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Research, teaching and university extension: the case of Andean Chocó Commonwealth Investigación, docencia-formación y vinculación con la sociedad: el caso de la Mancomunidad del Chocó Andino

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ABSTRACT Since its establishment in 2018, the Observatory of Ecuadorian Territory Production - OPTE has been developing a model of practical integration between teaching, research and university extension. Its project in the Andean Chocó Commonwealth (MCA) describes the methodology that integrates these fundamental pillars of public higher education under a pedagogy that horizontally connects teachers, students, and social actors for the exchange of knowledge through territorial action. This work characterizes the trajectory of the project along four territorial actions that combine procedures to which all actors contribute, perfecting their knowledge towards a common objective. Finally, pedagogical elements of a transformative praxis within academic communities are discussed with the aim of influencing the territory based on real demands.

RESUMEN Desde su creación en 2018, el Observatorio de la Producción del Territorio Ecuatoriano – OPTE ha ido construyendo un modelo de articulación práctica entre docencia, investigación y vinculación con la sociedad. Su proyecto en la Mancomunidad del Chocó Andino (MCA) describe la metodología de integración de estos pilares fundamentales de la educación superior pública guiados por una pedagogía que conecta horizontalmente docentes, estudiantes y actores sociales para el intercambio de conocimiento a partir de la acción territorial. En este trabajo, se caracteriza la trayectoria del proyecto mediante cuatro acciones territoriales, que articulan procedimientos en los que todos los actores aportan y perfeccionan sus saberes hacia un mismo objetivo. Finalmente, se discuten elementos pedagógicos de una praxis transformadora dentro de comunidades académicas, basados en necesidades reales y orientados a influir sobre el territorio.

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PALABRAS CLAVE vinculación con la sociedad, investigación - acción, Chocó Andino, territorios rurales, pedagogía

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1. Introduction

The Ecuadorian Territory Production Observatory (OPTE), established in 2018, aims to promote a space for reflection on the social production of habitat—both urban and rural—within the Faculty of Architecture and Urbanism at the Central University of Ecuador. Since its inception, OPTE has sought to be a space for academic and scientific production based on real-world problems, through the inseparability of the university's three core functions: teaching and education, research, and societal engagement (FORPROEX, 2012).

OPTE's actions are directed at both internal and external actors of the university. It seeks to implement a political-pedagogical model oriented towards the scientific and professional training of students and professors through a transformative praxis. This is based on the conviction that the profession of architects and urban planners "has a close relationship with human life, and therefore with political and economic power, with the collective will of the social and the common, of the public and of permanence into the future" (Montaner, Muxí, 2011, p. 15).

OPTE has focused on creating cooperation networks and academic dissemination spaces aimed at external audiences, such as communities, non-governmental organizations, or public institutions. These actions are intended to contribute to the planning and development of public policies directed toward territorial development at various scales: local, regional, and national.

This work aims to summarize OPTE's methodological experience, which is centered on integrating the fundamental pillars of public higher education. It considers the internal relationships between students and professors and the external relationships between academia, the community, and public entities, based on the specific case of the Chocó Andino Commonwealth project, located in the northwestern region of the Metropolitan District of Quito, the capital of Ecuador. The account of this experience offers a possible pathway for building academic-scientific production developed through an approach to our socio-territorial realities by integrating the university's three core functions. Additionally, it provokes reflection on the student-teacher vertical relationship within Ecuadorian academia, which is marked by a strong hierarchy and the limited encouragement of undergraduate student involvement in scientific research.

2. The Ecuadorian Territory Production Observatory (OPTE)

OPTE is based on the premise that research and societal engagement are fundamental components of teaching and education. Therefore, academic activity seeks to promote the integration of these three university functions. Each project developed contains the components of research, societal engagement, and teaching-education. These components are integrated across different timelines and through various activities. For instance, in a research project, specific objectives can be considered potential societal engagement projects when they are directly related to the territories. Similarly, specific research or societal engagement objectives can become interesting topics for final year projects, generating feedback loops with the territory.

These activities are carried out using three main methodologies: action research, social cartography, and technopolitics. Action research involves an experimental approach, based on a reflective and critical process of the context, which involves joint action between researchers and the community. According to Servo (2024), action research can generate a movement between knowledge and action in cooperation with various social actors, aiming to solve real problems. Social cartography (Indisciplinar, 2023) is related to the construction of space-time relationships, through which information about social processes is organized using graphic representations to develop a critical reading of spatial production. This methodology aims to represent the complexity of social dynamics in the territory, considering the idea of territory in motion, as opposed to the representation of a static geographic map. Finally, technopolitics refers to the tactical and strategic use of digital technologies (Toret et al., 2013), as tools to promote the social construction of the territory, whether through citizen participation or social innovation.

OPTE encourages knowledge exchange among its community members, as it is believed that both students and professors should contribute to the development of the project by performing specific activities according to the required level of complexity. Everyone is encouraged to participate in discussions and contribute to the creation of tools for fieldwork, territorial analysis, and proposal development. The goal is to stimulate the individual interests and skills of each member in favour of collective knowledge production. Therefore, the main requirement to join the team is not specific technical knowledge, but rather a willingness to build collective and critical perspectives on a given reality.

In each project, regular meetings are held. During these meetings, the aspirations and abilities of each member are reviewed, as these can change over time, whether due to expertise in a particular technique or interest in new topics. This approach allows for a constant exchange of techniques and knowledge among participants and helps maintain interest in the research. Additionally, interaction with territorial realities enhances this exchange by integrating external agents, such as social actors and public and private institutions.

Working with concrete social realities allows actions to go beyond pre-established sequences, developing instead through interaction with the territory and its actors. In this sense, the work in the territory is primarily carried out through territorial actions. These territorial actions can be tangible, such as architectural objects and exhibitions, or intangible, such as manuals, conferences, brochures, etc. Territorial actions enable the collection of information for subsequent systematization. The collection and systematization

occur continuously throughout the project, depending on the objectives set for each activity and the relationships established with the actors and the territory. This data can be reflected in final year projects, scientific publications, architectural constructions, or academic dissemination materials.

3. Territorial action as a method

A territorial action, whether built or unbuilt, is proposed as any activity aimed at influencing the agents involved in the production of space. It can result in the construction of an architectural object, participation in community assemblies, institutional academic events, or dissemination through physical or digital materials. Although some actions may be carried out by faculty researchers, student involvement is encouraged, as this contact facilitates a territorial immersion with high pedagogical potential. Territorial action can provide valuable inputs for final-year projects, research, and engagement projects, as the moment of interaction—and continuity—with the community opens numerous possibilities for action and perspectives on the same problem.

Territorial actions become an opportunity for the collection of both primary and secondary data. Each territory is an infinite source of information. However, it is essential to identify potential data sources and define appropriate data collection techniques before conducting fieldwork. This preliminary assessment is crucial, as it allows us to compare quantitative and qualitative information with the territorial reality, especially in rural areas where available information is often scarce and incomplete. During this phase, we can practice documentary observation skills and implement fieldwork techniques while developing methodologies and tools based on the real working conditions we encounter in the territory.

To understand and interpret the complexities of the territory, the collected information is organized in various formats: databases, maps, texts, infographics, and audiovisual records. The recording methods are defined collaboratively between faculty and students. During data collection, students learn to manipulate collection techniques, while in the field, they are encouraged to develop their own analytical tools based on available resources. This approach challenges the dogmatic use of techniques, tools, and methodologies in response to the realities of the territory. Moreover, this territorial practice stimulates interdisciplinarity by seeking knowledge from other areas to build a broader understanding of a given topic.

Some projects begin with territorial incursions, so this process is not necessarily an outcome. However, any territorial incursion presupposes the identification of the objective needs of a specific social group. In some cases, the need is related to the construction of infrastructure, carried out through *mingas*[1] (collective community work). These moments of interaction between the university and the community create fertile conditions for the exchange of knowledge between faculty, students, and territorial actors. A collaborative approach is adopted with the community, meaning "where the professional's work is respected, and the knowledge, ideas, and interests of the community are valued" (Ríos, et al., 2016, p. 25). The documentation of these processes is almost always a task taken on by graduating students, who create detailed descriptions and analyses of the organizational processes. In the end, students are required to produce material for the community, in addition to the official document submitted to the university for their degree.

The community outreach material is an act of societal engagement and can take the form of a brochure, booklet, manual, or guide for use in the community. Thus, territorial action goes beyond physical work, becoming a true praxis, as it enables reflection on the practical activities developed in the territories. As for unbuilt territorial actions, such as audiovisual production, participation in scientific or community events, and assemblies, these are pedagogical processes that seek to strengthen the presence of the public university in the territories, following the characteristics that the Argentine educator Eduardo Rinesi identifies and defines as "situated universities" (Rinesi, 2020, p. 153). In this regard, Cano (2019) explains that there is a dual challenge: "on the one hand, to fully realize itself as a universitas, and on the other, to maintain the situational logic in dialogue with the organizations and communities of its environment" (p. 53). However, while efforts are made to build bridges between the university and the territory to influence public policy, there is also a feedback loop through the "didactics of the territory" (Champollion, 2021). Champollion (2021) refers to this as: "The systematic educational use of all dimensions and resources of the surrounding territory (to give meaning to learning); and the educational use, whenever necessary and possible, of local 'knowledge', often referred to as 'natural,' 'intermediate,' and/or 'experiential' knowledge" (p. 6).

[1] It is a pre-Columbian tradition of voluntary community or collective work for social utility or reciprocal purposes, currently in force in several Latin American countries.

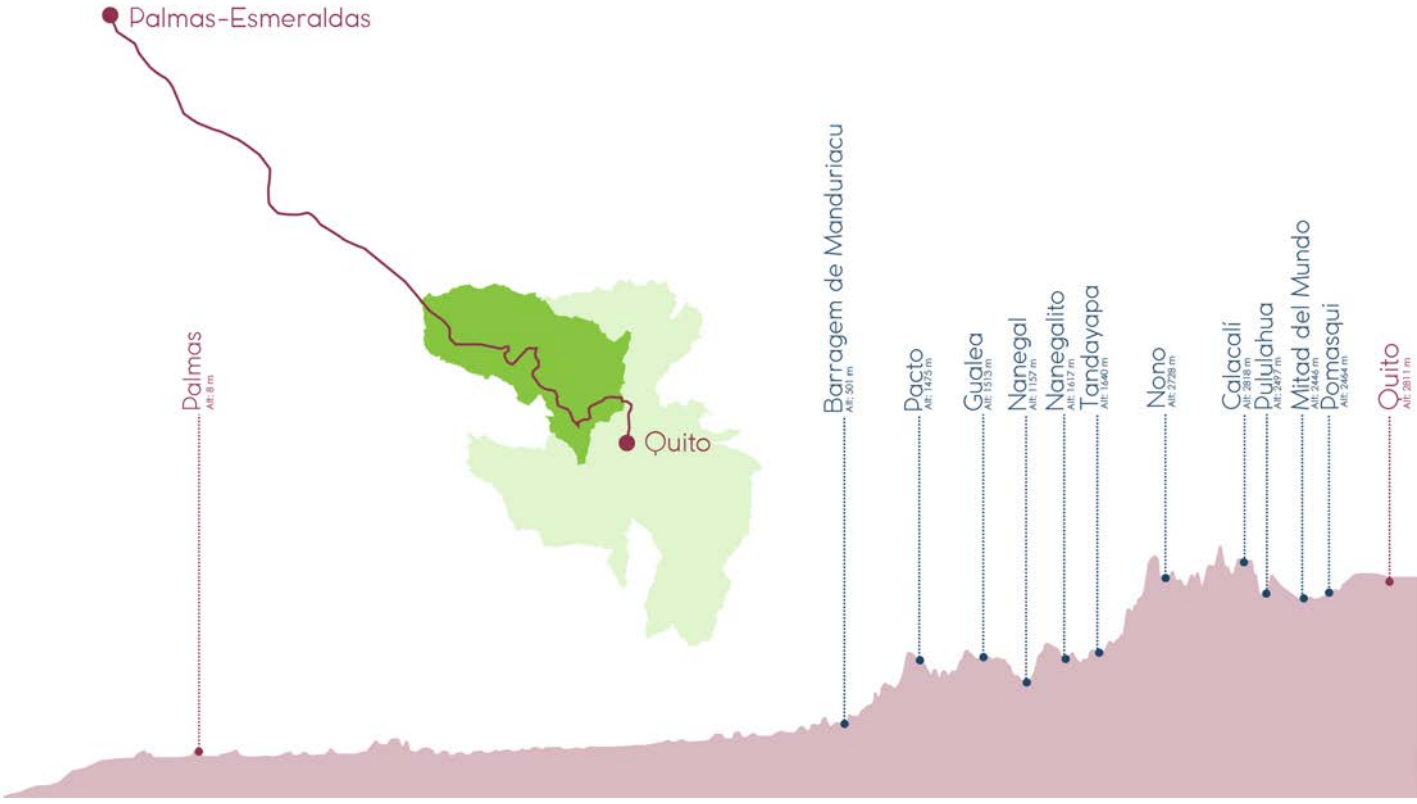

Figure 1: Schematic cross-section showing the different climatic floors present in the Andean Chocó Commonwealth. (2023)

4. Results of OPTE's Experience in the Andean Chocó Commonwealth (MCA)

Presenting the results of the methodology applied by OPTE requires a brief contextualization of the Andean Chocó Commonwealth, highlighting its unique characteristics. Commonwealths are political-administrative organizations recognized by the Ecuadorian state in the 2008 Constitution, known as the Montecristi Constitution. "Two or more contiguous regions, provinces, cantons, or parishes may form commonwealths with the aim of improving the management of their competencies and promoting their integration processes. Their creation, structure, and administration will be regulated by law" (Constitution of the Republic of Ecuador, 2008, art. 243).

Under this framework, the Andean Chocó Commonwealth (MCA) was formed, comprising six rural parishes in the metropolitan region of Quito: Nono, Nanegalito, Nanegal, Pacto, Gualea, and Calacalí. This region has special characteristics related to its biodiversity and administrative organization process, which enabled the creation of this new governance platform in 2014. The recognition of the MCA strengthened social organization and promoted the development of a territorial planning and management process from a sustainable and productive perspective, including human settlements.

The MCA covers an area of 125,000 hectares and has a population of 21,387 inhabitants (Provincial Government of Pichincha, 2017), with altitudes ranging from 500 meters above sea level in the western zone, in the parish of Pacto, to 4,700 meters at one of the peaks of the Pichincha volcano in the parish of Nono, as illustrated in Figure 1.

In the Andean Chocó region of the Metropolitan District of Quito (DMQ), there are two territorial areas known as *hotspots*, which are "areas particularly rich in species, rare species, threatened species, or a combination of these attributes, increasingly delineated to help establish conservation priorities" (Reid, 1998, p. 275). These *hotspots* are: (i) the Tumbes - Chocó - Darién - Magdalena and (ii) Tropical Andes, which extend from the Pacific coast to the Andes Mountain range and from Panama to Bolivia, as indicated in Figure 2. This condition of extreme environmental importance was reaffirmed with the declaration of the Andean Chocó region of Pichincha as a UNESCO Biosphere Reserve on July 25, 2018.

In 2016, the Metropolitan District of Quito approved Ordinance 137, which required the development of a Special Plan for the region. In response, the Secretariat

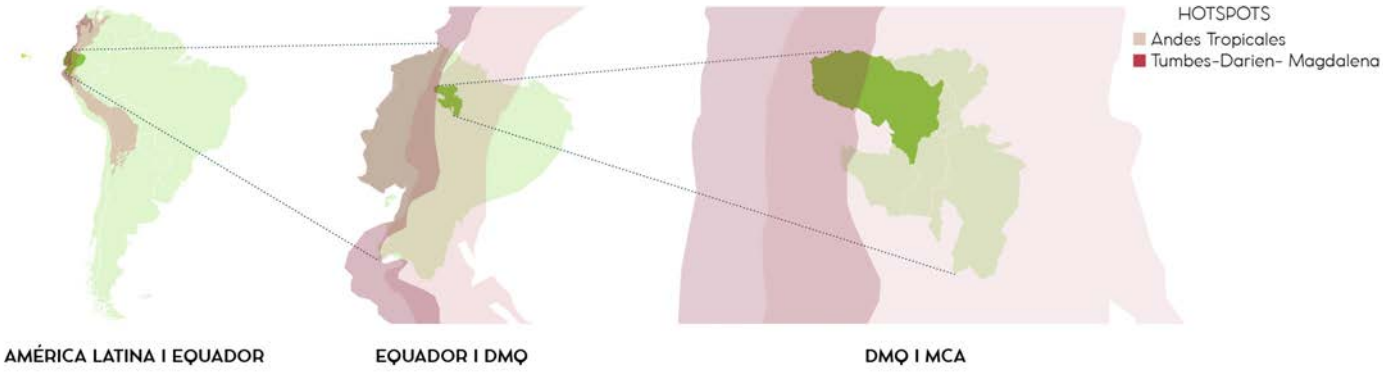

Figure 2: Location of the Andean Chocó Commonwealth and its relationship to the Tumbes - Chocó - Darién - Magdalena and Tropical Andes Hotspots. (2023)

of Territory, Habitat, and Housing (STHV) and the Environment Secretariat of the DMQ (SADMQ) mobilized to create the Special Plan for the MCA. In June 2018, SADMQ initiated a collaboration process with the Consortium for the Sustainable Development of the Andean Ecoregion (CONDESAN) with the goal of strengthening issues related to territorial planning, natural and cultural heritage, sustainable production, and dispersed human settlements in the MCA during the development of the Special Plan. In this context, OPTE was invited to provide technical support for this process, coordinating various MCA actors through actions that connect teaching, research, and engagement with society.

The MCA is a territory characterized by a dispersed population and a strong presence of protected and conservation areas, where agricultural and extractive activities dominate. As part of the Metropolitan District of Quito (DMQ), it has experienced the complexity of a region marked by strong ties to the metropolis and an intense process of urbanization, despite the challenging geographical conditions. This demands a specific perspective on the territory and its population. The Andean Chocó is considered predominantly an area of environmental preservation and conservation. Despite the historical presence of numerous dispersed human settlements in the region, these were not officially recognized on the DMQ's maps until 2018.

The lack of information has hindered efforts to carry out planning actions contextualized to the reality of this territory. Moreover, conventional urban land-use planning and management tools are limited in their ability to interpret and organize territories with these characteristics. The same homogenizing rationale that exists in the field of territorial planning initially shaped the way academia tended to view divergent concrete realities. As a territory previously unknown in these terms, it has been necessary to adopt new perspectives on the MCA, taking into account its unique features, such as accessibility conditions, the lack of public services and infrastructure, and specific forms of housing production. Thus, the development of this work has not relied on the traditional academic reproduction of the vertical relationship between an expert urban planner advising students, nor on the repetition of normative land-use maps to describe the specific relationships between the communities and the landscape of the Andean Chocó. From the identified gaps emerged an opportunity to learn how to reconcile interests and skills, listening attentively to the needs of social groups, and developing new forms of representation of this complexity through a horizontal dialogue.

With this perspective, the project for the Andean Chocó Commonwealth adopted an experimental and process-based approach, combining activities of community engagement, research, and teaching-training. This involved researchers, students, and the community, and was carried out between 2016 and 2022, as shown in Figure 3. These activities were organized around four territorial actions, which are presented below.

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4.1. First territorial action: the construction of a multipurpose space through community engagement

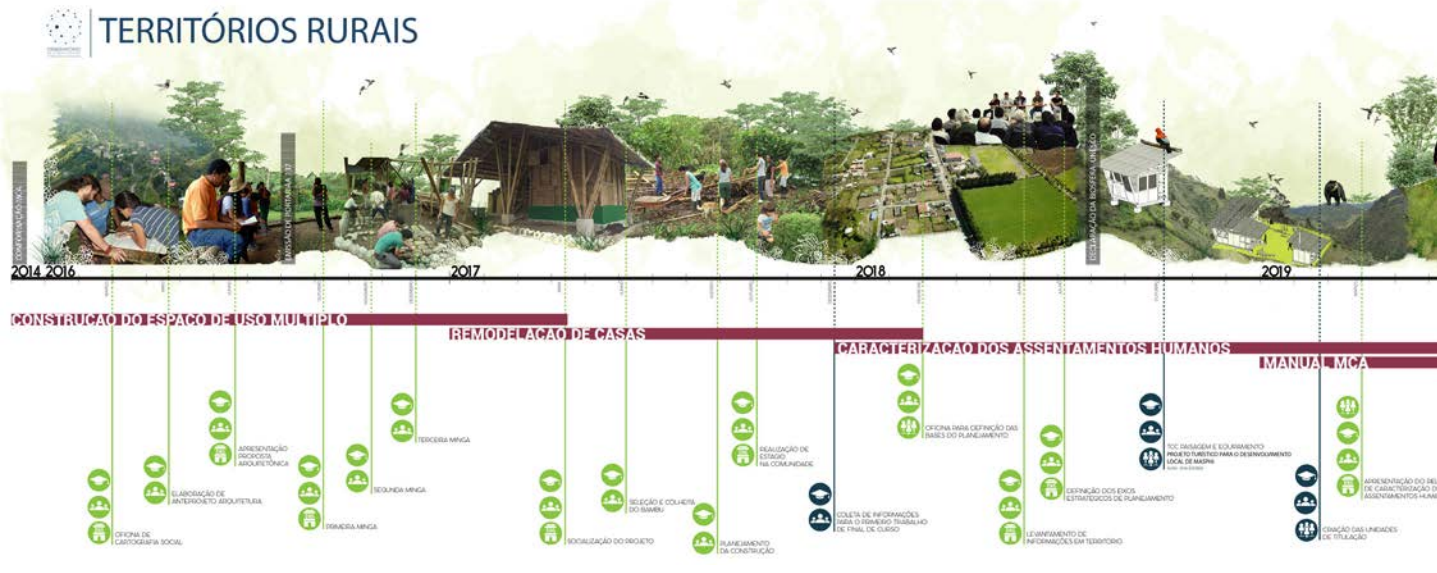
In 2011, a group of approximately 15 families from San José de Mashpi, mostly women and young farmers, founded the Mashpi River Paradise Tourism Services Association (ASOSEPAM), located in the Pacto district. The town of Mashpi has a tourist vocation due to its natural attractions. However, there was no dedicated tourism infrastructure that would allow its residents to generate alternative sources of income from this activity. Thus, in 2016, ASOSEPAM requested technical support from the Faculty of Architecture and Urbanism at UCE through a community engagement project, aiming to improve the tourism infrastructure of their locality by designing community accommodations, restaurants, and facilities to promote visits to agroecological sites.

With this background, OPTE took on the commitment and created the project "Multipurpose Space: Camping Area and Community Space" in 2017, developed through three events with the community: (i) a social cartography workshop, (ii) co-design of the architectural project, and (iii) presentation of the project to the community. On December 19, 2017, the community was invited to participate in the social cartography workshop, which included families and technicians from the MCA. Using a base map, participants identified tourism and commercial dynamics, as well as community facilities, communal lands, and private properties in a participatory manner. Subsequently, the architectural proposal was refined in collaboration with the community through scale models and drawings during co-design workshops. This approach allowed for improvements to the students' proposal by integrating the knowledge and needs of the community into the project.

After completing the events, the construction of the multipurpose space took place through community work sessions (*mingas*), in a co-management effort involving the community, a construction team hired by ASOSEPAM, and four students participating in the community engagement project of the FAU UCE. During the *mingas*, collective activities were carried out, such as bringing stones from the river and preparing bamboo, fostering collaboration among various actors and promoting ownership of the space. Meanwhile, the construction team continued their work and was responsible for delivering the completed project and ensuring the quality of the construction. In 2016, this first territorial action was completed with the delivery of the project, as evidenced in Figure 4.

Thus, the collective construction through *mingas* was not the result of an abstract interpretation of space, but rather a direct manifestation of the economic needs of its inhabitants and an in-situ interpretation by all those involved in the process. The architectural product materializes, in this case, as a collective system of physical and organizational tasks, involving the exchange of ideas that combine the work of building, the effort of thinking, and the logic of social necessity. Therefore, the technical design was limited to fulfilling its role as an integrative tool for material resources, socio-spatial potentials, and a program developed in an assembly-like manner.

Figure 3: Timeline linking the three university functions with the territorial actions promoted by the OPTE. (2023)



4.2. Second territorial action: remodelling of homes and implementation of infrastructure through community engagement and teaching-training

Due to its proximity to the city of Quito, tourism activities increased in the populated area of Mashpi. As illustrated in Figure 5, a social cartography was conducted using photographic resources and participant observation, which identified the existence of lodgings and other tourism services offered by the community within their own homes, many of which were in poor condition. For this reason, a second territorial action was decided upon within the community engagement project. This action was funded by the *Extremeña* Agency for International Cooperation for Development (AEXCID) under the name "Remodelling of Homes and Implementation of Infrastructure to Improve Living Conditions and Community Tourism Services"[2].

The community engagement agreement between FAU-UCE and ASOSEPAM facilitated the development of architectural proposals for the adaptation of four community homes for new tourism activities. Four groups of students, coordinated by a faculty member, presented their architectural proposals along with material quantifications and budget definitions for each intervention. The architectural proposals were developed through three events: the first focused on socializing and coordinating among stakeholders; the second was dedicated to selecting materials (bamboo) used in the construction; and the third involved co-designing the architectural projects alongside the families. This last step was a collaborative effort conceived between the homeowners and the students as part of a pedagogical process. The university shared knowledge about reading plans, while the community shared their expertise regarding local materials to generate constructive proposals. Figure 6 illustrates the process and completion of one of the architectural interventions. It is important to highlight the formation of collaboration networks within the community engagement project, as this stage also involved AEXCID and the Imaymana Foundation as the managing and administrative entities, in addition to ASOSEPAM and OPTE FAU-UCE.

The community engagement activities carried out in the territory over two consecutive years contributed to social organization and facilitated the establishment of connections with the community, as well as the collection of a significant amount of information. This was crucial for the development of the first thesis on the MCA titled "Proposal for a Tourism Design for the Local Development of the Populated Centre of Mashpi and the Creation of a Manual for Building Rural Mixed-Use Homes" (Escobar, 2018). The graduation project involved creating an urban-rural reordering plan for Mashpi and adapting some residences for community tourism with sustainable and modular criteria. The community engagement allowed for a

[2] AEXCID Project - Asociación de Turismo Comunitario Mashpi (Ecuador) https://www.youtube.com/watch?v=4VLAw2iZyXY

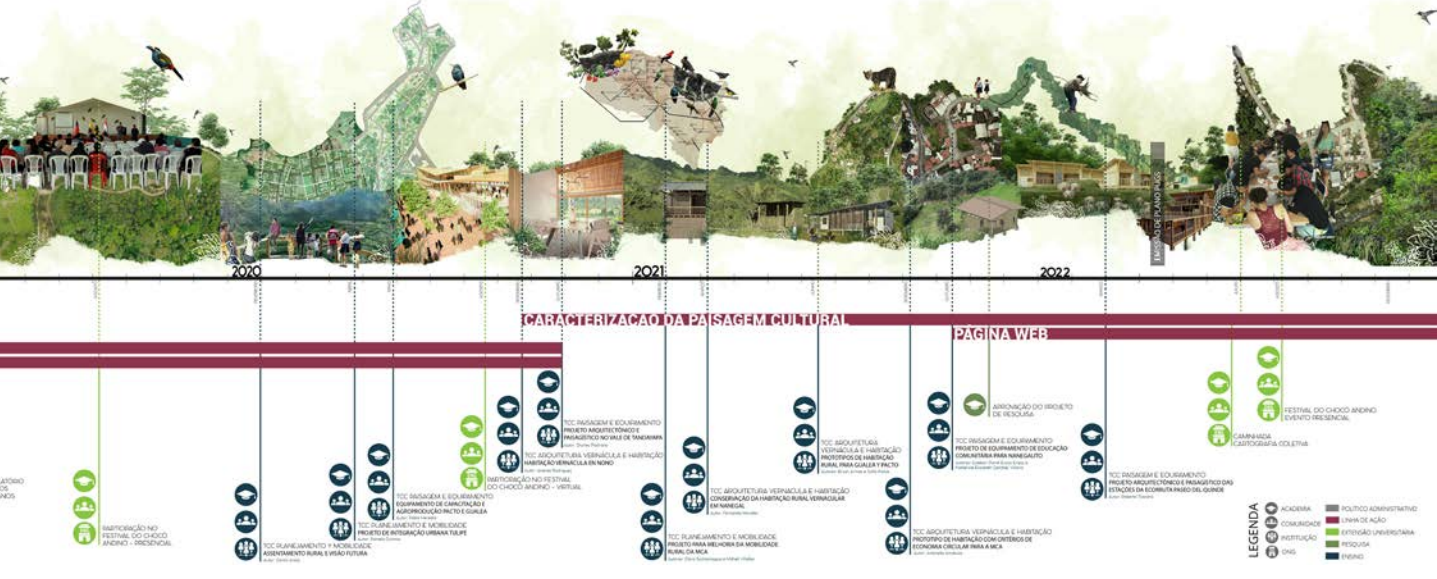


Figure 4: Project design and construction process. On the left, the participatory workshop with the community; in the middle, the construction of the project in *minga*; and on the right, the finished multipurpose space. (2023)

Figure 5: Social Mapping of San José de Masphi. On the left mapping of the current state of San José de Mashpi and on the right mapping of a desired future. Escobar (2018)

deep understanding of the reality that was being sought for advisory purposes. This enabled the architectural design process, which is typically abstract in university settings, to be grounded in a practical approach that addressed the concrete complexities of the families' needs.

4.3. Third territorial action: characterization of human settlements through community engagement and teaching-training

The results of the work done with the Mashpi community sparked interest from other institutional actors. The president of the Pacto parish and the technicians from the Chocó Andino Commonwealth (MCA) viewed the technical support from the public university through the OPTE as an opportunity. They invited OPTE to assist in the ongoing territorial planning process for the MCA at that time.

The initiation of activities with the MCA was marked by an on-site workshop aimed at establishing the foundations for territorial planning for the MCA. This workshop included the participation of MCA technicians, presidents of the six rural parishes, representatives from the Imaymana Foundation, and Spanish technicians from the Extremadura City Council (Spain) who are experts in rural area planning. Three strategic axes were defined for developing the proposal: (i) natural and archaeological heritage, (ii) productive practices, and (iii) the network of human settlements. Given the lack of updated official cartography, it was decided to create alternative cartography (Figure 7) based on information collected with the parish presidents and residents of the MCA.

The moment of developing the plan for the MCA coincided with the declaration of the "Chocó Andino de Pichincha Biosphere Reserve" by the United Nations Educational, Scientific and Cultural Organization (UNESCO) (Maate, 2018). This event contributed to the MCA's management proposal being revisited by the Metropolitan District of Quito, as established by Metropolitan Ordinance 137, issued in August 2016, which designates "the territories of the districts of Nono, Calacalí, Nanegal, Nanegalito, Gualea, and Pacto as an area of ecological, cultural, and sustainable productive development importance" (Ordinance No. 137, 2016, p. 7). The UNESCO declaration establishes responsibilities for the MCA regarding the preservation of landscapes, ecosystems, and species; promoting sustainable economic and human development from a sociocultural and ecological perspective; supporting demonstration projects, environmental education and training, as well as ongoing research and monitoring on local, regional, national, and global issues related to conservation and sustainable development (Provincial Government of Pichincha, 2017). This convergence of interests led the DMQ to commit to developing the Special Plan

for the MCA, which, according to current legislation, would be the responsibility of the Territory, Habitat, and Housing Secretariat (STHV) in conjunction with the *La Delicia Zonal* Administration.

The STHV and the Secretariat of the Environment of the DMQ (SADMQ) jointly coordinated the Special Plan for the MCA, given the environmental significance of the region. However, due to the specific characteristics of the territory, municipal authorities decided to hire the Consortium for the Sustainable Development of the Andean Ecoregion (CONDESAN) as external consultants specializing in that ecosystem. Nonetheless, before carrying out any planning process, it was essential to know the existing human settlements within the MCA. The lack of this information led CONDESAN technicians to hire OPTE to prepare a diagnosis focused on the network of scattered human settlements.

The diagnosis began with the identification of the factors that characterize the different types of human settlements. Quantitative and qualitative data were collected and systematized from approximately 100 human settlements in the six rural parishes. Based on this information, variables were developed for characterization and the existing interactions between each settlement. The characterization methodology had three stages: (i) gathering information from various official sources and from participatory workshops held in the territory; (ii) organizing and classifying the information on two scales of analysis, human settlements and territorial network; and (iii) defining settlement typologies and territorial relationships. The data collection was carried out through participatory workshops in the six parishes. OPTE supported both the invitations, and the workshops conducted by MCA technicians. As illustrated in Figure 7, the workshops mapped formal characteristics onto an aerial photograph of each populated centre, and semi-structured interviews designed by MCA were also conducted. As a result, a database was created with the morphological, topographic classification and habitability profile of each human settlement, as well as the interactions between them, which enabled analysis and the development of guidelines for MCA.

The development and use of research tools helped in recognizing a unique territory where municipal planning lacked ways to interpret or represent this socio-spatial complexity. Community participation was necessary to identify unmet needs. In this case, the experimental nature of the research was reflected in the search for a new way to systematize data from populated centres so that they could be recognized within the logic of territorial planning instruments. This strategy activated a network of cooperation among MCA stakeholders, the Municipality of DMQ, and the public university to fill this instrumental gap.

The cooperation between students and faculty in developing the analysis method was essential not only for generating the knowledge that supported the planning process, but also for guiding the creation of twelve final degree projects focused on the MCA[3]. By contributing to the understanding of the issue, students were encouraged to present innovative proposals, with a greater degree of pragmatism and a more developed critical ability. The final projects were developed around three thematic axes: (i) planning and mobility, (ii) landscape and infrastructure, and (iii) vernacular architecture and housing. To support the development of these projects, training seminars were held for students, addressing both formal aspects, such as document structure, academic writing, layout, etc., and methodological aspects, such as theoretical frameworks, case analysis, cartography, qualitative and quantitative methodologies, etc. Figure 8 illustrates the final degree projects focused on these three themes. Each of them aims to offer concrete solutions to real problems in the territory, targeting various areas of the MCA, ensuring an integrated and representative approach to this region.

4.4. Fourth territorial action: development of the human settlements manual through research and societal engagement

The results obtained from the characterization of human settlements in the MCA were presented to the DMQ in a technical report. However, it was essential to share this information with the population, using accessible language to strengthen community participation. With this approach, OPTE created the document *Mancomunidad Chocó Andino: Territory, Rights, and Responsibilities*, a manual designed within the context of a research project approved by UCE.

[3] The following graduation projects were considered for this case: Antonela Amaluisa, Carlos Arcos, Marcelo Armas and Sofia Ponce, Esteban Erazo and Katherine Sanchez, Clara Güilcamaigua and Mishel Villalba, Pablo Heredia, Fernanda Morales, Shirley Pastrano, Andrea Rodriguez and Roberto Toscano.

Figure 6: Restoration of the Pastrana family home. On the right, the house before the intervention; in the middle, the construction process; and on the right, the restored and finished house. (2023)

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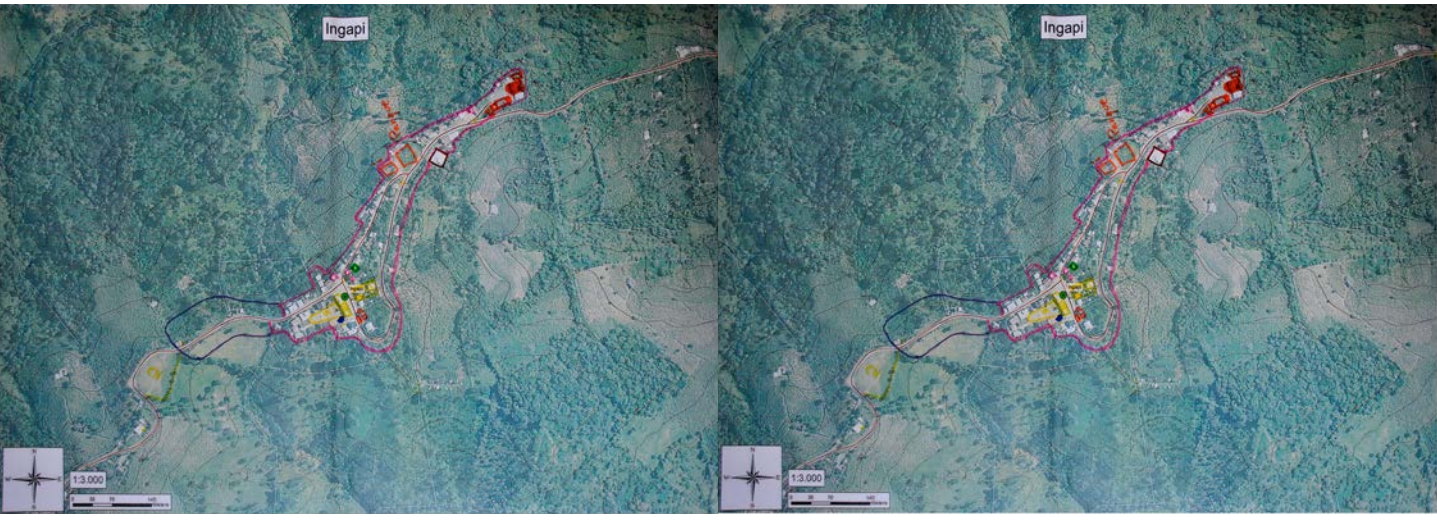

Figure 7: Participatory mapping. On the left identification of population centres at 1/30,000 scale, and on the right mapping of the characteristics of each population centre at 1/3,000 scale. Consultancy for analysis of territorial functional linkages in the network of dispersed human settlements SA/DMQ

The manual presented the different typologies of human settlements and their relationships with the environmental surroundings. The MCA was depicted as a vast territory composed of a network of dispersed settlements that interact with each other through exchanges and flows. The document was organized following a sequence of scales: first, the macro-territorial scale, formed by a network of dispersed settlements; then the meso scale, focusing on human settlements and their relationship with the inhabitants' reality; and finally, issues related to the daily needs of the inhabitants at the micro scale. This study aimed to establish links between the local and regional levels, based on the concept of a network. The notion of a network was emphasized throughout the manual as an idea that should guide all decisions regarding the location of infrastructure, commerce, services, and facilities. In this way, it highlighted how each habitable point on the map is determined by both macro-scale factors, such as the system of protected areas, and micro-scale factors, such as local environmental conditions, and its contribution to complementary relationships with the rest of the network.

The manual includes visual elements that facilitate the identification of each type of human settlement, along with its characteristics—such as form, topography, services, and population—as illustrated in Figure 9. In this way, it highlights the needs and potential of each settlement, considering its role within the territorial network. Additionally, the notion of a hierarchical structure is presented to communicate that lower-tier settlements should have basic facilities, while higher-tier settlements act as centres and, therefore, should offer a broader range of services. This contributes to understanding common needs, such as improving transportation systems and the availability of educational and health facilities.

The research project titled "Territorial Characterization of a Highly Environmentally Sensitive Area as a Contribution to the Cultural Landscape, Chocó Andino Case" ultimately merged with the societal engagement project and the final course projects to conclude a four-year process of collaborative work with the community and the territory. As a result, the manual aims to provide residents with information about their territory, creating a tool to empower and engage citizens in debates and decisions regarding the development and planning of the MCA territory.

Finally, it is important to mention that since 2018, OPTE, through its faculty and students, has consistently participated in the Chocó Andino Festival[4]. This event, organized annually by the MCA and the Chocó Andino Youth Network, serves as a platform for information and outreach about the territory. The festival has provided an opportunity to disseminate the results of these academic efforts through booths, workshops, and the organization of walks for critical readings of the territory alongside the local population.

[4] https://mancomunidadchocoandino.gob.ec/festival-del-choco-andino-2da-edicion-pacto-2019/

Figure 8: Production of Final Degree Projects (TFC) in the context of the project of linkage with society in the Andean Chocó.. (2023)

5. Discussion and conclusions

The experiences described allow for reflection on the pedagogical model developed by OPTE, which arises from a particular combination of its internal structure and its approach to interaction with the territory. In the internal dimension, this model has facilitated the establishment of a learning community that continuously practices action research, creating a work culture where students learn and contribute to a common goal alongside faculty researchers in the same space. In the external dimension, the observation and reflection of real needs have enabled the establishment of a work agenda that is more aligned with the national reality.

From a pedagogical perspective, direct contact with the territorial reality and horizontal collaboration through coordinated tasks have been promoted. In the case of the MCA project, this has allowed students to experience the political dimension of the territory, exchange knowledge with local actors, and directly participate in building the academia-community link. The approach to the territory has contributed to raising awareness about real problems, leading to a better understanding of the role of research and societal engagement in the daily lives of communities. Furthermore, the collaborative environment has enhanced the learning of new research techniques, as well as the capacity for debate on actions and knowledge construction regarding the territory, as evidenced by the final degree projects closely tied to the concrete realities of this area. The construction of knowledge based on collective needs has facilitated the establishment of research and action agendas that are responsive to the needs of the inhabitants and aimed at their empowerment.

The experience in the Chocó Andino Commonwealth illustrates the possible modes of action under the OPTE model, articulating the three essential functions of the university. Thus, the architectural constructions carried out in the field have served as real use values, gaining recognition from the community while simultaneously developing technical, political, and social knowledge among students, faculty, and the community. Assembly and community events have created an environment for knowledge exchange and concrete work agendas. Outreach documents, such as the manual for characterizing human settlements, have contributed to empowering the organized community and have had a direct impact on the formulation of public policies for this community. This approach has sought to break away from the vertical logics of imposing territorial planning that homogenize realities through their instruments and simulate participation by socializing decisions that have already been made.

Finally, it is considered that the model constructed by OPTE is characterized as a system of relationships between academia and territory, manifesting internally as critical cooperative research and externally as

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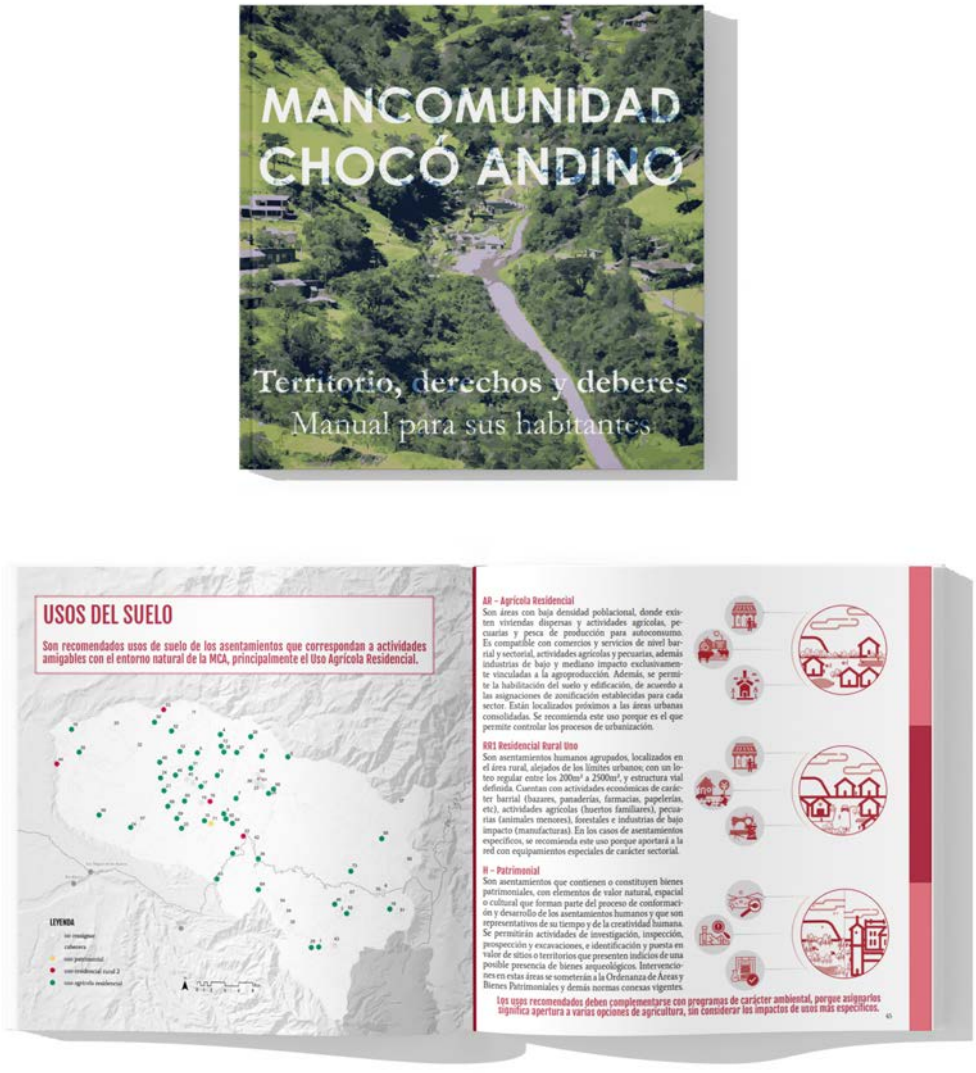

Figure 9: Human settlements characterization manual for the inhabitants of the MCA. Available at https://opteuce.com/portfolio/territorios-rurales-mancomunidad-choco-andino/. (2024)

contextualized action. The learning from this experience primarily centres on the fact that the articulation exercised among the three functions of the university—research, teaching-training, and societal engagement—expresses a strong pedagogical potential capable of complementing student learning, strengthening community capacities, and fulfilling the social function of architecture and public universities. Therefore, the challenge for academia is to promote mechanisms that allow for deeper relationships among these three functions.

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