ARTICLES/ARTÍCULOS

A Reading of the 2030 Agenda from the Paradigm of Socio-ecological and Intercultural Sustainability Application in Coastal Territories of Vulnerable Fishing Communities Una lectura de la Agenda 2030 desde el paradigma de la

sostenibilidad socioecológica e intercultural

Aplicación en territorios costeros de comunidades pesqueras vulnerables

Antonio Sianes

Loyola Andalucía University, Spain asianes@uloyola.es

Johana Herrera-Arango

Pontificia Universidad Javeriana, Colombia herrera.johana@javeriana.edu.co

Manuel Enrique Pérez-Martínez Pontificia Universidad Javeriana, Colombia manperez@javeriana.edu.co **Laura Serrano** Loyola Andalucía University, Spain <u>lserrano@uloyola.es</u>

Rocío Vela-Jiménez Loyola Andalucía University, Spain <u>mrvela@uloyola.es</u>

Carmen Ana Castaños Gómez External researcher <u>cacastanosgomez@gmail.com</u>

Juan Antonio Senent-De Frutos Loyola Andalucía University, Spain jasenent@uloyola.es

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ABSTRACT

The 2030 Agenda constitutes a global reference framework for promoting social, economic and environmental development processes. However, its effective territorial implementation presents significant challenges. As a complex and multidimensional agenda, it necessitates localised interpretations. This article presents an interpretation of the 2030 Agenda in coastal territories inhabited by vulnerable fishing communities, aiming to foster socio-ecological and intercultural sustainability. In these contexts, socio-cultural dynamics and environmental impacts are increasingly marginalising communities that maintain traditional and identity-based ways of life, along with valuable knowledge essential for sustaining and developing livelihoods within these socio-ecological spaces. We employ the Delphi method and dialogue, alongside experts, between fishing communities in Andalusia and the Colombian Caribbean to collaboratively develop an indicator system. By adapting those of the 2030 Agenda, this system enables the monitoring of the development challenges these communities face.

KEYWORDS: 2030 Agenda; socio-ecological and intercultural sustainability; vulnerable communities; Delphi; territorial implementation; indicators.

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RESUMEN

La Agenda 2030 constituye un marco global de referencia para promover procesos de desarrollo social, económico y ambiental. Sin embargo, su adecuada territorialización presenta notorios desafíos, al ser una agenda compleja y multidimensional, requiere interpretaciones localizadas. Presentamos una lectura de dicha Agenda en territorios costeros de comunidades pesqueras vulnerables que puede ayudar a promover la sostenibilidad socioecológica interculturalmente. En estos ámbitos, las dinámicas socioculturales y los impactos ambientales están dejando al margen a este tipo de comunidades que mantienen formas de vida tradicionales e identitarias de profesión, así como un conocimiento para el cuidado y desarrollo de un modo de vida en estos espacios socioecológicos. Empleamos el método Delphi y el diálogo entre comunidades pesqueras en Andalucía y Caribe colombiano y expertos, para crear de manera conjunta un sistema de indicadores que, adaptando los de la Agenda 2030, permita dar seguimiento a los retos de desarrollo que afrontan.

PALABRAS CLAVE: Agenda 2030; sostenibilidad socioecológica e intercultural; comunidades vulnerables; Delphi; territorializacion; indicadores.

1. Introduction

Traditional fishing communities, such as San Luis de Sabinillas in the Autonomous Community of Andalusia (Spain) and the Barú Peninsula in the Department of Bolívar (Colombia), have been undergoing continuous and unrelenting decline for decades. Taking the community of Sabinillas as an example, in the early 1980s, 28 fishing boats operated out of Puerto de la Duquesa. Today, barely five remain. A 2004 study by Camiñas, Domínguez and Abad on Andalusian fisheries identified between 20 and 25 shellfish boats at the time. Despite their extensive experience, fishers and their families face mounting adversity, with an increasing number of factors restricting both the maritime spaces available for their activities and the species they are permitted to catch.

This decline stems from a combination of socio-economic and political factors, particularly the effects of commodification on the reproduction of territorial vulnerabilities (Prudham, 2009). Capital values nature as a source of raw materials and energy yet remains largely disengaged from the complexities and interconnections of ecological systems, climate change and biodiversity loss (Castree, 2003). The territorial vulnerability of traditional communities, such as those analysed here, is intrinsically linked to the transformation of nature's biophysical properties—a process that reshapes nature to facilitate its more efficient integration into capital circuits (Nevins and Peluso, 2008).

Support from public administrations and private entities for vulnerable fishing communities has been steadily declining. In response, 2023 saw the launch of the research project "From Coast to Coast", aimed at fostering robust networks between traditional fishing communities and other relevant stakeholders. This initiative is founded on the principle that these communities are rightful subjects whose historical and legitimate access to the sea should be recognised and safeguarded, while also acknowledging their contribution to socio-ecological sustainability. The communities examined in this study are as follows: San Luis de Sabinillas, a fishing community located in the municipality of Manilva (Málaga), with a population of nearly 7,000. Currently, the five fishing boats engaged in small-scale fisheries specialise in harvesting wedge clams, carpet shell clams and smooth clams, while one boat is dedicated to octopus fishing. These boats are part of the Estepona fishermen's guild and sell their catch at its fish market.

On the Caribbean side, the community of Barú is located in the district of Cartagena de Indias. At present, 197 artisanal fishers are registered, and the community has a total population of 3,800, the majority of whom are of Afro-descendant heritage. Many boats are equipped with low-powered outboard motors, while some vessels still rely solely on oars to navigate fishing areas. Fishing techniques in the region are diverse, though the most prominent is hook-and-line fishing using live bait, known locally as *línea de mano*. Other common methods include free diving to catch octopuses and lobsters, as well as the use of gillnets for snapper and similar species (Bolaños *et al.*, 2020).

One of the initial milestones of this project is to situate these communities' struggles for dignity within the framework of the Agenda, a global policy initiative aimed at transforming the world through the promotion of sustainable development (Hepp, Somerville and Borisch, 2019). To this end, we initiated a dialogue process between fishing communities and an interuniversity group of experts to redefine an indicator system aligned with the Agenda.

2. Theoretical framework

2.1. The origins and socio-political significance of the 2030 Agenda

In 2015, the United Nations formally adopted the document "Transforming Our World: The 2030 Agenda for Sustainable Development", commonly referred to as the 2030 Agenda. Its principal objective is to inform and guide public policies and private sector interventions across a broad range of social, economic and environmental domains (Sianes, 2021). The Agenda aims to drive global change towards resilience in the pursuit of sustainable development (Hepp, Somerville and Borisch, 2019).

To achieve this, the Agenda sets out 17 Sustainable Development Goals (SDGs) and 169 specific targets to be pursued over a 15-year period. This extensive scope reflects both the scale and the profound ambition of this new framework, which seeks to dismantle traditional North-South dynamics. However, this comprehensive and global vision has also made the Agenda a target of criticism, particularly from anti-globali-sation movements and ultraconservative nationalist groups.

Despite this, the Agenda and its SDGs have succeeded in establishing themselves as a clear reference framework (Sianes *et al.*, 2022) for advancing initiatives aimed at improving living conditions in particularly disadvantaged communities, territories and regions. Nonetheless, as a global policy designed for local implementation, the necessary process of localisation presents a series of challenges stemming from the inherent limitations of the Agenda's design (Serrano and Sianes, 2023).

2.2. Limitations in the operationalisation of the 2030 Agenda

For local adoption, a process of adaptation to specific on-the-ground realities is required (Vela-Jiménez and Sianes, 2022). These limitations manifest in three key areas.

First, most social interventions must navigate the Agenda to identify the SDGs and targets that address the multidimensional nature of the issues at hand. To facilitate this process, both academic literature and international agencies have been developing frameworks for interpreting the Agenda (Vela-Jiménez *et al.*, 2022; Maldonado-Valera, Marinho and Robles, 2020).

Second, given that the Agenda comprises 17 goals spanning different domains, inevitable tensions and *trade-offs* arise between them, highlighting the difficulty of achieving comprehensive implementation. The academic literature has extensively examined this challenge (Arroyo-Ilera, 2021; Fuso-Nerini *et al.*, 2018), yet clear strategies for addressing these conflicts remain lacking.

Third, the more than 240 indicators established to assess progress in implementing the Agenda were not designed with local contexts in mind, nor do they consider a plurality of stakeholders. Instead, they are formulated at the national or even global level. This misalignment complicates the application of these indicators in local and even regional interventions, making it difficult to align initiatives with the SDGs and effectively track their impact.

The objectives of this article are to shed light on the first and third of these challenges by offering an interpretation of the Agenda that seeks to improve the quality of life of traditional fishing communities. These communities are regarded as active subjects capable of contributing to public decision-making processes that affect their socio-ecological spaces in both Andalusia and the Colombian Caribbean. However, such an interpretation can only be developed through an ontological, epistemological and ethical approach to their specific challenges, the principles of which are outlined below.

2.3. Starting approach to interpreting the 2030 Agenda: the paradigm of socio-ecological and intercultural sustainability in vulnerable populations

Through a reflective exercise, this research process is grounded in a specific world view and paradigm: that of socio-ecological and intercultural sustainability as ap-

plied to particularly vulnerable communities and territories. Below, we outline some key principles of the conceptual framework that underpins this analysis.

2.3.1. The socio-ecological perspective as a framework for addressing ecosystem challenges

The socio-ecological perspective emphasises a reciprocal feedback relationship and an explicit connection between social and ecological systems. This interaction encompasses biophysical factors, local knowledge and governance institutions, as well as the rules that shape how people engage with ecosystems (Armitage *et al.*, 2017). Analytically, socio-ecological systems exhibit significant structural and functional complexity due to the co-evolution of specific practices, such as fisheries management systems. Humans within nature constitute a complex adaptive system, one that tends to generate feedback loops in ways that are not always predictable (Berkes, 2015).

2.3.2. Interculturality vs acculturation in integrating traditional ways of life

This paradigm (Senent-De Frutos and Herrera Arango, 2022) seeks not only to support or promote the inclusion of these vulnerable individuals and communities but also, from an intercultural ethical perspective, to ensure fair treatment. These communities sustain a traditional way of life that has been marginalised by a development model that obstructs or even prevents its continuity. They should be recognised as active subjects and communities with the capacity and right to contribute to public and private decision-making processes that affect the socio-ecological spaces they inhabit and where they conduct their activities. Through their intergenerational persistence, these communities have demonstrated a sustainable way of life, both socially and environmentally. As such, they should play a key role in understanding the socio-environmental challenges facing these spaces, as well as in decision-making processes aimed at mitigating the negative ecological impacts that threaten biodiversity and the continuity of fishing activities. The shifting conditions brought about by the ecological crisis must be addressed not only through available scientific knowledge but also through dialogue with the socio-environmental knowledge held by these communities.

2.3.3. The multidimensional nature of exclusion in vulnerable populations

The Agenda itself necessitates addressing inclusive and sustainable development processes from a multidimensional perspective, based on three considerations. First, social exclusion extends beyond a lack of economic income; it encompasses factors such as housing, education and healthcare, as well as broader social dimensions, including access to services, community and social support, security, and social and political participation (Vela–Jiménez and Sianes, 2021). Second, it requires the localisation of knowledge on exclusion, starting from the highest level of specificity at the local scale (Vela–Jiménez *et al.*, 2022). Third, a participatory approach must be incorporated to capture the qualitative dimensions of exclusion (Labonté *et al.*, 2011; Vela–Jiménez and Sianes, 2021, 2023).

2.3.4. Vulnerable territories: commodification dynamics and community resistance

The concept of a vulnerable territory is shaped by various theoretical perspectives that underscore the enduring significance of the process of primitive accumulation in structuring the context of globalised capitalism. Both academic literature (Harvey, 2008; Slater, 2017; Jover-Báez *et al.*, 2023) and social praxis highlight how this process remains a fundamental mechanism for the expansion of capitalism and the consolidation of neoliberal cultural hegemony. The commodification, appropriation and privatisation of natural and cultural resources, as well as tangible and intangible knowledge, accelerate their degradation by reconfiguring the geographical structure of the capitalist system. This process establishes the conditions for a system marked by widespread inequality, resource exploitation and the erosion of local control, thereby perpetuating the exclusion and marginalisation of communities.

3. Research design

3.1. Objectives

This study pursues three objectives:

- First, to identify the SDGs and indicators proposed by the 2030 Agenda that are relevant to fishing areas from a multidimensional perspective.
- Second, to assess the potential of the 2030 Agenda for these interventions, examining the extent to which the indicators within each SDG reflect the possible impacts of projects of this nature.
- Third, where existing indicators do not adequately capture these impacts, to propose recommendations for reformulating the relevant indicators within each SDG, offering revised wording as an alternative.

3.2. Methodological approach

The research strategy involved applying a Delphi methodology (Cañizares Cedeño and Suárez Mena, 2022) with a pool of seven interdisciplinary researchers, each with expertise in different areas relevant to the study: public development policies, the sustainability of marine ecosystems, interculturality and sustainability from a critical perspective, processes of commodification and territorial marketisation, the multidimensional approach to exclusion and the development of indicator systems, among others.

The Delphi methodology was structured into five phases between May and October 2023:

- First phase: individual review of the Agenda to identify the SDGs, targets and indicators most relevant to fishing areas from a socio-ecological and intercultural sustainability perspective.
- Second phase: initial discussion to consolidate the SDGs, targets and indicators common across all individual selections and to deliberate on those where discrepancies arose.
- Third phase: individual work focused on refining proposed modifications to the selected indicators to ensure they incorporate the principles of this project.
- Fourth phase: second discussion session to review the proposed alternative wording and enhance the Agenda's capacity to identify the challenges faced by the analysed communities.
- Fifth phase: collaborative drafting of the final report, including a proposal for territorialised indicators adapted to the principles of the intervention.

4. Results: identification of SDGs, targets and linked indicators

To determine the SDGs, targets and indicators most relevant to these communities from a socio-ecological and intercultural sustainability perspective, extracts from conversations with community members were analysed at two key stages: first, during the needs identification process that established the relevance of this study, and second, during the preparation phase of the intervention.

To systematically present the results, verbatim excerpts from these conversations will be used to link community needs with the guiding principles of the research approach, as well as with the corresponding SDGs, targets and indicators.

Regarding SDG 1, the following statement is particularly relevant and is linked to the targets and indicators outlined in Table 1.

The limited income [earned by fishers] is used for subsistence [for themselves and their families]. [...] improving and ensuring stable income for fishing communities would create better opportunities to access services and [improve their] quality of life (informant from San Luis de Sabinillas).

Relevant targets and indicators for SDG 1

| SDG | Goals | Indicators |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| ODS1. End pov- erty in all its forms everywhere. | Target 1.4. By 2030, ensure that all men and women, particularly the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership, and control over land and other forms of property, inheritance, natural resources, appropriate new technology, and financial services, including microfinance. | Indicator 1.4.2. Pro- portion of total adult population with secure tenure rights to land. |

Source: own research.

Regarding SDG 2, the following statement is particularly relevant and is linked to the targets and indicators outlined in Table 2.

Traditional fishing activities are becoming increasingly restricted; [...] it is necessary to develop strategies that support food security (informant from Sabinillas).

Table 2

Relevant targets and indicators for SDG 2

| SDG | Goals | Indicators |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| rity and improved nutrition and pro- mote sustainable agriculture. | Target 2.3. By 2030, double the agricultural productivity and the incomes of small-scale food producers, particularly women, indigenous | Indicator 2.3.1. Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size. |
| | peoples, family farmers, pastoralists and fishers, in- cluding through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment []. | Indicator 2.3.2. Average income of small-scale food producers, by sex and indigenous status. |
| | Target 2.4. By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, [] and that progressively improve land and soil quality. | Indicator 2.4.1. Proportion of agricultural area under productive and sustainable agriculture. |

Source: own research.

The next relevant SDG is SDG 5, linked to the following statement and associated targets and indicators in Table 3.

The majority of members of the fishing community are men. [They believe that] the role of women in fishing is not significant. [However,] women could make substantial contributions, so it is important to integrate them [systematically and in an organised manner into various activities along the fishing production chain]¹ (informant from Sabinillas).

Relevant targets and indicators for SDG5

| SDG | Goals | Indicators | |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | Target 5.5. Ensure women's full and effective par- ticipation and equal opportunities for leadership at all levels of decision-making in political, economic and public life. | t Indicator 5.5.2. Proportion of women in manage- c, rial positions. | |
| ODS5. Achieve gender equality and empower all women and girls. | larget 3.a. Undertake reforms to give women equal rights to economic resources, as well as ac- cess to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws. | Indicator 5.a.1. (a) Percentage of people with ownership or secure rights over agricultural land (out of total agricultural population), by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure. | |
| | | Indicator 5.a.2. Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/ or control. | |

Source: own research.

Regarding SDG 6, the following statement is particularly relevant and is linked to the targets and indicators outlined in Table 4.

[It is necessary to] develop strategies to mitigate, reduce and/or compensate for these impacts (informant from Sabinillas).

Table 4

Relevant targets and indicators for SDG6

| SDG | Goals | Indicators |
|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ODS6. Ensure availability and sus- tainable manage- ment of water and sanitation for all. | Target 6.3. By 2030, improve water quality by reduc- ing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substan- tially increasing recycling and safe reuse globally. | Indicator 6.3.2. Proportion of bodies of water with good ambient water quality. |
| | Target 6.b. Support and strengthen the participation of local communities for improving water and sanitation management. | Indicator 6.b.1. Proportion of local adminis- trative units with established and operational policies and procedures for participation of local communities in water and sanitation management. |

Source: own research.

The next SDG to be considered is SDG 8, for which the following statement is particularly relevant, linked to the targets and indicators outlined in Table 5.

[It is necessary to] ensure that [artisanal fishers] have the necessary tools to carry out their work with dignity, achieving better outcomes (informant from Sabinillas).

Relevant targets and indicators for SDG 8

| SDG | Goals | Indicators |
|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| ODS8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. | Target 8.3. Promote development-oriented policies that support productive activities, decent job crea- tion, entrepreneurship, creativity and innovation, and encourage formalisation and growth of micro-sized enterprises []. | Indicator 8.3.1. Proportion of informal employ- ment in total employment, by sector and sex. |
| | Target 8.4. Improve progressively through 2030 global resource efficiency in consumption and production, and endeavour to decouple economic growth from environmental degradation []. | Indicator 8.4.1. Material footprint, material footprint per capita, and material footprint per GDP. |

Source: own research.

Regarding SDG 10, the following statement is particularly relevant and is linked to the targets and indicators outlined in Table 6.

Before the arrival of outsiders purchasing land along the coastline, the community thrived. At that time, I felt happy here because we had everything. Mangoes, coconuts, cassava, plums, sugar apples, lemons, papayas. We supplied Cartagena with our harvest. Now, the local people are becoming poorer—more money circulates, but it does not reach the natives (informant from Barú).

Table 6

Relevant targets and indicators for SDG 10

| SDG | Goals | Indicators |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| ODS10. Reduce in- equality within and among countries. | Target 10.2. By 2030, empower and promote the social, economic and political inclusion of all irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status. | Indicator 10.2.1. Proportion of people living below 50 per cent of median income, by sex and age. |

Source: own research.

SDG 11 is among the most relevant to interventions of this nature, as reflected in the following statement, which is linked to the targets and indicators listed in Table 7.

There must be synergy between territorial entities and fishing communities to drive the development of this area (informant from Sabinillas).

Relevant targets and indicators for SDG 11

| SDG | Goals | Indicators |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ODS11. Make cities and human set- tlements inclusive, safe, resilient and sustainable. | Target 11.1. By 2030, ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums. | Indicator 11.1.1. Proportion of urban population living in slums, informal settlements or inadequate housing. |
| | Target 11.3. By 2030, enhance inclusive and sus- tainable urbanisation and capacities for participa- tory, integrated and sustainable human settlement planning and management in all countries. | Indicator 11.3.2. Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically. |
| | Target 11.4. Strengthen efforts to protect and safe- guard the world's cultural and natural heritage. | Indicator 11.4.1. Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional and local/municipal). |
| | Target 11.a. Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning. | Indicator 11.a.1. Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics, (b) ensure balanced territorial development, (c) increase local fiscal space. |

Source: own research.

Regarding SDG 12, the following statement is particularly relevant and is linked to the targets and indicators outlined in Table 8.

Ensuring the fishing of commercial species would promote the sustainability of the fishing industry (informant from Sabinillas).

Table 8

| Relevant targets and | indicators | for | SDG | 12 |
|----------------------|------------|-----|-----|----|
|----------------------|------------|-----|-----|----|

| SDG | Goals | Indicators |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ODS12. Ensure sus- tainable consump- tion and production patterns. | harmony with nature. | Indicator 12.8.1. Extent to which (i) global citizen- ship education and (ii) education for sustainable development are mainstreamed in (a) national ed- ucation policies, (b) curricula, (c) teacher education and (d) student assessment. |
| | Target 12.b. Develop and implement tools to monitor sustainable development impacts for sustainable tourism which creates jobs, promotes local culture and products. | Indicator 12.b.1. Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability. |

Source: own research.

Regarding SDG 13, the following statement is particularly relevant and is linked to the targets and indicators outlined in Table 9.

The seas are no longer the same—we have to go farther and farther to fish, yet the catch is insufficient for our needs. The sea is warmer, currents have shifted and species valuable to fishers have moved away ever since the mangroves were cleared to make way for beaches and hotels (informant from Barú).

Table 9

Relevant targets and indicators for SDG 13

| SDG | Goals | Indicators |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ODS13. Take urgent action to combat climate change and its impacts. | Target 13.2. Integrate climate change measures into national policies, strategies and | Indicator 13.2.1. Number of countries with nationally determined contribu- tions, long-term strategies, national adaptation plans, strategies as reported in adaptation communications and national communications submitted to the UNFCCC Secretariat. |
| | | Indicator 13.2.2. Total greenhouse gas emissions per year. |

Source: own research.

Regarding SDG 14, the following statement is particularly relevant and is linked to the targets and indicators outlined in Table 10.

The natural environment must be conserved and restored (informant from Sabinillas).

Table 10

Relevant targets and indicators for SDG 14

| SDG | Goals | Indicators |
|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Target 14.2. By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration, to achieve healthy and productive oceans. | Indicator 14.2.1. Number of countries using ecosystem-based approaches to managing marine areas. |
| ODS14. Conserve and sustainably use the oceans, seas and ma- rine resources for sustainable development. | Target 14.4. By 2020, effectively regulate harvesting, and end overfishing, illegal, unreported and unregulated (IUU) fishing and destructive fishing practices and implement science-based management plans to restore fish stocks in the shortest time feasible at least to levels that can produce maximum sustainable yield as determined by their biological characteristics. | Indicator 14.4.1. Proportion of fish stocks within biologically sustainable levels. |
| | Target 14.5. By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on best available scientific information. | Indicator 14.5.1. Coverage of protected areas in relation to marine areas. |
| | Target 14.b. Provide access for small-scale artisanal fishers to marine resources and markets. | Indicator 14.b.1. Degree of application of a legal/regulatory/policy/institutional frame- work which recognises and protects access rights for small-scale fisheries. |

Source: own research.

Regarding SDG 15, the following statement is particularly relevant and is linked to the targets and indicators outlined in Table 11.

We are replanting coral, restoring mangroves and learning more about seagrass restoration. The Barú community is committed to reclaiming the paradise we once were before the mass arrival of tourism and private investors (informant from Barú).

Table 11

| Relevant | targets a | nd indicators | s for SDG 15 |
|----------|-----------|---------------|--------------|
| | | | |

| SDG | Goals | Indicators |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ODS15. Protect, restore and pro- mote sustainable use of terrestrial ecosystems, sus- tainably manage forests, combat desertification, and halt and reverse land deg- radation and halt biodiversity loss. | Target 15.5. Take urgent and signifi- cant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species. | Indicator 15.5.1. Red List Index. |
| | Target 15.9. By 2020, integrate ecosystems and biodiversity values into national and local planning, development processes and poverty reduction strategies, and accounts. | 15.9.1(a) Number of countries that have established national tar- gets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020 in their national biodiversity strategy and action plans and the progress reported towards these targets; and (b) integration of biodiversity into na- tional accounting and reporting systems, defined as implemen- tation of the System of Environmental-Economic Accounting. |

Source: own research.

Regarding SDG 16, the following statement is particularly relevant and is linked to the targets and indicators outlined in Table 12.

The state has indeed come to Barú, but only to create parks and protected areas. [...] Of course, we want to conserve the sea, but we also want to participate in decision-making. Instead, the state's actions only foster conflict (informant from Barú).

Table 12

Relevant targets and indicators for SDG 16

| SDG | Goals | Indicators |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ODS16. Promote peaceful and inclusive societies for sus- tainable development, provide access to justice for all and | Target 16.7. Ensure responsive, inclusive, participatory and representative decision-mak- ing at all levels. | Indicator 16.7.1. Proportions of positions in national and local institutions, including (a) the legislatures, (b) the public service and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups. |
| build effective, accountable and inclusive institutions at all levels. | | Indicator 16.7.2. Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group. |

Source: own research.

Finally, regarding SDG 17, the intervention proposal has been designed with a transnational mutual learning approach between two traditional fishing communities one in Sabinillas (Andalusia, Spain) and the other in Barú (Colombia)—with the aim of contributing to the global challenges of ocean management. The following excerpts from the intervention proposal highlight principles that align with the targets and indicators presented in Table 13.

[One of the project's objectives is] to strengthen knowledge networks related to marine-coastal transitions affecting local populations in contexts of inequality, where livelihoods are closely connected to the sea, through a comparative case study approach (formulation of the "From Coast to Coast" project).

Table 13

Relevant targets and indicators for SDG 17

| SDG | Goals | Indicators |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ODS17. Strengthen the means of implementation | Target 17.16. Enhance the Global Partnership for Sustainable Development complemented by mul- ti-stakeholder partnerships that mobilise and share knowledge, expertise, technologies and financial resources to support the achievement of the Sustain- able Development Goals in all countries, particularly developing countries. | 17.16.1. Number of countries reporting progress in multi-stakeholder development effectiveness monitoring frameworks that support the achievement of the SDGs. |
| and revitalise the Global Partnership for Sustainable Development. | Target 17.17. Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships. | 17.17.1. Amount in United States dollars com- mitted to public-private partnerships for infrastructure. |
| | Target 17.19. By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement GDP, and support statistical capacity building in developing countries. | 17.19.1. US dollar value of all resources made available to strengthen statistical capacity in developing countries. |

Source: own research.

The analysis demonstrates that up to 13 of the 17 SDGs are linked to an intervention of this nature.

5. Discussion: limitations and proposals for improvement

5.1. General limitations of existing SDGs, targets and indicators

This project is grounded in a socio-ecological and intercultural sustainability perspective, aiming to revalue traditional ways of life, particularly the relationship between traditional fishing communities and the sea. The first notable finding is that this perspective encounters several general limitations within the Agenda:

- While an initial reading of the SDGs and most targets may suggest adequate coverage of the challenges addressed, a closer examination of their wording reveals significant biases, such as the distinction between terrestrial and marine challenges.
- A similar bias is evident in the difficulties of applying an intercultural perspective. Identifying proposals that explicitly recognise communities with distinct socio-cultural identities, such as traditional fishing communities, as a differentiated group remains particularly challenging. It is important to highlight that fishing is not merely a socio-economic activity but a way of life (Florido, 2020), encompassing a unique form of social organisation, a deep-rooted sense of social and territorial identity and an intergenerationally transmitted body of knowledge. These communities also face political and regulatory challenges, as they are often insufficiently recognised and respected in their collective capacity to sustain their traditional way of life. Decisions regarding territorial development are frequently imposed on them by public or private actors without their participation or meaningful consideration.
- Another overarching issue is that, despite many indicators requiring assessment at the local scale, the majority are difficult to adapt and implement territorially.

Finally, it is important to highlight a cross-cutting issue: the Agenda as a whole lacks a political dimension that critically examines the control of resources and means of production. This omission directly affects the agency and decision-making capacities of communities. Recent research underscores that the contribution of artisanal fisheries to food security and poverty reduction, particularly in developing countries, necessitates their inclusion in discussions on the SDGs (Bitoun, 2024).

Building on the three identified limitations, the analysis further examines the indicators outlined in the results section to determine: which indicators can directly assess the impact of a process of this nature, which require adaptation (such as shifting from a national to a local scale or incorporating marine dimensions alongside terrestrial ones) and which are entirely inapplicable or non-existent, thereby necessitating the proposal of new indicators or, at the very least, the principles for their development. The following section focuses specifically on this last case.

5.2. Guidelines for adapting selected indicators and proposals for reformulation

This section reviews a selection of indicators² and outlines the analytical process for their reformulation in response to the general limitations identified.

The first issue examined is the presence of *maritime and terrestrial bias* perspectives. Indicator 1.4.2, "Proportion of total adult population with secure tenure rights to land", is analysed. The key question to consider for this group is: Do traditional fishing communities have any preferential rights of access to the sea as fishers?

Rather than focusing solely on land tenure, the Agenda should also assess whether fishing communities have rights over the production factors essential to their work, and therefore access to income derived from their labour. New indicators could be introduced to measure these communities' priority access to docking ports, which today serve primarily as recreational rather than working spaces. It is essential to ensure the identification, recognition, protection, allocation and management of tenure rights in fisheries, encompassing both rights over the sea and access rights to the sea and other bodies of water that sustain their way of life.

Thus, while the existing indicator could be useful, it requires adjustments to adequately account for maritime areas:

- Proposed indicator 1.4.i: Proportion of the total fishing population with secure tenure rights that (a) possess legally recognised documentation and (b) consider their rights secure, by sex and type of tenure.
- Proposed indicator 1.4.ii: Extent to which the state recognises, respects and protects all forms of legitimate tenure rights, taking into account, where applicable, customary rights over aquatic resources and small-scale fishing lands and areas used by fishing communities.
- Proposed indicator 1.4.iii: Extent to which fishing communities have institutionalised local norms or practices (rules of the game) regarding preferential access and customary rights to fishing areas.
- Proposed indicator 1.4.iv: Degree to which small-scale fishers and their communities enjoy secure, equitable and culturally and socially appropriate tenure rights over fishery resources and coastal or riverside land to ensure and facilitate access to fishing and related activities.

The exclusion of maritime realities from the Agenda is evident across all its dimensions. In the economic dimension, this bias appears in indicator 2.3.1, "Volume of production per labour unit by classes of farming/pastoral/forest-ry enterprise size", and indicator 2.4.1, "Proportion of agricultural area under productive and sustainable agriculture". In the social dimension, a similar exclusion is present in indicator 5.a.1, "Percentage of people with ownership or secure rights over agricultural land (out of total agricultural population), by sex". Even in the environmental dimension, indicator 6.b.1, "Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management", fails to consider marine waters.

The second limitation identified is the *lack of consideration for different socio-cultural identities within the Agenda*. To illustrate this, indicator 8.3.1, "Proportion of informal employment in total employment, by sector and sex", is analysed. In the fishing sector, informality should be accounted for in an Agenda that aspires to be comprehensive. The reality of maritime work is characterised by precarious contracts, such as part-time employment and seasonal work, which in turn affect retirement benefits. To address these issues, additional indicators could be introduced to capture relevant data:

- Indicator 8.3.i: Percentage of traditional fishers receiving a contributory pension for their fishing activity.
- Indicator 8.3.ii: Percentage of fishers receiving a pension equal to or greater than the minimum wage.

The informality measured by indicator 8.3.1 should be interpreted more broadly to reflect the actual challenges faced by these communities, particularly the presence of furtive (unregulated or illegal) fishers, who exploit and deplete fishing grounds without extraction limits or sanitary controls. To monitor this issue, another indicator could be incorporated:

• Indicator 8.3.iii: Percentage of furtive fishers relative to traditional fishers organised within guilds.

Aligned with the recognition of diverse socio-cultural identities, indicator 12.8.1, "Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment", is also noteworthy. The Agenda integrates awareness-raising dimensions within target 12.8 and target 4.7, yet neither includes concrete indicators.

Given the strong cultural significance of traditional fishing communities, additional indicators could be developed to highlight and value their activity and its impact on territorial culture:

- 12.8.i: Number of literary works, artistic pieces, etc., that highlight and promote lives connected to artisanal fishing.
- 12.8.ii: Extent to which education on the value of artisanal and small-scale fisheries is incorporated into local, regional and national education policies.

The third challenge is *incorporating a local or regional perspective into indicators that are primarily designed at the national or global level* to enable the implementation of policies and interventions with meaningful impact at these levels of public administration. To illustrate the limitations of the Agenda's predominantly global approach, indicator 14.2.1, "Number of countries using ecosystem-based approaches to managing marine areas", is examined.

By establishing this indicator at the national level, the opportunity to integrate an ecosystem-based approach into local coastal management is overlooked. A local perspective would facilitate the dissemination of policies across regions. It would be

beneficial to assess whether local or regional/autonomous governments and communities apply an ecosystem-based approach to coastal management:

• 14.2.i: Number of local agreements/plans/policies that apply an ecosystem-based approach to managing coastal areas in the study region.

This local perspective can be integrated directly, as in the previous example, but also indirectly by incorporating a participatory governance approach:

• 14.2.ii: Number of countries that include artisanal or small-scale fisheries as part of the ecosystem-based management of marine areas.

Furthermore, by addressing this third limitation (lack of localisation) alongside the second limitation previously discussed (failure to incorporate diverse socio-cultural identities), composite indicators can be developed that integrate both dimensions, such as:

- 14.2.iii: Extent of participation by artisanal and small-scale fishers in plans or programmes aimed at eliminating illegal or unregulated fishing.
- 14.2.iv: Extent of participation by artisanal and small-scale fishers in the zoning of Marine Protected Areas, ensuring that the effects of such designations on fishers are considered and mitigated.

This focus on localising and territorialising the indicators of the Agenda is also evident in those included under SDGs 16 and 17, which specifically address its governance. As an illustrative example, we consider indicator 16.7.2, "Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group".

A perception-based indicator is relevant at the national level, as participatory and deliberative democratic spaces are primarily established at the local level. However, by incorporating this dimension, it becomes possible to develop objective indicators for inclusive decision-making:

• 16.7.i: "Number of decision-making and networking spaces between fishers' guilds and local (or regional) fisheries management authorities."

Additionally, indicators can be introduced to measure the extent of shared responsibility in these collaborative processes:

• 16.7.ii. "Proportion of guild members participating in decision-making and networking spaces."

Addressing the local dimension of the Agenda enables the inclusion of other socio-cultural identities present in the territory.

6. Conclusions

The 2030 Agenda serves more as a normative framework with broad political guidelines than as an operational programme that provides clear direction for implementing specific actions to achieve its indicators. This framework lacks critical elements, making it challenging to integrate deeply transformative proposals, such as the socio-ecological and intercultural approach examined in this analysis.

Moreover, the Agenda is designed at a global scale, which limits the ability of locally designed and executed interventions to contribute to the effective implementation of the SDGs. The existing indicators are largely insensitive to local and even regional impacts, which can be discouraging for public and private entities responsible for their implementation and promotion.

However, collaborative efforts between communities—fishing communities, in this case—and academic institutions, through horizontal and *bottom-up* research processes, can help address these limitations. As demonstrated, it is possible to integrate the key concerns of communities into the 2030 Agenda, but doing so requires a critical reassessment. Developing more localised and qualitative indicators-many of which are not currently reflected in available secondary sources—would necessitate commitments to data collection and management. This, in turn, requires generating and maintaining information at the territorial level, securing the active participation of fishing communities, public administration and relevant social stakeholders. Ensuring access to this information requires fostering spaces for participation and collaboration among all actors involved. Thus, three levels of indicators are identified, each providing complementary information to better understand the realities faced by fishing communities. First, indicators available in secondary sources, published in various institutional repositories. Second, indicators from relevant public administrations, accessible through prior consultation. Obtaining this information requires networked collaboration, as these entities are not necessarily obligated to publish it, and some indicators have yet to be developed. Third, indicators that can only be obtained at the territorial level. Accessing this information necessitates fostering participatory spaces that facilitate the collection of insights from fishing communities and relevant social stakeholders to develop and manage qualitative indicators. It is essential to recognise that participation, empowerment and fair treatment of local communities in the development of these indicators not only enhance the quality and relevance of the data collected but also strengthen social cohesion and community resilience. Furthermore, the study underscores the importance of reinforcing the functional role of territorial dynamics within local governments by integrating multilevel and multi-actor mechanisms to coordinate public policy decisions. This requires collaborative efforts across different levels of government to accelerate the territorial implementation of the SDGs and ensure their effective local adaptation.

These findings may serve as a reference for ongoing discussions on ocean-related issues from an ecosystemic and socio-ecological perspective. The Decade of Ocean Science for Sustainable Development presents a key opportunity to strengthen rec-

ognition of the contributions of artisanal fishers to sustainability and their role in the necessary transitions amid climate change and ocean degradation. In Europe, the recently enacted Nature Restoration Law will enable various stakeholders to set conservation targets, with fishing organisations playing a crucial role in this process. In Colombia, the newly introduced Mangrove Law, alongside other coastal and marine regulatory instruments, aims to implement conservation models that uphold the rights of local fishing communities and Afro-descendant groups.

Regarding the methodology presented, it serves as an analytical framework offering recommendations to advance the complexification, territorial implementation and intercultural integration of the 2030 Agenda. This approach improves the effective-ness of its indicators, which, in their current form, may discourage decision-makers, particularly at the local and regional levels. Undoubtedly, this represents the study's most significant practical implication.

However, it is also important to acknowledge the study's limitations. The main limitation is that it was developed through a predominantly technical and academic reflection process. While dialogue with the community has helped surface their concerns, a fully shared reading of the Agenda was not possible during the initial phases of the intervention.

These limitations are already being addressed in future lines of research, involving horizontal dialogue with the fishing communities of San Luis de Sabinillas and Barú. We extend our recognition and gratitude to these communities for inspiring and enabling this analysis and, hopefully, for being the beneficiaries of its insights. We also appreciate the collaboration of the Manilva Municipal Council, through the Department of Fisheries, as well as the contributions of researchers David Florido and Jorge Sáez, who have supported these activities.

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Notes

1 As observed in fieldwork activities, women already play a significant role—not directly in the extractive process but prominently in the management and commercialisation of fisheries in both the Mediterranean and the Caribbean.

2 For further reference, see the final report of the "From Coast to Coast" project, funded by the CENTRA Foundation, under which this research was conducted.

Antonio Sianes

Antonio Sianes is the director of the Institute for Research in Policies for Social Transformation at Loyola Andalucía University, where he is a permanent lecturer of political science and public administration in the Department of International Studies. His research focuses on development studies, specialising in both the analysis of development policies within a global governance framework and policies aimed at social transformation.

Johana Herrera-Arango

Johana Herrera-Arango holds a PhD in inclusive and sustainable development as well as a master's degree in cultural studies and ecology. She is a lecturer and researcher at the Faculty of Environmental and Rural Studies at Pontificia Universidad Javeriana. She currently serves as director of the Observatory of Ethnic and Peasant Territories. Her research experience includes socio-ecological systems, land tenure systems and artisanal fisheries in the Caribbean and Mediterranean, as well as ecological and cultural sustainability. Her publications focus on collective territorial rights, Afro-descendant communities, participatory GIS (geographic information systems) and sustainability in ecosystems such as tropical dry forests, humid forests, savannas, mangroves and coastal areas. She has extensive experience in intercultural dialogues with rural communities and ethno-territorial organisations for the management and planning of common resources.

Manuel Enrique Pérez-Martínez

Manuel Enrique Pérez-Martínez holds a PhD in territorial studies from the University of Caldas as well as a master's degree in planning and administration of regional development from CIDER, University of the Andes. He is a specialist in urban-rural rehabilitation and development at the Centre for Regional, Urban and Rural Studies in Rehovot, Israel and holds a bachelor's degree in sociology from the National University of Colombia. He is a permanent lecturer and researcher at Pontificia Universidad Javeriana, where he currently serves as director of the Department of Rural and Regional Development within the Faculty of Environmental and Rural Studies. His research interests include territorial adaptation processes in urban-marginal and regional areas, emerging systems of land-use planning and territorial development, nature-based solutions for urban-rural contexts in response to climate change, agroecological transitions and local community organisation.

Laura Serrano

Laura Serrano holds a PhD in inclusive and sustainable development from Loyola Andalucía University, as well as a master's degree in economic development and sustainability from Pablo de Olavide University and the International University of Andalusia. She also has a master's degree in contemporary issues in human rights from Pablo de Olavide University, and a dual bachelor's degree in law and business administration from Pablo de Olavide University. She is currently a professor at the Faculty of Economics and Business Sciences at Loyola Andalucía University and a researcher in the university research group Social Matter. Her research focuses on the commodification of urban spaces, urban conflicts arising from the privatisation of public space, urban economics and the right to the city from a critical perspective.

Rocío Vela-Jiménez

Rocío Vela-Jiménez holds a PhD in inclusive and sustainable development, a master's degree in human rights, interculturality and development, and a bachelor's degree in social and cultural anthropology. Her professional career has centred on community social intervention and international development cooperation. Currently, she is a researcher and professor at Loyola Andalucía University, where she is part of the Department of Humanities and Philosophy and teaches in the Faculty of Communication and Arts. Her research focuses on strengthening local human development processes in disadvantaged neighbourhoods in Andalusia through the territorial adaptation of policies and interventions.

Carmen Ana Castaños Gómez

Carmen Ana Castaños Gómez, a social and cultural anthropologist, served as external researcher for the project "From Coast to Coast: Socio-Ecological Challenges on the Coasts of Andalusia and the Caribbean in the Context of the 2030 Agenda" (CEN-TRA Foundation, PRY123/22). She has also collaborated on various studies on fishing communities along the Andalusian coast in partnership with researchers from the Department of Social Anthropology at the University of Seville.

Juan Antonio Senent-De Frutos

Juan Antonio Senent-De Frutos is a permanent lecturer in the Department of Humanities and Philosophy at Loyola Andalucía University. He is a coordinator and endorser of the governance and human rights for the construction of inclusive and sustainable societies research line within the PhD programme in inclusive and sustainable development at Loyola Andalucía University. In the field of intercultural studies, and in dialogue with sustainability challenges, he conducts research on the contributions of communities that maintain traditional ways of life to socio-ecological sustainability. Within this framework, he serves as the lead researcher of the project "From Coast to Coast: Socio-Ecological Challenges on the Coasts of Andalusia and the Caribbean in the Context of the 2030 Agenda" (CENTRA Foundation, PRY123/22).