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Cultural heritage, the environment and climate change: cultural damage from environmental deterioration in San Basilio de Palenque, Colombia

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ABSTRACT

The manuscript analyzes the damage to tangible and intangible cultural assets due to climate change and the deterioration of practices and traditions derived from the ancestral knowledge of local communities about their territory. These assets are threatened by several factors, such as an increase in sea level and in the frequency and severity of droughts.

This study, conducted using a qualitative and ethno-methodological approach, analyzes the case of San Basilio de Palenque in Colombia, declared as Intangible Cultural Heritage by UNESCO. According to the Ministry of Culture, the territory of San Basilio de Palenque is synonymous with freedom, as anyone who became part of it was automatically free. This territory was originally populated by Maroons or African slaves who escaped from the slavery regime during the colonial period. Today, it is the only one that preserves its ancestral traditions and identity. The results show how environmental deterioration resulting from activities carried out by the community itself, together with intense periods of drought and other adverse effects of climate change, compromise the enjoyment of the cultural life of the palenqueros, put at risk the worldview that the inhabitants associate with the Melchor stream, and restricts the exercise of the freedoms of the community and its capabilities to obtain basic economic means that guarantee their well-being.

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Cultural identities; climate change; cultural heritage; sustainable development; socioenvironmental conflict; ethnomethodology

Introduction

In the twenty-first century, climate change stands out as a paramount global concern with far-reaching implications for poverty, food security, health, economic growth, migrations, ecosystem conservation, and species survival (Intergovernmental Panel on Climate Change – IPCC, 2018). Neglecting efforts for mitigation and adaptation could precipitate severe consequences across all facets of development. Concurrently, culture plays a pivotal role in the trajectory towards sustainable development, emerging as a crucial cross-cutting axis in this pursuit.

The climate emergency has posed a global problem that, among its different threats, also affects cultural life in all its dimensions, but mainly in the field of cultural heritage [...]. Anticipating the effects of the climate emergency on cultural rights, preserving cultural diversity as a heritage of humanity that exceeds the limits of nations, requires culture to take an active role in solving these problems (Martinell-Sempere, 2020, p. 132).

Climate change has emerged as a critical threat to cultural and natural heritage, impacting both ecosystems and vulnerable communities. According to Day et al. (2020), these risks affect not only biodiversity and cultural landscapes but also the social cohesion of associated communities, posing the danger of irreparable loss to their cultural heritage.

While much of the literature focuses on Indigenous peoples, in the Colombian context, it is essential to acknowledge the constitutionally protected ethnic diversity, which includes Palenqueros, Afro-Colombians, and Raizales. These communities share an intrinsic relationship with their natural environments, which are vital for the preservation and continuity of their cultural practices (Shirvani Dastgerdi & Sargolini, 2019; World Bank, 2024).

The cultures of all communities evolved throughout their history by building, adapting to their environment, acquiring knowledge, practices and customs according to the environmental contexts they faced, including the climatic conditions of the territories. The United Nations Educational, Scientific and Cultural Organization (UNESCO), regarding this relationship between culture and climate, highlights the following:

The character of cultural heritage is closely related to the climate. The rural landscapes have developed in response to the plant species that are able to flourish in different climatic regimes. The urban landscapes and the built heritages were designed with the local climate in mind. The stability of cultural heritage is, therefore, closely tied to its interactions with the environment (Colette, 2009, p. 64).

Cultural heritage can be physically affected by climate change, as in the materials of historic buildings, which when exposed to higher humidity or increasingly high temperatures accelerates their deterioration, placing the structural integrity at risk. According to Colette (2009, p. 65), as a 'dynamic' heritage (buildings and landscapes where communities meet and carry out various activities associated with their livelihoods), the impact of climate change on culture is much more evident, since it forces the migration of communities, leading to their breaking apart and the abandonment of their immovable properties, with the consequent probable loss of rituals and cultural memory. Climate change threatens intangible cultural heritage, as it affects traditional ways of life and deteriorates the conditions in which it is practiced and conveyed.

Cultural heritage is a source of knowledge and experiences that offer opportunities for learning and improvement in adaptation and mitigation issues (Intergovernmental Panel on Climate Change – IPCC, 2014). According to Welling et al. (2015) just as cultural heritage is affected by climate change, it also plays a role in addressing it through the transmission of traditional knowledge that creates resilience to the changes ahead and marks a path toward a sustainable future.

Crucially, the Outstanding Universal Value (OUV) of cultural heritage, as defined by UNESCO, refers to the cultural and/or natural significance which is so exceptional that it transcends national boundaries and holds common importance for present and future generations (UNESCO, 2008). This concept emphasizes the need for permanent

protection of such heritage due to its irreplaceable value to the international community as a whole. The OUV of cultural heritage is intricately linked to the unique characteristics and communicative prowess of its constituent elements – buildings, monuments, and sites (Welling et al., 2015). Municipalities and cities in the Colombian Caribbean face heightened climate risks that imperil their cultural assets, with anticipated impacts ranging from rising sea levels to pollution (Vargas-Cuervo, 2016).

Economic practices within communities can inadvertently jeopardize the preservation of cultural assets, as environmental degradation contributes to the erosion of their outstanding universal value (Welling et al., 2015). In this context, the village of San Basilio de Palenque,¹ acknowledged by UNESCO as an intangible cultural heritage of humanity, stands out as a unique cultural enclave in the Colombian Caribbean. This Afro population, recognized for preserving cultural forms of production and speaking the Creole palenquero language rooted in Bantu, faces imminent threats to its heritage from environmental shifts (UNESCO, 2008; Oficina en Colombia del Alto Comisionado de las Naciones Unidas para los Derechos Humanos, 2015).

The Melchor stream, an integral facet of palenquero cultural life, holds profound symbolic value, intricately linked to the social fabric of the territory. This research endeavors to unravel the intricate dynamics between climate change, cultural heritage, and sustainable development through an in-depth exploration of the challenges faced.

Research aim

This article seeks to enhance understanding of the intricate relationship between sustainable development, cultural heritage, and climate change. Through a case study in the village of San Basilio de Palenque, Colombia, we examine how climate change and environmental deterioration negatively impact cultural heritage. Moreover, the study aims to underscore the significance of culture in sustainable development and aligning with the 2030 Agenda. This research delves into the practical actions of individuals as the subject of empirical study, elucidating the ways in which people attribute meaning to their daily actions, behaviors, decisions, rules, and political reasoning.

Literature review of the relationship between cultural heritage and climate change

The literature on cultural heritage and climate change has increased since 2015, with a greater concentration in European countries, the United States, and China, but with limited representation in Latin America.

The results were systematically organized using the Tree of Science (ToS) methodology, based on graph theory, representing articles as nodes and citations as links. This visualization, depicted in [Figure 1](#), provides a comprehensive overview of the foundations and intersections between cultural dimensions, climate change, and environmental degradation.

Articles at the root of the science tree present foundational knowledge in the field, highlighting the limited existing information on the relationship between cultural heritage and climate change. Phillips (2015) underscores that historical and cultural heritage constitutes a non-renewable resource directly impacted by potentially serious

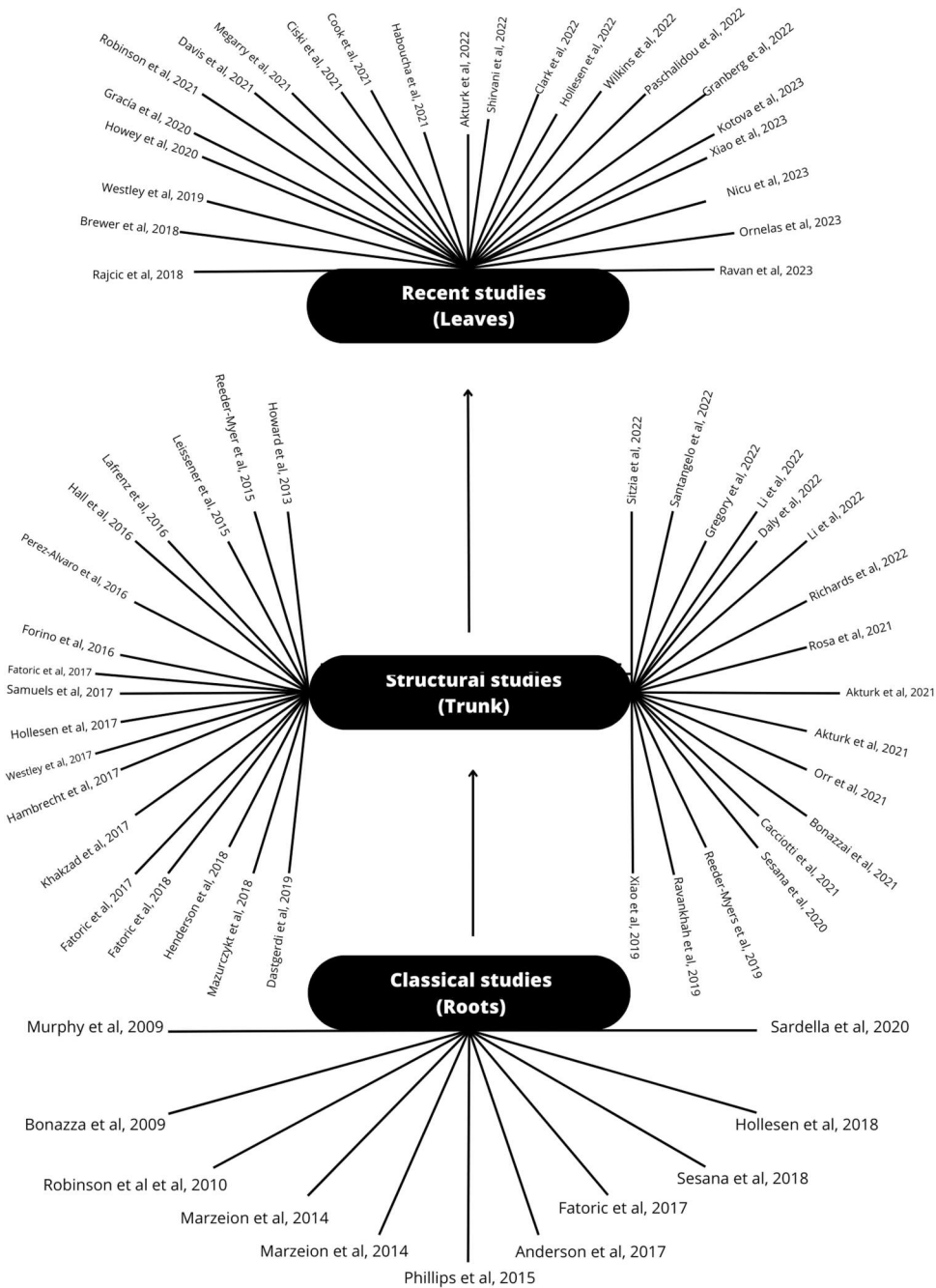


Figure 1. Tree of science of the relationship between culture and climate change.

implications of climate change. Fatoric (2017) identifies significant barriers, including the lack of preservation processes for planning and implementing climate adaptation actions, inadequate funding, and limited knowledge of the intersection between climate change and cultural heritage.

Sesana et al. (2018) delve into the determinants of climate change adaptation implementation, emphasizing the importance of understanding management methodologies employed by governments regarding the impacts of climate change. Their study, conducted in the UK, Italy, and Norway, explores the perceptions of authorities involved in managing and preserving cultural heritage. The majority of respondents believe that adapting cultural heritage to climate change is feasible.

Articles located in the trunk of the science tree share the common factor of recognizing the limited studies at the roots. Forino et al. (2016) propose a new risk assessment index for cultural heritage, the Cultural Heritage Risk Index (CHRI), acknowledging the scarcity of studies on the topic. Orr et al. (2021) advocate for periodic evaluations, building on the works of Fatoric and Seekamp, to understand how cultural heritage contributes to climate change mitigation and adaptation.

Daly et al. (2022) address adaptation policies and measures for heritage sites in low- and middle-income countries, emphasizing the need for a periodic assessment. Their study encompasses a review of national adaptation plans, expert surveys, and case studies.

Articles located in the leaves of the science tree embody proposed strategies for preserving cultural heritage in specific cases. Clark et al. (2022) contribute by differentiating the potential impacts of climate threats on cultural resources, enhancing the efficiency of risk assessments. They emphasize the importance of incorporating information on threat probabilities into risk assessments to prioritize efforts where danger likelihood is higher.

The overall findings of these publications emphasize the need for more research to design effective adaptation plans for heritage preservation in the face of climate change.

Various efforts have focused on developing tools to assess climate vulnerability in cultural assets. One of the most recognized methodologies is the Climate Vulnerability Index (CVI), which provides a comprehensive approach to evaluating climate-related risks in World Heritage sites. The CVI assesses the vulnerability of both the Outstanding Universal Value (OUV) and the associated communities, integrating economic, social, and cultural dimensions (Day et al., 2020).

In the Colombian context, studies related to climate-culture factors are recent and have primarily focused on indigenous and peasant communities in high mountain and páramos² ecosystems (Pinilla-Herrera et al., 2012, p. 27). This indicates a gap in knowledge regarding local-level knowledge, perceptions, and adaptation strategies related to climate change and cultural heritage in the Colombian context.

This article delves into the discussion on the relationship between climate change and cultural heritage by specifically addressing a rural Afro-descendant context, which has been largely unexplored in previous studies. Unlike most studies that focus on tangible heritage contexts in Europe and North America, this study centers on the vulnerabilities of the intangible heritage of San Basilio de Palenque, one of the few palenques that still preserve its cultural heritage and is located in a rural area of a South American country. This is done from a cultural development approach, which identifies the capacities and cultural assets that become vulnerable in this relationship.

Background

Situated to the south of the municipal seat of Mahates in the Colombian Caribbean, San Basilio de Palenque is a distinctive cultural enclave acknowledged by UNESCO in 2005

as an intangible cultural heritage of humanity. In contrast to many historic palenques, only San Basilio persists today, representing an Afro population dedicated to preserving unique cultural practices, including their own language – Creole palenquero – which traces its roots to the Bantu language of African origin (UN Human Rights Office in Colombia, 2015; United Nations Educational, Scientific and Cultural Organization - UNESCO, 2008).

According to the Ministry of Culture (2009), as a palenque, it was formed by Maroons and African slaves who escaped from the slavery regime during the colonial period. For this reason, the territory of San Basilio de Palenque is synonymous with freedom. Anyone who joined it was automatically considered free. Therefore, besides being the only palenque that has survived to the present day, its existence is a clear example of African heritage's richness and cultural significance in the territory. Its community maintains an ethnic consciousness that allows them to understand themselves as a distinct people, with the only Spanish-based creole language in the African diaspora in the Americas. Additionally, it has a unique social organization based on the *ma-kuagro* or age groups, its funeral rituals, and traditional medicine.

As of 2020, the village's population, according to the Planning Office-Mahates Municipality (Mayor Office of Mahates, 2020), stands at 3,390 individuals, with a nearly equal gender distribution of 50.86% men and 49.14% women. San Basilio de Palenque is geographically divided into two neighborhoods, Barrio Arriba and Barrio Abajo, separated by the church and health post (Ministry of Culture, 2010). The Melchor stream, illustrated in Figure 2, encompasses the village and serves as the focal point for our case study.

The Melchor stream holds profound cultural significance for the palenqueros, intricately woven into the social fabric of the community and carrying symbolic value. Its importance extends beyond the physical, encompassing mythological elements such as Catalina Luango, the goddess of waters, and creatures inhabiting the *mohán* world.

Within the framework of this community's worldview, three distinct realms exist: (i) the living world we all inhabit, (ii) the dead world serving as the palenqueros' meeting place with ancestors, and (iii) the *mohán* world – a mythical underwater domain inhabited by *mohanes*, *mohanas*, and *mohansitos* (Vargas-Chaves et al., 2018).

The Melchor stream, beyond its mythological and cultural dimensions, serves as a backdrop for various activities integral to the cultural life of San Basilio de Palenque. These include (i) cleaning days, (ii) clothes washing, (iii) socialization following community-established schedules, and (iv) '*vueltas*' (turns), a cultural practice mediated by a '*vueltero*' facilitating sentimental connections between individuals (Vargas-Chaves et al., 2020). However, the drying of the water body, driven by environmental degradation and climate change, has directly impacted these practices, limiting access to the community's cultural life. This environmental and cultural interplay underscores the socioenvironmental conflicts affecting the Melchor stream (Orellana, 1999).

The historical narrative of San Basilio de Palenque revolves around the triad of (i) freedom, (ii) territory, and (iii) identity, conceptualizing freedom as the unrestrained expression of culture with spiritual, material, and axiological implications (Hernández-Cassiani, 2014). Consequently, addressing the issues surrounding this symbolic water body extends beyond a mere environmental conflict; it delves into the social dimensions where natural resources represent cultural assets, providing freedom, capabilities, and identity to the community. In this context, freedom materializes through active participation in the community's cultural life associated with the Melchor stream.

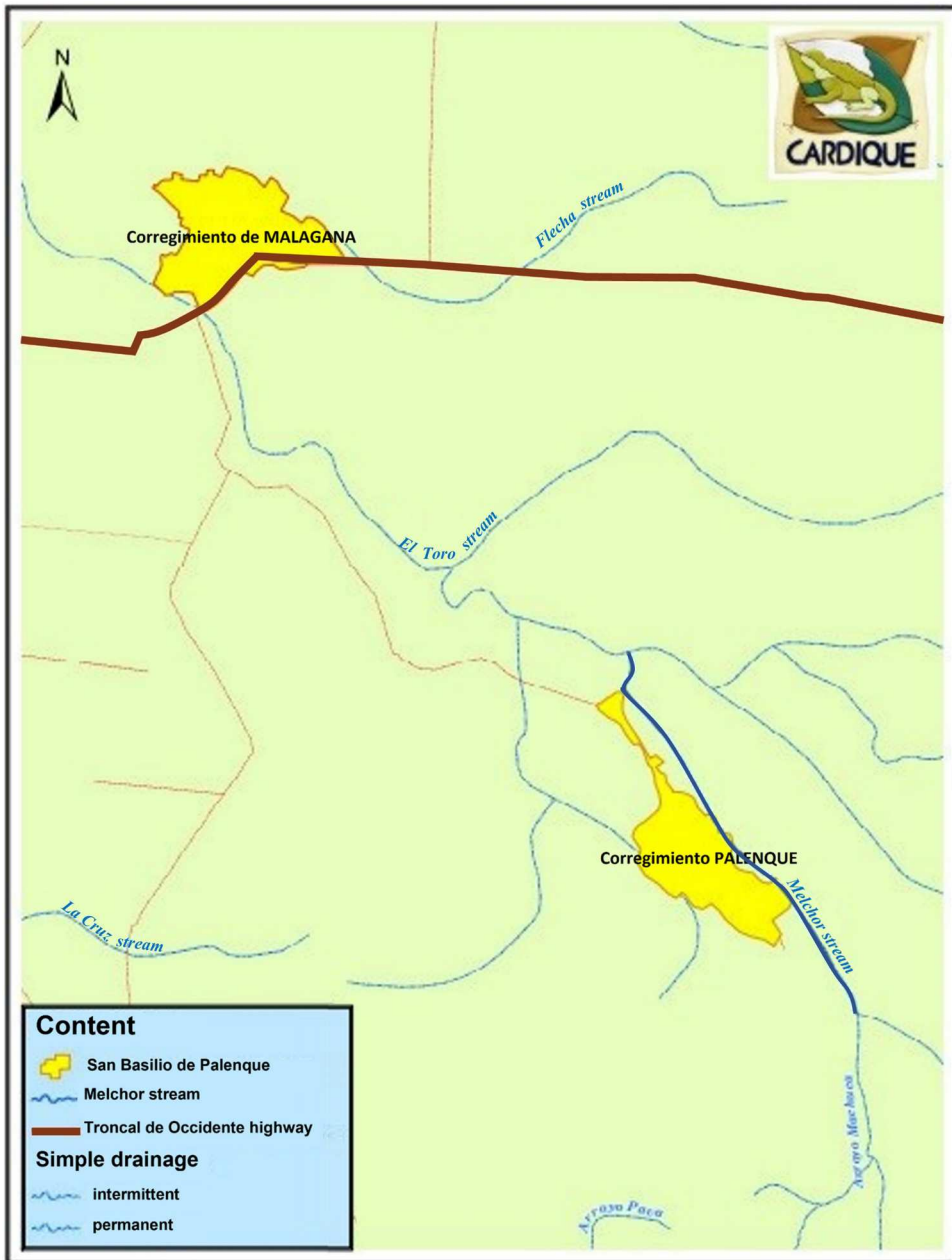


Figure 2. Cartography of San Basilio de Palenque.

Materials and methods

The present research is based on the theory of capabilities and cultural rights;³ the cultural approach to development⁴ (Martinell-Sempere & Abello-Vives, 2013) and also in an ethnomethodological analysis (Garfinkel, 1967), in which central importance is attributed to observable practical actions, as they constitute the subject of empirical study. This

approach is chosen because we are interested in analyzing the methods through which people make sense of their everyday actions, rules, and political reasoning.

Initially, a survey of the territory and the stream was conducted to observe the cultural uses and practices associated with it. Behavioral observation guides, known as behavioral maps, were used to identify these practices, analyzing people's behaviors within a specific time period.

Subsequently, the formulation and implementation of semi-structured interviews were necessary with women, youth, community leaders, and elderly individuals⁵ who could provide insights into the state of the Melchor stream during the last 40 years. Through this technique, the impact of environmental deterioration on the relationship between the community and the stream was evident. Criteria for conducting these interviews included (i) the interviewee currently residing in San Basilio de Palenque and (ii) having resided in the locality for a period of no less than 5 years.

Similarly, focus groups were conducted with members of different interest groups, such as the community council, where individuals responsible for (i) environmental issues and (ii) public services were previously identified. Questions were designed based on five thematic axes, covering (i) deterioration of the Melchor stream, (ii) socio-environmental conflict arising from the relationship between stream deterioration and cultural practices, (iii) cultural capacities and assets, (iv) community perception of the stream's value, and (v) community management deployed on this issue.

As initially proposed, this research project, along with its methodology, is based on the capabilities and cultural rights approach inherent in the cultural approach to development. In this sense, it uses the premise that culture, in all its expressions and dimensions, is a realm of social and political life with broad potential for direct and indirect impact on development. This approach integrates other principles according to the cultural life characteristics of each context, recognizing the importance of fundamental rights (Martínez-Sempere & Abello-Vives, 2013).

It is essential to emphasize that, from the beginning and throughout the application of the mentioned research techniques, the willingness to provide information to all individuals participating in the process was ensured. In this regard, for testimonies – both in semi-structured interviews and corresponding focus groups – informed consent, expected results, and the scope of the proposal were shared.

Adapting this approach to the present research facilitated:

- Adapting this approach, the present research achieved the following three specific objectives: Understanding the perception of San Basilio de Palenque residents regarding the environmental deterioration in the Melchor stream that passes through their locality.
- Identifying and analyzing the cultural implications of climate change that have arisen in the community regarding the use of the Melchor stream.
- Characterizing the cultural capacities and assets affected in the San Basilio de Palenque community due to environmental deterioration in the Melchor stream.
- Developing a proposal for the legal protection of violated rights, intending to present it to the relevant authority as a tool for decision-making.

Through them, it was possible to achieve a fourth objective, which consisted of developing a proposal for the judicial protection of the fundamental rights of the population of San Basilio de Palenque. This was based on the provisions of the Political Constitution of Colombia and ILO Convention 169, under which the rights of ethnic peoples are considered fundamental. This methodology allowed for establishing a link between the affected capacities of the Palenque population and their rights that were infringed.

Results and discussion

The socioenvironmental damage ends up affecting the capabilities and cultural assets of the population of San Basilio de Palenque to the extent that, associated with the stream, there are numerous activities and cultural practices that identify the palenqueros. The Cultural Approach to Development describes cultural capabilities as those that (i) satisfy the needs of the cultural life of individuals, groups and communities with freedom, (ii) integrate the elements that allow citizens to exercise the right to participate in cultural life and the enjoyment of its achievements, and (iii) are close to the essence of the human being in relation to values, cosmogony, traditions and expression (Martinell-Sempere & Abello-Vives, 2013)

Consequently, the stream as a space of use has also been replaced by other physical spaces in the territory. In other words, it has led activities to be reorganized at the territorial level. The effects of the socioenvironmental conflict have significantly modified the availability, accessibility and enjoyment of the cultural life of its inhabitants. The negative effects of socioenvironmental conflict on the cultural life of the people of San Basilio de Palenque are evident. The four cultural assets most affected by climate change due to the stream's drought are:

- i daily activities such as bathing, laundry, and washing kitchen utensils (Figure 3).
- ii the social space represented by the stream, which serves as a place for *vueltas* and disputes among *kuagros*⁶ (Figure 4);
- iii myths and legends, as the stream's drought diminishes the essence of myths like that of *Catalina Luango*, goddess of the waters, and the world of the *mohanes*; and
- iv traditional medicine, due to the loss of a significant number of medicinal plants cultivated there.

The analysis, under a participatory approach, of the identified cultural assets allowed feedback from the community, grouping and identifying in this exercise, other assets related to cultural life. The inhabitants of the village prioritized two cultural assets and their respective associated assets: (i) the stream as a place of socialization and (ii) myths and legends.

Damage to the main place of socialization: San Basilio de Palenque is an Afro-peasant community that, as such, has an established social configuration of its territory. In it, the networks of social relationships that participate in it are updated from time to time. These relationships are due to a series of basic capabilities contemplated in the cultural approach to development that, in turn, are considered fundamental for the formation and materialization of the cultural capabilities of the community itself (Martinell-Sempere & Abello-Vives, 2013).



Figure 3. Washing clothes done by women on the banks of the Melchor stream.

By not having these capabilities guaranteed, as a consequence, the community sees the materialization of the cultural capabilities related to them broken. That is, as highlighted above, this population has various cultural practices associated with the stream. However, when the ecosystem environment is affected, its foundational capacities for development are initially impacted, leading to consequences for cultural aspects as well.

Specifically, by not having access to the scenario where these practices have been carried out for many years, some of them have had to move to other scenarios to the extent that this space is not able to physically satisfy the requirements of these activities; in the same way, other practices have been totally or partially lost because of this over time.

As a consequence, some individual cultural capabilities have also been affected. Each of the palenqueros who previously accessed this resource for the materialization of some of these practices have not been able to participate fully in the social dimension of the cultural life of their context. In the same way, by not having this physical space, they



Figure 4. Children's play inside the Melchor stream.

were not able to regain the communication and movement skills that would allow them to carry out these cultural practices. Such is the case of the *vueltas*. For this practice, the stream was a guarantee of greater privacy and, as a consequence, greater inhibition in achieving the ultimate goal of this practice.

However, with respect to community cultural capabilities, for the damage to the cultural asset that brings us together, the community has seen an obstacle in freely participating in the cultural life that identifies them as such. Activities such as fights between *kuagros*, community *sancochos*⁷ and children's games can no longer be carried out freely in the stream. To be able to carry them out, it is necessary to have optimal conditions in terms of the water level and the condition of the terrain, and these, during the last years, occur in very short periods. That is why it has been necessary to resort to other physical spaces of the territory to be able to carry them out.

Damage to heritage and cultural memory: The cultural damage caused by the total or partial loss of some of the cultural practices associated with the stream has caused new generations of palenqueros to not know them and, therefore, to not practice them. This, in terms of cultural capabilities, means ignoring one's own cultural heritage and memory and, consequently, also ignoring its value.

With this, the lack of protection to the inheritance, heritage and cultural expressions of the community is evident to the extent that it has not been possible to clearly and sufficiently convey the contributions of the community's culture to the new generations. Their memory and their historical knowledge, associated with the stream, have not been preserved and, a large part of them, have fallen into oblivion.

Damage to their worldview and mythology: The story of María Catalina Luango, goddess of the waters, is a cosmogonic tale representative of the origins of the palenqueros. Its return to the waters alludes to the Atlantic crossing from Africa to America in the framework of black trafficking. This is also reflected in the symbolic onomastics of her surname. This woman, in turn, is directly related to the mohán world (Maglia & Moñino, 2015).

For its part, the mohán world represents a world opposite to the world of the living for Palenque, through the stream. This mythical world does not use the entire stream; it is located in specific areas (areas of the mohán world). First, it is found under the waters of the stream; mohanes and mohanas have straight and very long hair and are usually dressed in white. On average, they measure one meter in height and have a thin nose, green eyes and thin lips. These creatures do not consume sugar or salt and tend to be cured with plants and have intercourse through the abdomen and not with their genitals (Vargas-Chaves et al., 2020).

In the words of the palenqueros, these creatures are located in the deepest pools and in the loneliest areas of the territory. People cannot go alone to these places to bathe. In fact, they insist that the most advisable thing is to go with a minimum of three people and in an established schedule. That is, the restriction points to 6 in the morning, 12 noon and 6 in the afternoon onward. On Thursday and Good Friday, it is also not advisable to go since these are dedicated by these creatures to converse with each other (Vargas-Chaves et al., 2020).

As explained above, with regard to this cultural asset, with the drying and deterioration of the Melchor stream, individual and collective cultural capabilities are also affected. These creatures, their scenarios and actions are part of this mythological heritage

belonging to the cosmogonic dimension of the cultural life of the Palenquero context. The fact that the recreation of these beings is affected implies the simultaneous impact on the ability of each of the palenqueros to participate fully and autonomously in this dimension of their cultural life. By not maintaining the sustainable existence of these beings over time, the transmission of this dimension from generation to generation is lost.

Thus, climate change not only causes direct impacts, such as droughts and extreme events, but also has significant collateral effects on health, food security, and cultural practices. Christofolletti and Olender (2021) highlight that these dynamics create a vicious cycle of vulnerability, where the loss of natural resources intensifies insecurity and undermines the continuity of cultural traditions. The integration of local communities in climate risk management is essential to mitigate these impacts and preserve the cultural value of the affected territories.

Conclusion

Throughout the study, it was inevitable to see the relationship that exists between the capabilities and assets violated and the few conditions achieved so that in San Basilio de Palenque one can speak of sustainable development. Culture is a transversal dimension of development and in this analysis the conception of development as freedom is not fulfilled (Sen, 1999). In the results obtained in the different field visits carried out, it can be seen how the capacity for individual and collective agency has deteriorated.

The Melchor stream gives individuals and the community the freedom to choose what they prefer to put into practice when carrying out the activities that identify them. It can be said then that the presence of the stream gives the palenqueros the ability to choose if they carry out their activities in the body of water or in other stages, but by not having it in optimal conditions, this freedom is restricted, and they are limited to resorting to practices that end up affecting the environmental balance even more.

In this sense, it can be seen that the stream has ceased to be the main source of natural water supply for the community to be replaced by other nonnatural collection systems that end up affecting the ecosystem balance in the medium and long term. In the same way, it ceased to be the main stage of socialization for the community when it was replaced by the Nicolo and El Berré pools to replace the areas that were previously considered mixed inside and that favored coexistence and the realization of cultural practices.

The Melchor stream has also been replaced by other bodies of water for the survival of the Mohán world and other creatures associated with it. It has gone from being an ecosystem in equilibrium, in which different species of fish and plants destined for medicinal use coexist, to a purely extractive resource, directly causing its deterioration. Moreover, the Melchor stream has lost its cultural value for the community.

With the continuity of activities that affect the ecosystem balance, added to climate change, the situation can transcend much more, since the potential effect of climate change to force the migration of the territories has been evidenced, and San Basilio de Palenque, by not having aqueduct service, drinking water and in the event of the complete disappearance of the Melchor stream, the palenqueros may be forced to migrate due to the scarcity of water resources, low rainfall and high temperatures, putting at risk this outstanding universal value that the village has as intangible cultural heritage of humanity.

Thus, if one wants to recover the value of this resource, which acts both as a cultural and environmental asset that gives the community capabilities, it is necessary to return to the freedoms that the stream gave to the palenqueros; for this, first, the community must appropriate its territory and its resources, and second, have effective protection of its environmental and cultural rights. To the extent that palenqueros can exercise their freedoms, their well-being and quality of life improve. Here lies the importance of this asset for their culture and identity.

To ensure the sustainability of cultural heritage in San Basilio de Palenque, it is essential that management plans take into account the Colombian constitutional framework, which grants special protection to ethnic communities such as the Palenqueros. As Shirvani Dastgerdi and Sargolini (2019) point out, conservation and resilience strategies must be adapted to reflect not only cultural diversity but also the fundamental rights of these communities, ensuring a participatory and inclusive approach.

As Christofolletti and Olender (2021) suggest, cultural resilience to climate change requires a holistic approach that combines mitigation strategies with specific adaptation measures. Strengthening the capacity of local communities to manage climate risks through participatory workshops and the development of integrated management plans is recommended. This will not only protect the cultural manifestations of San Basilio de Palenque but also promote the long-term sustainability of its natural and cultural resources.

The Climate Vulnerability Index (CVI) is highlighted in the literature as a key methodological tool for assessing and managing climate risks in heritage sites. Although its specific application to San Basilio de Palenque falls outside the scope of this study, we acknowledge its potential to comprehensively address the vulnerability of cultural values and associated communities. The CVI enables the identification of key climate stressors and the design of resilience strategies that integrate economic, social, and cultural dimensions (Day et al., 2020). We believe that future studies could explore the adaptation of this methodology to the Colombian context, where intangible heritage and ethnic diversity play a crucial role.

This study contributed, through a case study, to the comprehension of the irreplaceable heritage value of ecosystems and the effects that their disappearance has on the cultural heritage of a community. Moreover, it allowed the systematization, with due methodological rigor, of the visions and cultural practices of an ethnic group, contributing to the preservation of its historical memory. This study serves as a blueprint for future research, enabling the replication of its methodological structure with an emphasis on rights preservation. Lastly, the study underscores the possibility of designing and implementing public policies with an ethnic focus within the framework of climate change adaptation, addressing not only the environmental dimension but also the socio-cultural dimension.

Notes

1. Palenques were fortified communities founded by runaway slaves as a refuge. Their importance lies in constituting a unique cultural space that allows community members to immerse themselves in the experience of their African roots through social, religious, musical, and oral practices.
2. According to Colombia's Ministry of Environment, páramos are considered strategic ecosystems, particularly due to their role in regulating the hydrological cycle, which sustains the

water supply for human consumption and supports more than 70% of the country's economic activities.

3. Colombia ratified the International Covenant on Economic, Social and Cultural Rights (ICESCR) through Law 74 of 1968 and embraced cultural rights in Article 27 of the Constitution, encouraging these minorities and their members to participate in cultural life while preserving their distinctive cultural traits.
4. The approach is guided by the guarantee of the right to cultural life. In fact, it understands this as the capacity, both at an individual and collective level, to express and create; collectively, it assumes that cultural management is a social commitment involving civil society, the government, and the community sphere (Martinell-Sempere & Abello-Vives, 2013).
5. A total of 8 semi-structured interviews and two focus groups were conducted. The first involved the participation of 3 women and 5 men. Within this group of 8, one was a young individual, four were elderly individuals who could provide insights into the condition of the stream approximately 40 years ago. The remaining three individuals included a community leader, a fisherman, and a homemaker.
6. In Palenquero culture, *kuagros* are age-based groups that serve as a unifying element within the community. They are responsible for teaching children the understanding of certain norms and social behaviors that ensure the continuity of their community and their cultural resistance.
7. *Sancocho* is a soup made with meat, root vegetables, greens, and seasonings, typical of several Latin American countries.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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