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ALTERNATIVES FOR PARTICIPATORY LANDSCAPE PLANNING IN MANGROVE AREAS

LANDSCAPE PARTICIPATORY PLANNING ALTERNATIVES IN MANGROVE AREAS

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Abstract

The main objective of this work is to determine the landscape planning alternatives of the populations that have a direct relationship with the mangrove ecosystems (Bunche community). The theoretical foundation is the Geo-ecology of landscapes (GEL). The phases that were fulfilled are: i) characterization of the physical and natural landscape; ii) characterization of the socio-cultural landscape by participatory techniques, and secondary information. The participatory techniques were: Workshops, Social mapping and semi- structured interviews. iii) Integrate the information collected from the landscapes: physical, natural, social and cultural; in order to determine the most appropriate and sustainable management alternatives in the community. Social perception was the main information to raise the conclusive alternatives. The population of Bunche has unfavorable socio-economic figures, highlighting that almost the entire population lives in poverty due to unsatisfied basic needs. The constant threat and destruction of mangroves (mostly blame shrimp) is the main perception of the population; as well as his manifest desire to reverse this situation. The initial characterization resulted in 10 landscapes, where the social and natural component interact. The climate present in the population is mainly rain, with two ecosystems: Forests of the equatorial Chocó and the mangroves of the equatorial Chocó. The sustainable planning of the territory must start from: sustainable tourism and agroecology. It is also possible to implement mangrove recovery processes with the support of the community.

Keywords: Geo-ecology of landscapes. Landscape planning; Social mapping; Participatory Research.

Resumen

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El objetivo principal de este trabajo es el de determinar las alternativas de planificación de los paisajes, de las poblaciones que tienen una relación directa con los ecosistemas de manglar (comunidad de Bunche). El fundamento teórico es la Geo-ecología de los paisajes (GEP). Las fases que se cumplieron son: i) caracterización del paisaje físico y natural; ii) caracterización del paisaje socio cultural por técnicas participativas, e información secundaria. Las técnicas participativas fueron: Talleres, Cartografía social y entrevistas semi estructuradas. iii) Integrar la información recolectada de los paisajes: físicos, naturales, sociales y culturales; a fin de determinar las alternativas de ordenamiento más adecuadas y sostenibles en la comunidad. La percepción social fue la principal información para plantear las alternativas concluyentes. La población de Bunche presenta cifras socio económicas desfavorables, destacándose que casi la totalidad de la población vive en condición de pobreza por Necesidades básicas insatisfechas. La constante amenaza y destrucción de los manglares (en su mayoría culpan a las camaronerías) es la principal percepción de la población; así como su manifiesto deseo de revertir esta situación. La caracterización inicial dio como resultado 10 paisajes, en donde interactúan el componente social y natural. El clima presente en la población es principalmente pluvial, contando con dos ecosistemas: Bosques del Chocó ecuatorial y los Manglares del Chocó ecuatorial. La planificación sostenible del territorio debe partir desde: el turismo sostenible y la agroecología. También es posible implementar procesos de recuperación de los manglares con el apoyo de la comunidad.

Palabras Claves: Geo-ecología de los paisajes. Planificación del paisaje; Cartografía social; Investigación participativa.

Introduction

The community of Bunche, located in the south of Esmeraldas Province, San Francisco del Cabo Parish, Muisne Canton, Ecuador, has particular natural, social and cultural characteristics. The main condition of this population is that it has a direct relationship with a threatened ecosystem: the mangroves. This dynamic is the basis for a transdisciplinary study, since society takes advantage of ecosystem services; and its sustainability depends on their protection and conservation.

Landscape planning can be defined as a set of methods and procedures to establish a spatial organization of human activities, particularly landscapes. This planning should include: monitoring and control of landscapes; landscape protection; maintenance of natural and transformed environments; landscape design, including the organization of green spaces or areas; and landscape restoration. This approach seeks to ensure the sustainable management and management of ecosystems; and the preservation of the basic life-supporting functions of landscapes (MATEO; SILVA, 2016). Landscape planning is a tool for territorial planning (RUDENKO; MARUNIAK; LISOVSKIY, 2014).

The theoretical basis for planning is the Geo-ecology of Landscapes (GEL), which has the desired systemic approach (based on the analysis of processes, networks, relationships, and causes) (MATEO; SILVA, 2013). The GEL is a methodology for diagnosing the geographical and natural environment (natural landscape); and determining its relationship with the social and cultural environment (cultural landscape). It is a set of techniques and procedures aimed at identifying socio-environmental complexity; in order to propose sustainable management measures (GALDINO, 2017; FREIRE, 2017).

This work proposes to identify the alternatives for territorial planning, the one that ancestral communities have, because they are living in direct relationship with mangroves. The proposed alternatives will come from a characterization of the geographic environment and the natural landscape, through available secondary information. The social landscape will be characterized through participatory techniques with direct and indirect stakeholders and secondary information.

Therefore, the main objective of this work is to determine the sustainable territorial planning alternatives of the ancestral populations of the Ecuadorian coast. In order to solve this question, it was used a case study of the community that inhabits the "Recinto de Bunche". The methodological approach is the GEL, which is systemic and transdisciplinary.

In order to reach the objective, the following steps are planned:

- Characterize the physical and natural landscape, using existing geographic information from the following sources: Military Geographic Institute (IGM), Ministry of Environment (MAE), and National Institute of Meteorology and Hydrology (INAMHI).
- Characterize the socio-cultural landscape through participatory techniques and secondary information (historiographic analysis and socio-economic statistics). The participatory techniques are: workshops, social mapping and semi-structured interviews. We will also collect information from studies carried out in the sector, as well as elements that will allow us to know the related historiography. The characterization will have the purpose of determining the landscape units.
- Integrate the information collected from the physical, natural, social and cultural landscapes in order to determine the most appropriate development and sustainable management alternatives in the community. The social perception is the main information to propose conclusive alternatives.

It is important to keep in mind that the community is connected to the protected area called: "Refugio de Vida Silvestre Manglares Estuario del Río Muisne" (RVSMERM). This reserve covers 92,246.35 hectares.

GEL is an ideal tool for establishing systemic knowledge of our object of study. Landscape planning takes the natural landscape as a starting point and considers the landscape as a set of systemically and dialectically articulated natural components.

For the establishment of relations between society and nature, it is ideal to use participatory techniques. People are the ones who know their environment; and they are the ones called to recognize their weaknesses and potentialities. If this quality does not exist, we are depriving the real actors and beneficiaries of decision-making power. According to Tyler (2016), we are impoverishing them even more by not including them in the processes due to the lack of recognition of their capabilities. Moreover, it is fundamental to intertwine national and international policies with local and community conditions (MEHRING et al., 2017). The main challenges in the responsible management of natural resources are in the relationships of participants and actors; and not necessarily in the implementation of technical measures (TYLER, 2016).

Academic studies highlight participatory processes to carry out adequate socio-environmental research, where it is necessary to apply it, starting from the vision of the actors themselves, giving them an active role (GUERRERO, 2014; MEHRING et al., 2017; CORNEJO; BESOAÍN; MENDOZA, 2011; PASTOR SELLER, 2004). The individual knowledge of the participants can be converted into community knowledge (CHAMBERS, 2012).

Research of this kind allows the participant to act in the co-evaluation of cognitive processes. Consequently, it is a process that involves science and practice; where they meet, interact and develop understanding (BERGOLD; THOMAS, 2012). It was necessary to involve community members in the search for knowledge for a responsible management of natural resources.

This proposed methodology does not rigorously use the scientific method. Participatory research makes the community a protagonist in the process of social transformation. Here the problem is delimited, addressed, analyzed and confronted by the interested parties; and the researcher is, in the process, a dynamizer and guide (KRAUSE, 2002).

Sustainable development is incompatible with positivism (infallible scientific knowledge). Faced with this problem appears the Complexity Theory and Critical Realism (SILVA; BASSO, 2010). The simplistic analysis of a social phenomenon is not enough, so it is necessary to accept and integrate complexity as a particular element in the process of social intervention (PASTOR SELLER, 2015). Emergent phenomena, related to social interactions, are the object of study par excellence of Social Sciences; and consequently, it contradicts methodological individualism, this sustains Critical Realism (RADAELLI; NETO; BASSO, 2012).

The researcher is not a community leader, and therefore seeks a self-management approach; and that there is no future dependence on the researcher. The litmus test, for Fals Borda (FALS BORDA et al., 2014), it is to break the dependence on the tutors. Understanding is constructed and reconstructed historically, with actions and their consequences (KEMMIS; MCTAGGART, 2007). Researchers contribute to build a participatory democracy compatible with the representative one, where citizens acquire power and responsibility in public affairs. Participation becomes an objective of human development (PASTOR SELLER, 2004). True democratization, according to Seller (2004), requires: permeable and transparent institutions; an active society with possibilities of exercising

control and influence; and the existence of dynamic, diverse and flexible mechanisms of participation.

Among the tools of participatory research is social mapping, which seeks knowledge of local populations and is important for the representation of conflicts and territorial identity (recognition of landscapes) (COSTA et al., 2016). Territoriality can be understood as the process in which people appropriate their natural and geographical environment (GALDINO, 2017); the same comes from the symbolic territory, and incorporates economic and cultural relations (HAESBAERT, 2004). It is a participatory qualitative methodology, which escapes from positivist visions; having foundations in Action Research - Participation (NETO; SILVA; COSTA, 2016; COSTA et al., 2016) - Research such as that of Landeros e Valdivia (2018) in the Chilean Aymara community of Chapiquiña, make a reflective work on this methodology, to substantiate the rights over the territory.

Galdino (2017, p. 35) defines Social Cartography as the sector of Cartography that "acts in a participatory way in the representation of the socio-spatial and environmental reality of a given territory, aiming at empowerment and management at local and community level". Other methodologies complement social mapping such as: resource zoning, mobility maps, and vulnerability maps (CHAMBERS, 2012).

Methodology

a) Design

According to Mateo and Silva (2016), landscape planning should respond to the following tasks:

- Identify, classify and delimit the spatial units that comprise a given territory.
- To establish the relationships between natural spaces and landscapes, as well as other types of spaces and landscapes.
- Determine the potential of natural resources and environmental services in the different units of the territory as a whole.
- Establish ecological and social functions.
- Determine the environmental status and environmental problems.
- Establish the factors and causes that lead to existing spatial and environmental order or disorder.
- Present proposals on the environmental and spatial planning of the territory.

The characterization of the physical and natural landscape was carried out using secondary information from the following databases:

- Information available from the Instituto Geográfico Militar (IGM) ("WFS Nacional 1:1.000.000", 2013): Administrative division, and Road connection.
- Information available from the Ministry of Environment (MAE) (AMBIENTE, [s.d.]): Biogeographic units, Protected areas, Ecosystem types, Morphological units, Ecosystem fragility, and Ecosystem fragmentation.
- Information available from the National Institute of Meteorology and Hydrology (INAMHI) (MOYA, 2006): Types of climates, Isotherms, and Isotopes.

The closest INAMHI meteorological station to the analyzed area, with available data, is station M153 MUISNE. Araujo et al. (2018) conducted a statistical study where they have processed information from the Muisne station, in precipitation and temperature.

The primary information, necessary to determine community planning alternatives, will be conducted using the qualitative research paradigm. Qualitative research is inductive in that the researcher collects data to then formulate theories and patterns; it does not test an initial theory or hypothesis. For this purpose, semi-structured or open-ended interviews are conducted, which allows the participant to provide more information about his or her perception, which was not in the researcher's initial knowledge. Qualitative methods do not replace quantitative methods, they complement them. It is advisable to use them together to improve the research (ALVINO-BORBA; MATA-LIMA; MATA-LIMA, 2012). For the qualitative information gathering, we worked with the participation of teachers and students of the Environmental Management Career of the Pontificia Universidad Católica del Ecuador, Esmeraldas Branch.

Additionally, the socio-cultural landscape was also characterized using available secondary information (SECRETARÍA NACIONAL DE PLANIFICACIÓN Y DESARROLLO - SUBSECRETARÍA DE GESTIÓN DE INFORMACIÓN, 2017; INEC, 2010).

The participatory phases that will be fulfilled in this work are:

- Initial workshop;

The first workshop will be held considering the following theme: socio- environmental problems of the community in relation to the mangrove ecosystem. The workshop will be divided into two parts: in the first, people will talk about the importance of the ecosystems; and in the second, solutions will be discussed. This workshop will be primarily a collection of ideas; where the researcher will act as a medium to channel the ideas.

- Field visits with community members;

The field trips will be carried out using the following tools: photographic registration, use of unmanned aerial vehicles, speedboat, semi-structured interviews with accompanying persons.

- Workshops with direct and indirect stakeholders;

The direct and indirect stakeholders are: Fishing associations that have Agreements of use and custody of mangrove areas, Esmeraldeña Corporation for training and integral development (CEFODI); Pontificia Universidad Católica del Ecuador Sede Esmeraldas (PUCESE); Ministry of Environment (MAE); Ministry of Aquaculture and Fisheries; Grupo Social Fondo Ecuatoriano Populorum Progressio - GS FEPP; CODESPA Foundation; CARE Foundation; PROTOS Foundation - Ecuador; Decentralized Autonomous Provincial Government of Esmeraldas (GADPE); Bunche Artisanal Fishing Production Association (ASOPESBUNCHE); and Association of Artisanal Fishermen and Collectors of Marine Products (ASOPESCMAR).

- Social mapping.

Social mapping consists of conducting two workshops in the community. The first workshop will be held at the local school with the students. The second workshop will consist of a boat trip with ASOPESBUNCHE members. In both workshops the participants will be asked to make a map of the territory, with its interpretation.

The development alternatives will be determined based on the characterization carried out, and considering the current environmental regulations for mangrove areas.

b) Population and sample

In order to analyze the Bunche community, the main unit of action was the Bunche Fishing Production Association (ASOPESBUNCHE), although work will also be done in the local school. ASOPESBUNCHE has 20 associate members, mostly women, and requested a concession for 69.66 hectares of the surrounding mangrove area from the Ministry of the Environment's Secretariat of Coastal Marine Management (SGMC).

Results

In Muisne, two types of bioclimate can be distinguished: pluvial and pluvio-seasonal, with rainfall ranging from 1,500 to 2,000 mm. The former is found near the coastline and the latter is found in the foothills (MOYA, 2006). In the study conducted by Araujo et al. (2018), it was determined that the mean annual temperature ranges from 24 to 26°C, using data from the Muisne station, belonging to INAMHI. Additionally, it determined that in recent years there has been an overall temperature increase of 0.35°C due to climate change. In turn, Araujo et al. (2018) determined that there is a decrease in precipitation 41.21 mm. The average precipitation in Muisne canton ranges from 1500 to 2000 mm per year.

The biogeographic unit in which the area is located is the Equatorial Chocó. Geomorphological Units describe the terrestrial modeling from a geometric point of view (shape), where natural conditioning factors, such as: structure, tectonics, lithology and volcanism, influence their formation (AMBIENTE, [s.d.]). Eight geomorphological units can be observed in the canton: Coastal Bar; High Hills; Low Hills; Medium Hills; Slope; Coastal Plain; Tidal Plains, and; Low Mountains. Integrating these characteristics with the social landscape, and as recognized by the inhabitants, the following landscapes were identified in the territory: 1. populated area; 2. shrimp farms; 3. grazing area, low hills; 4. agricultural area, pasture and banana plantation, medium hills; 5. Bunche river margin; 6. Bunche river mouth, on the margins of the equatorial Choco mangroves; 7. Equatorial Choco mangrove; 8. Bunche beach, coastal bar; 9. Interface beach - mangrove - river mouth, coastal bar; 10. Equatorial Chocó Forest.

Regarding the ecosystems, there is a high fragility of the equatorial Chocó forests and a low fragility of the equatorial mangrove forest, this invites to establish a concern towards the authorities, regarding the last remnants of the Chocó forest. Regarding ecosystem fragmentation: mangroves

present a high level, and forests a medium qualification (AMBIENTE, [n.d.]). These characteristics mean that, in general, the conditions are heterogeneous and not homogeneous. The lowland evergreen forests of the equatorial Chocó are threatened by agricultural activities; and the mangroves of the equatorial Chocó are threatened by extractive activities and by the presence and pressure of shrimp farms. The forests in the area are the last remnants of the equatorial Chocó and are highly diverse, but at the same time fragile because they coexist with pastures and crops (BENÍTEZ, 2005).

The Parish of San Francisco del Cabo has 2,809 inhabitants. There are 1,523 men and 1,286 women, corresponding to 45.78%. In terms of ethnic distribution, the parish is mostly mestizo (63%), followed by Afro-descendants (29%). In terms of social indicators, the outlook for the parish is generally not very encouraging. Education has been improving gradually, considering that more than 80% of adolescents between 15 and 17 years of age attend high school, in contrast to the global average of 6 years of schooling. There is a significant illiteracy rate of almost 14%. Additionally, access to higher education is very low, at only 2.62%. The nearest higher education center is located 3 to 4 hours away in the city of Esmeraldas. There is only public education in the parish.

In child labor there is a relevant figure of 27% of working minors (5 to 17 years old); and there is 10% of this group that neither studies nor works. Analyzing these figures from an ethnic perspective, 67% of indigenous children and adolescents work, followed by 11% of Afro-Ecuadorian children.

Poverty by Unsatisfied Basic Needs (UBN) is almost 100%, and about half of the parish's population is in extreme poverty. Twenty-seven percent of households live in overcrowded conditions. There is no private education, and there is a high percentage of working adolescents.

Bunche has 720 inhabitants. The age of ASOPESBUNCHE's members ranges from 20 to 60 years old or older, with the majority of members being 40-50 years old. The level of education of the members of the Association is mostly primary school; and some with secondary school; considering that the elders of the precinct are illiterate, or only have completed basic education.

Tourism is low intensity; the area has a beach called "Playita de Bunche" (Bunche Beach). This beach has a gastronomic offer; however, it only operates on weekends and holidays. One expressed desire of the beach merchants is that tourism intensify in the area to have a greater source of income.

The source of income for the population is diverse, including fishing (species with economic representation: swordfish, dorado, and billfish); collection of ecosystem products from the mangroves, such as conch and crab (to a lesser extent); agricultural farms; and tourism. Agricultural activity depends on coffee, cacao, and banana production; and livestock activities.

The historiographic account of Mora (1986) indicates that the tagua harvest replaced the cocoa boom, which ended in the 1920s of the previous century. This product was used to make buttons and other similar products. Muisne was the commercial center where tagua was sold and sent to ports such as Guayaquil and Manta. In the 30's rubber and balsa began to be commercialized, being rubber the product that generated the main sources of income for the canton. The banana boom began in 1948, when agricultural production changed and the presence of transnational banana companies increased. This boom lasted until 1968, when production was representative.

The following results were obtained in the workshops held in the community:

- Initial workshop

In this workshop the researchers talked about the socio-environmental problems of the community in relation to the mangrove ecosystem. It is necessary to point out that the members of the community mixed the concept between threat, importance and solution. In the first part, people had to write the importance of the mangroves; however, they placed the importance and also the threats.

In the dialogue with the community, it was evident that the members already had a previous environmental concern. Mangrove contamination and degradation is the most discussed issue. ASOPESBUNCHE's interest in obtaining a Use and Custody Agreement assumes that the members of this association already have an initial environmental awareness, with a sense of conservation. Concepts such as solid waste contamination, river contamination, climate change, deforestation, liquid discharges from shrimp farms, among others, are understood by the community. Environmental awareness is more evident in the community leaders, both young and old. Among the solutions mentioned were: clean up the mangroves, respect the closed seasons and the collection of the size of the shell, and; common environmental dialogue and dialogue with the shrimp farmers.

- Field visits with community members;

The boat tour with the members of ASOPESBUNCHE was done in conjunction with a similar association that belongs to the island of Muisne: Asociación de Servicios Turísticos Bellavista (ASOSERTUVISTA), which has in custody mangrove areas close to those of Bunche.

The boat trip revealed the presence of solid waste. However, the members recognize that much of the waste comes from upstream, where the population center of Muisne is located.

- Workshops with direct and indirect stakeholders;

The first workshop was held with teachers from the Pontificia Universidad Católica del Ecuador Sede Esmeraldas (PUCESE), students from the School of Environmental Management, and representatives from GIZ. The second workshop was held with representatives of fishing associations that have use and custody agreements for mangrove areas such as ASOPESBUNCHE and other stakeholders in the territory.

The dialogue with external stakeholders revealed that the commitment to the ancestral communities is incipient and that several areas need to be strengthened. The weakest issue is governance; support and incentives from the institutional framework should be stronger. This is clearly reflected in the absence of local authorities in the discussions held, despite the fact that they were invited. Other actors, who have not shown interest, are the shrimp farm owners. Environmental education processes should involve all those involved in the mangrove ecosystem problems.

- Social mapping

The next stage of the participatory workshops used participatory mapping as a tool. In this phase we worked with the following groups: the Bunche School; and with ASOPESBUNCHE members.

The work with the children at the Bunche school served to learn about the students' perception of the mangrove problem and how they perceived the environmental situation of the ecosystems and their territoriality. In the workshop, the children were asked to draw a map of the mangroves and their territory, and how they perceived it. The themes that the four groups of children chose to draw were: the dirty mangrove and the clean mangrove. These themes showed two interesting pictures: one depressing and the other encouraging. In the first picture, they drew a mangrove free of solid waste; and in the other, a mangrove with a lot of solid waste. It is important to highlight that in both pictures, they drew the conch as the main resource, followed by the crab. The themes also focused on identifying a clean mangrove swamp as a wish for the future. In the workshop, the children took the opportunity to reflect on the permanent ban on the collection of shell smaller than 4.5 cm. For the elaboration of this workshop, there was a satisfactory cooperation with the park rangers of the RVSMMER.

The social mapping with adults was divided into two workshops. In the first workshop we tried to use the same dynamics as with the children, asking them to draw a map of how they understood the mangrove territory and to identify the ancestral territory of Bunche.

In the first workshop it was not possible to identify the ancestral territory (characteristic places), although it is possible to recognize a qualification of the territory. This workshop served to continue reflecting on the environmental impacts that have occurred in the mangrove swamp, impressions that were already collected and mentioned previously; always highlighting the scarcity of the natural resources of the mangrove swamp.

Since it was not possible to map the ancestral sites in the first workshop, and the drawing technique was not appropriate, it was decided to organize another workshop, in which we worked with the printing of a satellite image, so that the members could identify, from the image, the important sites for their community. The sites identified were: El Firme beach, Bunche beach, access to the mangroves, populated area and the agricultural farms. This identification validated the characterization of the natural and physical landscapes.

The satellite image workshop was much more profitable than planned. It was attended by the senior members of ASOPESBUNCHE; and apart from meeting the initial objective of identifying the important and ancestral sites of Bunche, a forum was presented where people discussed the historical theme of Bunche, from different angles. The historical topics discussed were: the disappearance of the red crab, origin of the name Bunche; origin of the population (Manabí and Sierra Region of Ecuador); memory of the Conchista wars (armed conflict that began in the province at the beginning of the last century); and the presence of archaeological remains.

Finally, Table 1 summarizes the problems, limitations and potentials in the analyzed territory.

Discussion

The physical and natural landscapes of the sector correspond to a humid and tropical climate. The topography is coastal, with a mountain range, with high, medium and low hills, where the rivers that feed the mangroves originate. These conditions establish the human activities in the sector, and therefore the landscapes where they interact.

The direct pressure of the shrimp farms on the mangroves is the main concern of the workshop participants. The contamination of the mangroves is evident, as well as the overexploitation of shell and crab. For the inhabitants, who make their living from the extraction of conch and crab, it is clear that the amount of conch and crab has decreased. The shrimp industry is very important in the country, it represented about 20% of the total exported, in terms of agricultural products exported during the present century in monetary terms (NARANJO, 2016). The communal farmers face an important industry in the country.

Table 1: Problems, constraints and potentials in the territory

Problems	Limitations	Potentialities	
		Natural	Social
Poverty by UBN. Extreme poverty. Inadequate educational system. Solid waste in the Muisne River Estuary that accumulates in the mangroves downstream. Deforestation of mangroves, loss of mangrove areas. Effects of climate change. Contamination of freshwater rivers; loss of river fauna. Degradation of natural areas - extinction of endemic species. Ecosystems threatened by anthropogenic activities.	Access to potable water. Lack of sanitation. Lack of diversification of income sources. Lack of garbage collection. Monocultures - poor cultivation techniques. Lack of techniques for the extraction of coastal marine natural resources, overextraction. Limitations in the rural education system. Limited access to efficient health systems. Ethnic inequality there is no governmental commitment to improve the living conditions of the population. The agricultural vocation of the area is being lost. Lack of transportation, limited interconnection and communication.	Mangrove - marine-coastal resources. Suitable area for the development of agro-ecological agriculture. Bunche beach, scenic beauties. Privileged climate. Access to water resources. Scenic beauties upstream. Privileged morphological relief, with plains and small and medium hills.	Mostly young population. Mutual community collaboration. Ancestral knowledge. Cultural and gastronomic festivities. Possible presence of archaeological remains. Significant increase in the role of women in the community.

Prepared by the authors.

The members of the ancestral community are aware that the mangrove ecosystem is threatened by various factors; and they express their willingness to initiate a reduction in the degradation of this ecosystem. The importance of the mangroves lies in the fact that they are the source of natural resources necessary for the subsistence of the community, and are part of their cosmovision, which comes from the experience acquired in the territory (FERRER, 1981). The memory and opinion of the association's leaders place the mangrove as an indispensable axis for the community, and that in the future it could have a potential for development. Most see the mangroves as a tourist attraction, where resources can be exploited sustainably. It is one more source of income, however, it is not the only one.

Discussions with stakeholders outside the community showed that there is an awareness of the socio-environmental problems affecting the mangroves and nearby communities. All of them recognize an institutional weakness in the conservation and control of these life zones. However, the workshops proved to be effective to initiate the debate; and to continue inviting other key actors, such as the presidents of the Parish Councils, mayors and prefects. Although they were invited, only the representatives of the Provincial Autonomous Decentralized Government attended.

Regarding sustainable tourism, the country's environmental legislation, in the Organic Environmental Code (ASAMBLEA NACIONAL, 2017), limits activities in mangroves. One of the few

permitted activities is: tourism. According to Berghöfer et al. (2017) to implement sustainable tourism, in conjunction with conservation objectives, it is required to join particular conditions such as: investment security, a well-developed tourism market, and a convergence between tourism and conservation activities.

In one of the conversations with external actors and community members, it was said that Bunche did not have tourism as a development alternative, ignoring the community members' own thoughts. Although it is true that Bunche only has the Playita, there are other nearby areas that have tourist spots that have been little exploited.

Recinto Bunche is just beginning its activity as a tourist destination, targeting La Playita. However, there is enormous potential to implement chain tourism with other communities. The Caimito location, 15 minutes from Bunche, offers a greater variety of ecotourism attractions, as well as the scenic beauty of San Francisco del Cabo. The proposal could be focused on the design of a community chain of tourist attractions, applying the community solidarity economy.

There is a high level of agricultural and livestock farming in the area, which is an ancestral activity. However, it has not been a real development alternative for the community. The fields are undergoing a process of abandonment due to their low profitability, and young people are engaged in other activities or migrating to urban areas in search of better income. The agroecological production paradigm is ideal in this sector. Monocultures are responsible for socio-environmental externalities. Agroecology provides the scientific basis to give it sustainable operational capacity. The economy needs a conception that not only proposes to increase crop production and productivity, but also ecosystems (CAPORAL; PAULUS; COSTABEBER, 2009). African palm plantations are present around the community; however, the population does not identify them as a threat to this monoculture.

Mangroves can be restored according to their ecological succession, if conditions such as: reestablishment of hydrology that will facilitate natural regeneration processes; and involving local communities in restoration processes, empowering them to be stewards of their environment (GLOBAL NATURE FUND, 2015). A multitemporal study in the mangrove area can determine the behavior of these zones: rates of decrease and increase of the human frontier. By knowing the environmental dynamics, reforestation areas can be identified.

Pappuccio de Vidal(2004) states that shrimp farms impact biodiversity, however, it is very simplistic to say this. The impact is integrated, not only because of the shrimp farming activity, but also because of over-extraction by the communities. Responsibility that they accept, recognize and are willing to change. This study found similar problems to those found in the 2004 study, which indicates that the situation has not changed significantly in 14 years.

The coincidence with the study of Pappuccio de Vidal's (2004) is that women have acquired a greater protagonism in the pursuit of social demands. In traditional afroesmeraldeña societies there is a greater "machismo": we find a greater protagonism of women, which is an excellent indicator of development.

Looking at the economic figures, it can be said that shrimp farming has not meant any change for the population, despite the intense activity. This production is intense in the province, however, the population of Esmeraldas is among the poorest in the country. It is important to note that in the 80's of the previous century, access to the town was difficult. This means that this area lived a long time away from the centers of development; and its economic activities, logically, were difficult to execute.

The study by Landeros and Valdivia (2018) recognizes the limitation of maps to represent the totality of the territory, since it is the dialogue that surpasses the information presented on a map. This conclusion was also verified in the Social Mapping processes carried out in this research, where dialogue and territorial experiences, told by the participants, had greater value than the map drawn or interpreted by the facilitators.

The work of Sugahara and Juliana (2014) explores the implementation of Conservation Units and reflects on the importance of their installation, considering a systemic model and not just an idea of conservation. This work, carried out in Brazil, can be compared with the present; in the sense that the community studied lives in a direct relationship with the mangrove conservation area. Therefore, we consider that the process is being carried out adequately, since the mangroves are conservation areas, but the use of the ancestral communities is not prevented. Custodial use agreements are an example that the sustainable systemic model is being considered in Ecuador.

However, this is a tool that is still under construction, and still has much to learn in order to be sustainable.

Therefore, this work is an initial attempt to place the population of Bunche on the path towards its development and sustainable territorial planning. This path will be achieved by integrating the academy with this process, in which the researcher will also be a militant in this process, and not a simple observer.

The proposals made in this project are based on the fact that they went through a process of dialogue, building a participatory democracy, in which the members and actors of the community acquire a leading role and empowerment in the planning of the territory. The success of public policies is evaluated in terms of effectiveness and efficiency, which will consider the integration of social actors in the design and management of the territory. The objective of planning and management should not only consist of the direct intervention of public institutions; it should promote communication, participation and relationships with community social actors (PASTOR SELLER, 2012).

The next challenge of this work is to integrate public institutions, in order to elevate the results of this work to a sustainable planning, with a sustainable and participatory zoning. The landscape planning must be continuous, therefore, this work can serve as a base for the territorial planning, in the future, of the rest of the populations that live in RVS MER.

Conclusions

The physical, natural and social characteristics of the sector give the following landscapes: 1. populated area; 2. shrimp farms; 3. grazing area, low hills; 4. agricultural area, pasture and banana plantation, medium hills; 5. Bunche river bank; 6. Bunche river mouth, on the margins Mangroves of the equatorial Chocó; 7. Mangrove of the equatorial Chocó; 8. Bunche beach, coastal bar; 9. Of these landscapes, two relevant ecosystems were identified: Equatorial Chocó forest and Equatorial Chocó mangroves.

In the social perception of the population, it was identified that there is already a previous environmental awareness. There is concern about the constant contamination and destruction of the mangroves. There is also a desire among the population to participate in mangrove conservation because they are aware of the importance of these ecosystems for their subsistence, not only because of the resources they extract, but also because of the ecosystem function they fulfill in the growth of fish products that they also use. Shrimp farms are the main culprits of mangrove destruction and contamination, from the community's perspective.

Landscape planning in the locality should be directed towards sustainable tourism and agroecology. This statement is contrasted with the reality of the landscapes, the legal framework, and the expressed desire of the community. Therefore, this conclusion is based on the analysis of the historiographic reality, physical landscape, natural landscape, and socio-cultural landscape. Mangrove restoration becomes a necessary challenge in the locality. It is evident that, with the application of adequate development alternatives in the community, it will improve its living conditions. The commitment of public institutions is fundamental, which in this work was identified as a weakness in the territory.

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