reina-Rozo et al., 2019). Accordingly, the central question of this research is: how does biocultural heritage support innovation processes in rural territories, particularly in the Colombian Pacific Coast?

This text presents six sections, the first of which addresses the problem of the erosion of community innovation ecosystems based on biological and cultural heritage in territories where development actions (large infrastructure projects, monocultures, or deforestation) have generated consequences for people and nature. The second section reflects on the concept of innovation concept through the lens of the biocultural perspective. The following section describes four biocultural innovations identified in the geographical and historical context of the Colombian Pacific Coast. The four section discusses the potentials and limits of the biocultural framework toward sustainability in the territory. Finally, the last section offers concluding remarks and future actions.

## Erosion of community-based innovation ecosystems

From plants to fungi, mammals to insects, biodiversity is eroding 100 to 1000 times faster than a century ago (De Vos et al., 2014). In addition, more and more indigenous and local cultures represented in a diversity of knowledge and languages are vanishing (United Nations, 2002). Biological and cultural diversity, intrinsically linked, are thus threatened, especially in rural areas. In these contexts, interdependent relationships exist between local cultures and ecosystems (Poole, 2018), particularly in agricultural landscapes and the sea. In this framework, the objectives of the biocultural approach focus on heritage and legacies related to cultures, languages, and ecosystems (Maffi, 2005; Pretty et al., 2009).

This biocultural memory is an interconnected space where the well-being of diverse societies and ecosystems converge (Sterling et al., 2017; Toledo & Barrera, 2008), as well as the potential to cement balanced futures in territories beyond the human/ nature dichotomy (Caillon et al., 2017). Hence, rurality is a research space on biological, cultural, and linguistic diversity, especially in mountain and other areas, but with greater complexity in coastal zones. These address challenges in the face of the hegemonic development vision and the erosion of ecosystems and communities. The modern worldview is based on the ontology of separation, which splits the human from the non-human (nature culture), subordinating the latter to the former (Escobar, 2017). According to the above, the central hypothesis of this study lies in biocultural heritage as a platform for innovation processes located in territories linked to diverse traditional/ancestral knowledge, values, landscapes, and norms. The latter provides a novel perspective to address the challenges and potentialities of rural areas.

Thus, to support innovation processes in the territories, it will be necessary to transform the epistemological bases of the socio-technical paradigm (Reina-Rozo, 2021) that considers the relationships between the dimensions of the production process of artifacts and services and the socio-cultural use of technology. Therefore, communal innovation is proposed as an approach to socio-technical change that fosters the conditions for responsible and fair innovation within rural and urban communities (Reina-Rozo, 2019). The latter contributes to the discussion of alternatives to development based on experiences and reflections of rural communities.

#### Innovation in the biocultural perspective

The biocultural approach has been nurtured by biocultural diversity and biocultural heritage. The former describes the dynamic and interdependent complex of relationships linking human populations, ecosystems, non-human species, and their environments. First proposed in the 1990s, it has been increasingly used in development policy and practice circles (Turner et al., 2016). In more detail, Díaz et al. (2015, p. 12) define this diversity as "the total variety exhibited by the world's natural and cultural systems, explicitly considering the idea that culture and nature constitute each other". Biocultural diversity, therefore, denotes three levels; first, the diversity of human life, which includes cultures and languages. Second, the links between human culture and biodiversity, and finally, the bonds developed over time through mutual adaptation and possibly co-evolution.

Biocultural diversity studies as a transdisciplinary field trace their theoretical and conceptual roots in ethnobiology, ethnoecology, conservation biology, and linguistic anthropology. It has subsequently expanded via collaboration between indigenous peoples and research groups (Díaz et al., 2015). In this context, Maffi (2005) points to the links between the world's biological, cultural, and linguistic diversity as manifestations of the diversity of life. Maffi's work highlights the critical literature on biocultural diversity, focusing on three aspects: (a) global and regional studies; (b) measurement and assessment of biocultural diversity; and (c) protection and maintenance of biocultural diversity. In addition, Maffi and Woodley (2010) analyzed a diverse set of biocultural conservation projects to provide insight into sustainability.

As for biocultural heritage, "a holistic concept, in which knowledge, biological diversity, landscapes, and culture are interconnected and interdependent" has been deemed (Swiderska, 2013, p. 13). It also draws more attention to the nature of culture and human-environment interactions (Turner et al., 2016). As a layered system of interacting parts focused on the connection between local communities and their environment, its elements encompass biological factors, from the landscape to the genetic level, and ancient practices and knowledge intertwined with environmental conservation (Swiderska et al., 2022). Another core concept is biocultural memory, integrating biophysical and metaphysical knowledge across oral traditions. This memory strives to diversify traditional systems adopting

plant and animal species (Toledo & Barrera, 2008), a concept mainly used in the Latin American context, particularly regarding agriculture and wildlife. Based on Nemogá (2016), some research challenges are defined from the standpoint of biocultural heritage, including the following:

- § The institutional and legal framework around an adequate and effective guarantee of participation involving other times and resources.
- § The stress on inventories and surveying of knowledge on biodiversity, concentrating this knowledge of biodiversity as natural capital from an instrumentalist perspective.
- § Local communities are seen as data providers; from this angle, they have been treated as a "repository" of relevant data. In this context, ethical purposes and lessons learned should be considered essential because they serve as the context that generates knowledge.
- § Omission in the Science, Technology, and Innovation System since current programs (e. g. Scienti-Colombia) promote research individualization, excluding the reality of knowledge methods of local communities, as the evaluation of science is based on quantitative indicators of individual production.

According to Dutfield (2014), given the values of local communities and their different lifestyles and livelihoods based on social and cultural relationships with their territories, innovation must be understood differently from the deep literature on innovation linked to economic growth. In consequence, innovation is universal but very diverse in its place-based dynamics, "local communities and indigenous peoples are not just knowledge holders: they are innovators" (Dutfield, 2014, p. 6). In this case, traditional and local expertise are intrinsically blended with community-based innovations (Bajaj et al., 2009). However, cultural and practical tensions arise from the interrelationships between innovation and the traditional and dynamic wisdom context (Ferreiro et al., 2019). Meanwhile, Dutfield offers a first draft to reexamine the concept of innovation in place-based settings "consisting of combining different elements (pieces of knowledge, new and old ideas, customary

practices, different techniques, materials or biological artifacts, etc." (2014, p. 4). Swiderska, based on the above, offers the definition of BI related to biocultural heritage innovation:

New knowledge, resources, skills, and practices, or new combinations thereof, that serve to (a) strengthen and sustain agrobiodiversity, particularly local seed systems, livelihoods, and the material and spiritual wellbeing of communities; and (b) adapt to and mitigate the risks of global impacts, especially those of climate change. They are practical, sustainable, and relevant locally and globally. (2013, p. 13)

Biocultural Innovations (BI) are based on a biocultural heritage/memory of a community but may incorporate external elements such as scientific knowledge. As such, biocultural innovations are continuous, adaptive, open, gender-sensitive, and dynamic, integrating people and nature's creativity. According to the Asociación Andes (2016, p. 14), biocultural heritage innovations are:

- § Developed using a higher proportion of traditional knowledge than external knowledge.
- § Holistic i. e. they provide multiple benefits for people and biocultural systems.
- § Policy-relevant providing new models based on customary law and biocultural heritage.
- § Strengthening indigenous peoples' rights and governance over biocultural patrimony.
- § Significant making a meaningful difference to livelihoods and biological health. New to the local area, but not necessarily unique in the world.
- § Making people proud of their biocultural heritage.
- § Responding to the effects of climate change but also addressing other socio-economic needs.
- § Benefiting several people and are scalable.

# Towards biocultural forms of innovation in the Colombian Pacific

Given the growing interest of the academia and international and community organizations in rural dynamics in the well-being of the groups who inhabit these territories and the ecosystems, the biocultural approach emerges as a conceptual and theoretical framework. It can help to bridge the gap between grassroots communities and other organizations based on the society-nature relationship. Therefore, traditional/ancestral knowledge is dynamic, complex, and integrated with the standardized understanding of scientific research institutions.

It is crucial to inform through case studies on the biocultural perspective, in particular, complementing the biocultural innovation concept with examples of rural communities in coastal ecosystems involved in mariculture activities. In this course, technologies and social processes developed by diverse coastal communities in the Americas have been found and provide new inputs to rethink innovation from a marine ontology: the society-ocean relationship (Animoto, 2019).

These spaces of new ways of working have the potential to make visible cultural processes related to the traditional knowledge and biodiversity of coastal communities, as well as their seascapes, values, and norms. Beyond the assumptions of development and poverty in this region is a vital element to frame another analysis, especially from the difference in the territory's interior (Escobar, 2010). Indeed, the latter becomes key to analyzing collective action from the biocultural diversity of the Pacific coast, rewriting the concept that came from some ethnic-territorial organizations in the 1990s: the Pacific as a Territory of Life, Joy, Hope, and Freedom (Escobar, 2017; Márquez Mina, 2020).

The Colombian Pacific region is a strip of coastline made up of 34 municipalities in the departments of Nariño, Cauca, Valle, and Chocó. Located in the west, it is bordered to the north by Panama and south by Ecuador. It is part of the biogeographic Chocó and divided into two large zones marked by Cape Corrientes. About 1.5 million people live in this territory, mainly Afro-Colombian and indigenous communities (Hoffmann, 2007). With a territorial management level, this region includes indigenous reserves, Afro-Colombian community councils, and several national natural parks. Up to 2019, six million hectares have been registered and assigned to Afro-Colombian Community Councils (ACC), corresponding to 80% of the Pacific region. This action began in 1996, with the first ACC in the Atrato River, in the department of Chocó via

Law 70 of 1993, a specific law focused on the ethnic rights of the African diaspora in Colombia.

It is a region with immense ecological, hydrographic, mining, forestry, and cultural complexity, considered one of the regions with the most accentuated biodiversity and rainfall on the planet (Mogollón Díaz & Otero Díaz, 2004). The coastline has an enormous variety of fauna and flora associated with mangrove ecosystems, coral reefs, coastal lagoons, rocky coasts, and beaches. However, the idea that imagines Colombia's Pacific region as biodiverse is recent, given that its origins date back to the early 1990s (Restrepo, 2013). Therefore, the biocultural lens needs to be more relational toward a deep understanding of the web of actors and motivations. Restrepo (2013, p. 77) clarifies to be cautious of narratives "of a proverbial genetic richness or aestheticizing readings of the rainforest embodied in ecotourism packages."

In this context, the economy of the Pacific region is based on industrial fishing, mariculture, forest extraction for national and international markets, industrial gold and platinum mining, cattle ranching, and agriculture (Viloria de la Hoz, 2008). Since 1950, government plans have been implemented, such as the Pladeicop in 1980, the Pacific Plan in 1990, the Tribugá Seaport project stopped by the community in 2020, and the Buenaventura 2050 Master Plan. All have emerged from the ontology and narrative of "development", which today continues to shape the region's imaginary, culture, and ecosystems. Escobar (2017, p. 60) argues that "all have had questionable results in terms of the wellbeing of communities and the environment".

As emphasized by Nemogá (2016), there are challenges in research on the biocultural paradigm. In this case, we suggest four ways to overcome the difficulties based on the biological and cultural diversity of the communities located mainly on the Colombian Pacific coast: First, the biocultural protocols as a mechanism to control the biological elements and their use associated with the communities; second, nature, as a subject of rights according to new standards is protected by legislation, national law grants rights to safeguard rivers, mountains, and territories; third, communal practices and artifacts created by grassroots communities or ethnic-territorial movements to transform the relationship with their environment; and, fourth, the collective repositories of local knowledge, which are evidence of the documentation of knowledge associated with food from the garden, the forest, and the sea.

#### Biocultural protocols in the San Juan Community Council

Since the second decade of the 20th century, communities have formalized various tools and mechanisms to protect and control the biocultural dimensions of life (Köhler-Rollefson, 2010). Biocultural protocols (BCPs) are defined as "charters of rules and responsibilities in which communities set out their customary rights, values and worldviews about biocultural and natural resources and land recognized in customary, national and international law" (International Institute for Environment and Development, IIED, 2012, p. 11). One of the main elements of BCPs is free, prior, and informed consent, which serves as a gateway of protection to safeguard community-driven biodiversity, rights, and culture.

Communities worldwide are creating biocultural protocols, particularly in the Global South context, from Colombia to Cameroon to China (IIED, 2012). The NGO Natural Justice created a toolkit to support rural communities facing external threats and emerging opportunities that generate community responses. In this case, endogenous well-being, multi-stakeholder partnerships, legal empowerment, social advocacy, and promotion are the main dimensions of the tool (Shrumm & Jonas, 2012). Thus, the importance of participatory processes at the community level in the creation of community protocols is highlighted. Meanwhile, the literature explores the dangers of using these tools in a topdown mechanistic manner (IIED, 2012). In this context on the Pacific coast, an initiative is found, particularly in the San Juan Community Council, located in the department of Chocó, which generates its biocultural protocol, especially on gold mining (Consejo Comunitario Mayor del Alto San Juan, 2012; López & Mosquera, 2012).

#### The Atrato River as a subject of rights

The movement for nature's rights has increased interest and incidence since the last half of the 20th century. It creates a new framework around biocultural rights, particularly for landscapes and ecosystems (Castañeda et al., 2019). In Colombia, the recognition of the rights of nature has materialized through Ruling T-622 of 2016, which opened the way to the acknowledgment of the Atrato River (Vargas-Chaves et al., 2020). It declares the Atrato River, its basin, and its tributaries as an entity subject to rights to protection, conservation, maintenance, and restoration by the State and ethnic communities.

But it also creates a new scenario that questions the effectiveness of these recent legal decisions that affect the political, cultural, and economic part of the social sectors inhabiting the places they are acting in (García & Hinestroza, 2020). In the academic literature, nature's rights are a reflection point. In this case, Mesa (2019) compares different cases worldwide to understand their implications through five rivers subject to rights: the Whanganui River in New Zealand, the Vilcabamba in Peru, the Ganges and Yamuna in India, and the Atrato River in Colombia.

# Communal innovation practices created by grassroots communities

Community practices that link biological and cultural dimensions are becoming visible, particularly under the interest in community-led grassroots innovation (Maldonado-Villalpando & Paneque-Gálvez, 2022). This framework has emerged as a response to the dominant innovaton narrative, focused on profit and patents (Reina-Rozo, 2019). Thus, rural practices and artifacts are now elements of research and consultancy by academia, NGOs, and governments. On the Pacific coast, Afro-Colombian communities have created new ways of making things autonomously or jointly with other actors toward self-governing well-being called "vivir sabroso" (Quinceno, 2016).

The *piangüimetro* is a tool developed by coastal communities and research institutions as a collaborative innovation to control the size of piangua (Anadara tuberculosa) in the artisanal fishing process (Instituto de Investigaciones Marinas y Costeras Invemar, 2010). This artifact supports the activity of fisherwomen in the coastal territories of Valle del Cauca and Cauca. So, it exemplifies how people generate diverse options for territorial challenges in the context of biodiversity erosion by the human economic system. Another case is the community fisheries monitoring method performed by peoples of Nuquí (Chocó) called payaos (Satizábal & Dressler, 2019), who, since the first decade of the 21st century, controlled and analyzed the information collected by fishermen. The latter enhances community relations with biodiversity (piangua and Fishes) on the coast and between communities as a process of knowledge production offering inputs to generate public policy agreements between the State and rural actors.

#### Collective repositories of local knowledge

Scientific knowledge has been contested space for academics and experts. Science and technology are elements created only by an elite and are vital responses to new findings. Knowledge repositories are often libraries and databases controlled by institutions and transnationals. In this context, community-generated local repositories are beginning to preserve traditional/ancestral wisdom and its corresponding place-based status. One of the first examples is the Amazonian Pirá Paraná book El territorio de los jaguares de Yurupari: Hee yaia godo-bakari, which addresses traditional knowledge of the ethnic groups of the Pirá Paraná River for caring the environment and the territory (Asociación de Capitanes y Autoridades Indígenas del Río Pirá Paraná, 2012).

Other publications are emerging on the Pacific coast, particularly around gastronomy as a biocultural area of expertise and daily creation representing the relationships between Afro-Colombian communities and their forest and sea. Some publications are the books of the Chiyangua Foundation on the gastronomy of Guapi. In particular, the *Antología culinaria Guapi y Timbiquí* (Fundación Leo Espinosa Funleo, 2015), Sabor a Pacífico, sabor a memoria (Servicio Nacional de Aprendizaje SENA, 2013), and Saberes y sabores del Pacífico colombiano Guapi-Quibdó (MinCultura, 2015). These repositories document the know-how of food as a representation of biocultural systems. Therefore, there are challenges and threats in the publication of knowledge based on biocultural heritage, in special if it can lead to unauthorized use for commercial purposes or be culturally offensive by third parties.

In this particular scenario, in which the biocultural paradigm creates an action space anchored in the biological and cultural memory of communities, Escobar (2017, p. 52) adds that the Pacific can be seen "as an outpost for a transition towards life forms in which humans and Earth can finally coexist in a mutually enriching way. We must then open ourselves to the possibility of a true dialogue of worldviews/visions". In sum, biocultural change is a tool for relearning to live and build worlds differently on the coast located in western Colombia.

# Limits and potential of the biocultural innovation framework

The challenges associated with the concept of biocultural innovation refer mainly to rights, intellectual property, social factors, elite bias, replicability, globalized consumption, and knowledge asymmetry. First, the Asociación Andes identifies a key challenge related to rights because they are crucial elements for the resilience of the biocultural system. Specifically, those bonded to land and traditional knowledge are fundamental (Asociación Andes & IIED, 2013). Patenting is another puzzle; Dutfield (2014) states that it is based on a convenient fiction: this process breaks both the invention and the inventors into discrete units attributed to individuals and can be bought, sold, and licensed.

A central challenge with ecological, economic, and socio-cultural implications appears to be erasing meanings with an elite bias (unintentional or not) that can be incorporated and perpetuated through a project to create new regimes of access and exclusion (Turner et al., 2018). The concern raised through biocultural perspectives relates to the affections these changes may include on the continuity of biocultural heritage in the future. The globalization of resource production, the promotion of reliance on "improved" crop species and monocultures, habitat loss, and the removal of legal frameworks have challenged the conservation of local crops and other biocultural innovations.

Furthermore, we identified potentialities related to thriving in the academic, community, and policy arenas. Some include future production based on local epistemologies and ontologies, knowledge ecologies, global food security and sovereignty, local cultural values linked to shared spaces, and innovative institutions such as biocultural heritage territories (Swiderska & Argumedo, 2014; Swiderska et al., 2020). An open and social approach is emerging as a model for biocultural innovations. Different knowledge systems and traditions and alternative property rights regimes are potentialities. There are three main elements to consider in biocultural innovations from an open approach: (a) they are based on collaboration; (b) they aim to meet social needs; and (c) participation is voluntary. Hence, this emerging perspective could foster the idea of considering biocultural heritage as a shared good, keeping in mind that part of that knowledge (traditional medicine) may also be individually owned/transmitted and that communities and cultural institutions must protect it. The latter defies the notion of development based on the private ownership of resources, including knowledge.

#### **Final considerations**

Biocultural innovation is a framework for generating transformations built on the complex relationships of communities and ethnic-territorial movements with their land. Cautions with the broader narrative of the "richness" of the Pacific, in terms of biodiversity, especially around ecotourist packages (Restrepo, 2013), need to be extended. Around the productive activities that communities can shortly promote on biological and cultural diversity, related to the economic chapter regulation —Law 70 of 1993—, it is essential to create financing and leverage mechanisms that allow communities to develop productive activities in their territories. Márquez Mina (2020, p. 1) remarks on rethinking development through autonomy, proposing alternatives "that allow us to originate conditions of good living in the Colombian Pacific, which implies deconstructing the concept of poverty and development that is embedded in our minds and that all our lives we were led to believe". Therefore, biocultural innovation is a situated framework that encloses promotion and "advance programs from the peoples and communities who cohabit the Pacific, from the environmental, cultural, spiritual and social potentialities for enhancing a sustainable economy placed at the service and care of human life" (Márquez Mina, 2020, p. 1).

To conclude this reflection, we follow Escobar's words (2017, p. 53), who collaborates with social movements toward possible futures for the Pacific region: "from such an exercise, a vision of the Pacific as a special territory for life could emerge, a territory with the capacity to imagine new forms of existence for the region, the country, and humanity in general". In this background, related to the emergence of development alternatives for this region. Quinceno (2016) defines vivir sabroso (living nicely) as the practice of the social, spiritual, economic, political and cultural model of the global organization in harmony with the environment, nature, and the coexisting beings. Meanwhile, for Mena and Meneses (2019, p. 51), it is "nothing more than the art of resistance in defense of life and geographical territories". In conclusion, biocultural innovation is a novel concept that gathers the heritage of rural communities towards an emerging conception of well-being in a decolonization process of practices linked to the ontology of Anglo-European societies (Jiménez et al., 2022).

Escobar shares some elements for the transition toward Another Pacific is Possible grounded on the re-establishment of conditions for the continuous self-creation of life interposed in two strategies. First, "those that allow a transition to a world where many worlds fit". Second, "strategies for implementing community ways of life, based on their ancestrality but projected to the communities' future, in autonomy and freedom" (2017, p. 61). Finally, it is vital to deepen this research line on BI, especially around specific cases starring indigenous, Afro-diasporic, and peasant communities as inhabitants of ruralities.

Acknowledgments: The bilateral program to support doctoral training in peacebuilding, environment, and development in Colombia, between the National University of Colombia and the University of Bonn, funded this research in 2020.

**Conflicts of interest:** this research does not generate any conflict of interest.

#### References

- Animoto, K. 2019. Sea ontologies. In Pluriverse: A postdevelopment dictionary (1st ed.), pp. 299-301. Tulika Books. https://degrowth.org/2018/04/14/new-bookpluriverse-a-post-development-dictionary/
- Asociación Andes, International Institute for Environment and Development. 2013. Smallholder innovation for resilience (Sifor): Strengthening biocultural innovation systems for food security in the face of climate change (May), pp. 1-32. IIED.
- Asociación Andes. 2016. Resilient farming systems in times of uncertainty: Biocultural innovations in the Potato Park, Peru (Mar.), p. 72. International Institute for Environment and Development. http://pubs.iied. org/14663IIED
- Asociación de Capitanes y Autoridades Indígenas del Río Pirá Paraná. 2012. El territorio de los jaguares de Yurupari: Hee yaia godo-bakari. (1st ed.). Gaia Amazonas.
- Bajaj, S., Dreyfus, F., Gonzáles, T., Jiggins, J. 2009. Traditional and local knowledge and community-based innovations. In Agriculture at a crossroads. Synthesis report. (1st ed.), pp. 71-74.
- Caillon, S., Cullman, G., Verschuuren, B., Sterling, E. J. 2017. Moving beyond the human-nature dichotomy through biocultural approaches: Including ecological well-being in resilience indicators. Ecol. Soc., 22(4), 27. https://doi.org/10.5751/ES-09746-220427
- Castañeda, H. N., Gómez, Á. M., Pérez, H., Herrera, J. A. 2019. La declaratoria del río Atrato como entidad sujeto de derechos: Una oportunidad para la construcción de un proyecto presente-futuro de territorio sustentable. Kavilando, 11(21), 417-433. https:// kavilando.org/revista/index.php/kavilando/article/ view/358
- Consejo Comunitario Mayor del Alto San Juan. 2012. Protocolo comunitario biocultural para el territorio del Consejo Comunitario Mayor del Alto San Juan Asocasan. Tado, Chocó. Colombia (p. 47). Programa de las Naciones Unidas para el Medio Ambiente PNUMA, Instituto de Investigaciones Ambientales del Pacífico IIAP, Natural Justice NJ. https://studylib. es/doc/5672041/protocolo-comunitario-bioculturalpara-el-territorio-del-

- De Vos, J. M., Joppa, L. N., Gittleman, J. L., Stephens, P. R., Pimm, S. L. 2014. Estimating the normal background rate of species extinction. Conserv. Biol., 29(2), 452-462. https://doi.org/10.1111/cobi.12380
- Díaz, S., Demissew, S., Carabias, J., Joly, C., Lonsdale, M., Ash, N., Larigauderie, A., Adhikari, J. R., Arico, S., Báldi, A., Bartuska, A., Baste, I. A., Bilgin, A., Brondizio, E., Chan, K. M. A., Figueroa, V. E., Duraiappah, A., Fischer, M., Hill, R., Koetz, T., Leadley, P., Lyver, P., Mace, G., Martín-López, B., Okumura, M., Pacheco, D., Pascual, U., Selvin Pérez, É., Reyers, B., Roth, E., Saito, O., Scholes, R., Sharma, N., Tallis, H., Thaman, R., Watson, R., Yahara, T., Hamid, Z., Akosim, C., Al-Hafedh, Y., Allahverdiyev R., Amankwah, E., Asah, S., Asfaw, Z., Bartus, G., Brooks, L., Caillaux, J., Dalle, G., Darnaedi, D., Driver, D., Erpul, G., Escobar-Eyzaguirre, P., Failler, P., Fouda, A., Fu, B., Gundimeda, H., Hashimoto, S., Homer, F., Lavorel, S., Lichtenstein, G., Mala, W., Mandivenyi, W., Matczak, P., Mbizvo, C., Mehrdadi, M., Metzger, J., Mikissa, J., Moller, H., Mooney, H., Mumby, P., Nagendra, H., Nesshover, C., Oteng-Yeboah, A., Pataki, G., Roué, M., Rubis, J., Schultz, M., Smith, P., Sumaila, R., Takeuchi, K., Thomas, S., Verma, M., Yeo-Chang, Y., Zlatanova, D. 2015. The IP-BES conceptual framework-connecting nature and people. Curr. Opin. Environ. Sustainability, 14, 1-16. https://doi.org/10.1016/j.cosust.2014.11.002
- Dutfield, G. 2014. Towards a definition of biocultural heritage innovations in light of the mainstream innovation literature (Apr.), pp. 1-7. International Institute for Environment and Development. https://pubs.iied. org/pdfs/G03771.pdf
- Escobar, A. 2010. Territorios de diferencia: Lugar, movimientos, vidas, redes (1st ed.). EnVion. https://semilleropacifico.uniandes.edu.co/images/document/ antropologia/Escobar-LUGAR-en-Territorios-dediferencia-Lugar-movimientos-vida-redes.pdf
- Escobar, A. 2017. The Colombian Pacific region: A dialogue of cosmo/visions. In This place/Este lugar (1st ed.), pp. 52-66. Fundación Más Arte Más Acción.
- Ferreiro, M. de F., Sheikh, F. A., Reidolf, M., de Sousa, C., Bhaduri, S. 2019. Tradition and innovation: Between dynamics and tensions. Afr. J. Sci. Technol. Innovation Dev. 11(5), 533-542. https://doi.org/10.108 0/20421338.2018.1558743
- Fundación Leo Espinosa. 2015. Antología culinaria de Guapi y Timbiquí: Un aporte a la innovación de la cocina tradicional. Fondo Internacional de Desarrollo Agrícola FIDA. http://www.funleo.org/ wp-content/uploads/2021/11/Antologia-Culinaria-Guapi-y-Timbiqui.pdf
- García, M. del P., Hinestroza, L. 2020. El reconocimiento de los recursos naturales como sujetos de derechos. Análisis crítico sobre los fundamentos y efectividad de la sentencia del río Atrato. In Reconocimiento de

la naturaleza y de sus componentes como sujetos de derechos (1st ed.). Universidad Externado de Colombia. https://bdigital.uexternado.edu.co/entities/ publication/39aa646b-5a64-4544-a36f-1fcd4405f3c6

- Hoffmann, O. 2007. Comunidades negras en el Pacífico colombiano: Innovaciones y dinámicas étnicas (1st ed.). Abya Yala. https://www.academia.edu/ es/74831833/Comunidades\_negras\_en\_el\_Pacifico\_ colombiano\_Innovaciones\_y\_dinamicas\_etnicas
- Instituto de Investigaciones Marinas y Costeras. 2010. Potencial productivo de las poblaciones naturales de la piangua *Anadara tuberculosa* y *Anadara similis* dentro de una perspectiva espacio-temporal en la costa pacífica colombiana. http://www.invemar.org.co/redcostera1/invemar/docs/9121Cartilla\_Pianguando.pdf
- International Institute for Environment and Development. 2012. Biodiversity and culture: Exploring community protocols, rights, and consent. In IIED (Ed.), Participatory learning and action (1st ed.). Eearthprint. https://www.iucn.org/content/biodiversity-and-culture-exploring-community-protocolsrights-and-consent
- Jiménez, A., Roberts, T. 2019. Decolonising neo-liberal innovation: Using the Andean philosophy of "buen vivir" to reimagine innovation hubs. In P. Nielsen & H. Kimaro (Eds.), 2019 International Conference on Social Implications of Computers in Developing Countries (Vol. 1, pp. 180-191). Springer International Publishing. https://doi.org/10.1007/978-3-030-19115-3
- Jiménez, A. Delgado, D, Merino, R., Argumedo, A. 2022. A decolonial approach to innovation? Building paths towards buen vivir, J. Dev. Stu., 58(9), 1633-1650. https://doi.org/10.1080/00220388.2022.2043281
- Kalema, N. L. 2019. Decolonizing social innovation for global development [Master's thesis, Harvard University]. https://dash.harvard.edu/bitstream/handle/1/42004242/KALEMA-DOCUMENT-2019.pdf
- Köhler-Rollefson, I. 2010. Protocolos comunitarios bioculturales. Compas Desarrollo Endógeno, 17, 12-14. http://atlas.umss.edu.bo:8080/jspui/bitstream/123456789/178/1/protocolos.pdf.pdf
- Leary, J. P. 2019a. Keywords: The new language of capitalism (1st ed.). Haymarket Books.
- Leary, J. P. 2019b. The innovation cult. Jacobin Mag. https://jacobinmag.com/2019/04/innovation-language-of-capitalism-ideology-disruption
- López, T., Mosquera, C. 2012. Defending our territory: The biocultural community protocol of Alto San Juan, Colombia. In IIED (Ed.), Biodiversity and culture: Exploring community protocols, rights, and consent (1st ed.), pp. 131-140). Earthscan. https://www.iied. org/g03406?g=Colombia
- Maffi, L. 2005. Linguistic, cultural, and biological diversity. Annu. Rev. Anthropol., 34, 599-617. https://doi.org/10.1146/annurev.anthro.34.081804.120437

- Maffi, L., Woodley, E. 2010. Biocultural diversity conservation. In Biocultural diversity conservation (1st ed.). Earthscan. https://doi.org/10.4324/9781849774697
- Maldonado-Villalpando, E., Paneque-Gálvez, J. 2022. Grassroots innovation in alternatives to development: A review. Nordia Geographical Publications, 51(2), 1-23. https://doi.org/10.30671/nordia.111293
- Maldonado-Villalpando, E., Paneque-Gálvez, J., Demaria, F., Napoletano, B. M. 2022. Grassroots innovation for the pluriverse: Evidence from zapatismo and autonomous zapatista education. Sustainability Sci., 17(4), 1301-1316. https://doi.org/10.1007/s11625-022-01172-5
- Márquez Mina, F. 2020. Plan de buen vivir o alternativas al desarrollo para el Pacífico. Diáspora. https:// diaspora.com.co/plan-de-buen-vivir-o-alternativasal-desarrollo-para-el-pacifico/
- Mena, Á. E., Meneses, Y. A. 2019. La filosofía de vivir sabroso. Rev. Univ. Antioquia, 337(2), 50-53. https:// revistas.udea.edu.co/index.php/revistaudea/article/ view/340802
- Mesa, G. 2019. Los ríos como sujetos de derechos: Análisis de derecho comparado en los casos de los ríos Atrato, Whanganui, Vilcabamba, Ganges y Yamuna. In G. Mesa (Ed.), Estándar ambiental y derechos ambientales en posacuerdos de paz: Algunos estudios de caso (1st ed.), pp. 25-52. Universidad Nacional de Colombia. https://zoboko.com/read/ estandar-ambiental-y-derechos-ambientales-en-posacuerdos-de-paz-algunos-estudios-de-caso-3dnne0nj?hash=1abd18205b36076870b0fa3e3cd50018
- MinCultura. 2015. Saberes y sabores del Pacífico colombiano Guapi-Quibdó (1st ed.). http:// www.eltoquecolombiano.com/2019/05/saberes-sabores-del-pacífico-colombiano.html
- Mogollón Díaz, A., Otero Díaz, L. J. 2004. La teledetección como alternativa tecnológica para la determinación de la extensión del litoral Pacífico colombiano. Bol. Cient.-Cent. Control Contam. Pacífico, 11,65-76. https://aquadocs.org/bitstream/handle/1834/17375/ dimarcccp\_2004\_boletincccp\_11\_65-76.pdf?sequence=1
- Nemogá, G. R. 2016. Diversidad biocultural: Innovando en investigación para la conservación. Acta Biol. Colomb., 21(1Supl), 311-319. https://doi.org/10.15446/ abc.v21n1supl.50920
- Peña-Torres, J. A., Reina-Rozo, J. D. 2022. Agroecology and communal innovation: LabCampesino, a pedagogical experience from the rural youth in Sumapaz Colombia. Curr. Res. Environ. Sustainability, 4, 100162. https://doi.org/10.1016/j.crsust.2022.100162
- Poole, A. K. 2018. Where is goal 18? The need for biocultural heritage in the sustainable development goals. Environ. Values, 27(1), 55-80. https://doi.org/10.3197 /096327118X15144698637522

- Pretty, J., Adams, B., Berkes, F., De Athayde, S. F., Dudley, N., Hunn, E., Maffi, L., Milton, K., Rapport, D., Robbins, P., Sterling, E., Stolton, S., Tsing, A., Vintinner, E., Pilgrim, S. 2009. The intersections of biological diversity and cultural diversity: Towards integration. Conserv. Soc., 7(2), 100-112. https://doi. org/10.4103/0972-4923.58642
- Quinceno, N. 2016. Vivir sabroso. Luchas y movimientos afroatrateños, en Bojayá, Chocó, Colombia (1st ed.). Universidad del Rosario. https://editorial.urosario.edu.co/gpd-vivir-sabroso-luchas-y-movimientos-afroatratenos-en-bojaya-choco-colombia.html
- Reina-Rozo, J. D. 2019. Communal innovation: Collective creation towards wellbeing. SSRN Electron. J. https://doi.org/10.2139/ssrn.3639564
- Reina-Rozo, J. D., Gaitán-Albarracín, N., Acero, A. 2019. Reensamblando los vínculos de la ingeniería y la sociedad. Int. J. Eng. Soc. Justice Peace, 6(1), 1-6. https://doi.org/10.24908/ijesjp.v6i1.13173
- Reina-Rozo J. D. 2021. Community-based innovation ecosystems in peace-building and resilience contexts. In L. A. Orozco, G. Ordóñez-Matamoros, J. H. Sierra-González, J. García-Estévez, I. Bortagaray (Eds.), Science, technology, and higher education: Palgrave studies in democracy, innovation, and entrepreneurship for growth. Palgrave Macmillan. https://doi. org/10.1007/978-3-030-80720-7\_4
- Restrepo, E. 2013. El giro a la biodiversidad en el imaginario del Pacífico colombiano. Rev. Estud. Pacífico Colomb., 1, 171-199. https://www.aacademica.org/ eduardo.restrepo/65.pdf
- Satizábal, P., Dressler H. 2019. Geographies of the sea: Negotiating human-fish interactions in the waterscapes of Colombia's Pacific coast. Ann. Am. Assoc. Geogr., 109(6), 1865-1884, https://doi.org/10.1080/2 4694452.2019.1587282
- Schumpeter, J. 1934. The theory of economic development. Harvard University Press. https://archive.org/ details/in.ernet.dli.2015.187354
- Servicio Nacional de Aprendizaje. 2013. Sabor a Pacífico sabor a memoria (1st ed.). SENA. https://issuu.com/ fallonosorio/docs/sabor\_a\_paci\_\_fico\_sabor\_a\_memoria/8
- Shrumm, H., Jonas, H. (Eds.). 2012. Protocolos comunitarios bioculturales: Kit de herramientas para facilitadores comunitarios. (1st ed.). Natural Justice. https:// naturaljustice.org/wp-content/uploads/2012/05/ BCP-Toolkit-Espanol.pdf
- Sterling, E. J., Filardi, C., Toomey, A., Sigouin, A., Betley, E., Gazit, N., Newell, J., Albert, S., Alvira, D., Bergamini, N., Blair, M., Boseto, D., Burrows, K., Bynum, N., Caillon, S., Caselle, J. E., Claudet, J., Cullman, G., Dacks, R., Eyzaguirre, P., Gray, S., Herrera, J., Kenilorea, P., Kinney, K., Kurashima, N., Macey, S., Malone, C., Mauli, S., McCarter, J., McMillen, H.,

Pascua, P., Pikacha, P., Porzecanski, A., de Robert, P., Salpeteur, M., Sirikolo, M., Stege, M., Stege, K., Ticktin, T., Vave, R., Wali, A., West, P., Winter, K., Jupiter, S. D. 2017. Biocultural approaches to well-being and sustainability indicators across scales. Nat. Ecol. Evol., 1(12), 1798-1806. https://doi.org/10.1038/s41559-017-0349-6

- Swiderska, K. 2013. What is biocultural heritage and biocultural innovation? Langscape, 2(13), 13-14. https:// www.researchgate.net/publication/319483132\_ What\_is\_biocultural\_heritage\_and\_biocultural\_innovation
- Swiderska, K., Argumedo, A. 2014. Biocultural heritage territories. International Institute for Environment and Development. (G03843). https://pubs.iied.org/ G03843/
- Swiderska, K., Argumedo, A., Pimbert, M. 2020. Biocultural heritage territories: Key to halting biodiversity loss. (No. 17760IIED). IIED Briefing Papers. https:// iied.org/17760iied
- Swiderska, K., Argumedo, A., Wekesa, C., Ndalilo, L., Song, Y., Rastogi, A., Ryan, P. 2022. Indigenous peoples' food systems and biocultural heritage: Addressing indigenous priorities using decolonial and interdisciplinary research approaches. Sustainability, 14(18), 11311. https://doi.org/10.3390/su141811311
- Toledo, V., Barrera, N. 2008. La memoria biocultural: La importancia ecológica de las sabidurías tradicionales. (1st ed.). Icaria Editorial. https://www.academia. edu/43013138/La\_Memoria\_Biocultural\_La\_Importancia\_Ecol%C3%B3gica\_de\_las\_Sabidur%C3%A-Das\_Tradicionales
- Turner, K. L., Davidson-Hunt, I. J., Desmarais, A. A., Hudson, I. 2016. Creole hens and ranga-ranga: Campesino foodways and biocultural resource-based development in the Central Valley of Tarija, Bolivia. Agriculture, 6(3), 41. https://doi.org/10.3390/AGRI-CULTURE6030041
- Turner, K. L., Davidson-Hunt, I. J., Hudson, I. 2018. Wine, cheese and building a gourmet territory: Biocultural resource-based development strategies in Bolivia. Can. J. Dev. Studi./Revue canadienne d'études du développement, 39(1), 19-37. https://doi.org/10.1080/02255189.2017.1331158 United Nations.2002.3,000 languages in the world face extinction. Retrieved January 10, 2023 from https:// news.un.org/en/story/2002/02/28072-3000-languages-world-face-extinction-unesco-warns
- Vargas-Chaves, I., Rodríguez, G. A., Cumbe-Figueroa, A., Mora-Garzón, S. E. 2020. Recognizing the Rights of Nature in Colombia: The Atrato River case. Rev. Jurídicas, 17(1), 13-41. https://doi.org/10.17151/jurid.2020.17.1.2.
- Viloria de la Hoz, J. (Ed.). 2008. Economías del Pacífico colombiano (1st ed.). Banco de la República. https://www.banrep.gov.co/es/node/28928