

Tourism for enhancing resilience of complex socio-ecological systems?

A Case study of Cuararay's Kichwas communities in Ecuadorian Amazon



Universiteit Utrecht

Master's thesis – M.Sc. Sustainable Development – International Development

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9th of August, 2019

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Cover photo: Kichwa woman crossing the Villano river, Ecuador. Source: Liseth Castañeda, 2019

Acknowledgement

First of all, I would first like to thank all the people who dedicate their time and share their knowledge and experiences in favour of the development of this study. Especially to all the people in the Kichwas communities of the Curaray who during my stay in their homes made me feel at home, sharing long hours of conversations not limited to this research but to life experiences and for showing me and sharing with me their way of living.

I also want to thank Jhonatan and Armando Grefa, my friends Kichwa thanks to those who had access to the paradise they called Kawsak Sacha and thanks to those who were able to organize the communities to devote their time and support to the research.

I would also like to thank the Secretariat of Human Rights of Ecuador, without its logistical support this investigation would have been impossible to carry out and especially Liseth Castañeda who accompanied me during the entire research, for all her trust and support.

I especially want to thank my supervisor dr. Kei Otsuki, for her guidance throughout this period of study. Her advice and reflective supervision have proven to be of great value, encouraging me to inquire into more profound ideas.

To the Ecuadorian State, through its scholarship program allowed me to participate in this master's programme.

Finally, I want to thank my family and friends for all the support during the months of research for all the encouragement given during these months. To my father and mother for leading me to live life to the fullest, it is thanks to them, their advice and guidance that I can fulfil this stage

Abstract

Hundreds of communities settled in the Amazon basin face economic and social oblivion, discrimination by the rest of society and lack of empowerment of their territory. However, these communities are the guardians of the world's largest primary rainforest, responsible for global climate control. Further, this territory is home to most of the isolated indigenous peoples that still exist in the world. In this context, community tourism appears as a promising alternative for community empowerment that allows improving resilience in remote Amazonian contexts where, due to geographical isolation and climatic conditions, in many cases, other economic activities are near impossible to be carried out.

Therefore, this research addresses the question: To what extent does the economic development of the Kichwa communities of the Curaray River through tourism improve resilience in a complex socio-ecological system? This question is answered through a community-based study combining with key actors with a socio-ecological system approach that addresses the intrinsic relationships between its two subsystems. Qualitative data were collected from the communities involved, and an analysis of the experiences, expectations and positions was performed. The analysis was guided by available literature of tourism, empowerment and resilience. Regarding, peoples in isolation, specifically for this research: Tagaeri and Taromenane, as well as to contextualize the Kichwa people of the Curaray and the characteristics of the environment they inhabit, specialized information by experts was collected and contrasted with the limited literature and historical information of these territories and peoples.

By integrating community tourism with the perspective of resilience and empowerment, besides analysing a case study, this research expands academic information on a topic where the lack of data is prominent but also implies its practical utility. This research serves as the basis for the development of tourism on the Curaray River' banks, where its inhabitants are intended at the implementation of the tourism industry. This study serves as guidelines that facilitate the sustainable development of the communities.

The findings suggest that tourism has the potential to positively impact the resilience of complex socio-ecological systems in remote places, especially in Amazonian contexts, as well as to empower its inhabitants in all realms: psychological, social, political, economic, and territorial. Thereby it provides communities with an alternative to cope with the economic-political juncture throughout the Amazon region. However, this thesis also reveals a careful implementation procedure that must be carried out to avoid generating detrimental long-term impacts. Thus, this research serves as the basis for further exploration of alternatives and studies.

Keywords:

Resilience, Kichwa, Socio-ecological, tourism, empowerment

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Acronyms

CBT	Community-based tourism.
FEPP	Populorum Progressio Ecuadorian Fund (by acronyms in Spanish).
IACHR	Inter-American Commission on Human Rights.
MAE	Ecuadorian Ministry of Environment (by acronyms in Spanish).
MINTUR	Ecuadorian Ministry of Tourism (by acronyms in Spanish).
SDH	Secretary of Human Rights (by acronyms in Spanish).
PNY	Yasuní National Park (by acronyms in Spanish).
YBR	Yasuní Biosphere Reserve
SES	Socio Ecological System.
SOS	Safe Operating Space
UNESCO	United Nations Educational, Scientific and Cultural Organization.
ZITT	Tagaeri Taromenane Intangible Zone (by acronyms in Spanish).

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1. INTRODUCTION

The global rate of biodiversity loss is alarming; we are witnessing the extinction of between 200 to 2000 species per year, taking into account the most conservative estimates. In the same way, the loss of cultural diversity advances at a critical pace. According to UNESCO, of the 6700 languages spoken in the world, 2500 of them are classified as endangered. It is a reality where "progress" can decimate whole tribal peoples, either by diseases, economic interests, cultural transformation or isolation of rights. And where the majority of the population continues its life without being affected and unaware of the consequences of these losses for humanity.

However, there are shelters that protect the diversity of the planet, one of these is the Yasuní Biosphere Reserve, in the Ecuadorian Amazon, declared as such by UNESCO in 1989. It is made up of the Yasuní National Park, the territory of the Waorani nationality and the Intangible Zone Tagaeri Taromenane. This reserve has one of the highest rates of biodiversity in the world, on average 650 vascular plant species, 170 mammal species, 600 bird species and 150 amphibians per hectare. Also, it is the territory of the Kichwa, Waorani, Shuar, Achuar, Tagaeri and Taromenane ethnic groups, the latter two being in voluntary isolation.

Each of the ethnic groups (except those in voluntary isolation) that live within the Yasuní Biosphere Reserve have been developed socioeconomically in different ways. Traditionally it has been the external factors that have prevailed in the change of these societies, as have been the economic interests of the State and private companies, campaigns of evangelisation, expansion of the agricultural frontier, among others. However, in the last decades, the communities have had more decision on how they wish to develop socioeconomically, and this is where the social dynamics of each ethnic group play a fundamental role since these constitute the basis on which development projects must be implemented so that these are compatible with the focus group. Stories of success and failure abound in the indigenous groups of Ecuador and Latin America, being a common factor for success a close work with the community and empowerment of the process of economic change.

In the Ecuadorian Amazon, one of the most biologically diverse and best-preserved places in the world is located, the Yasuní National Park, the spot of confluence of hundreds of birds, mammals, reptiles, amphibians and fish, as well as thousands of species of insects and place of constant discoveries of new animal and plant species even today. Not only that, but it is also a place of settlement and mobility of two of the few indigenous groups in isolation that remain in the world. The southern limit of this unique place is the Curaray River, and on its southern shore, the Amazonian Kichwas settle, organized under the Kawsak Sacha Ancestral Organization, legally recognized by the Ecuadorian state and owner of the southern territory of the Curaray River. However, the Kawsak Sacha territory nowadays constitutes an area with extractive potential for oil companies that expect to intervene and extract the hydrocarbon. To this threat, the Kichwas entirely oppose but are left without any alternative that allows them to develop economically without affecting their land.

This research reflects that even though several projects have been established in the territory of the Amazon Kichwa determined as the Kawsak Sacha territory, lack of support is evident in the southern border of the reserve, established by the Curaray River due to its difficulty of access and relative isolation, even governmental dependencies act merely as control institutions in this area. The need for development is evident; the communities are having very limited of access to potable water, health attention or education. Furthermore, it is possible to see the absence of formal economic activities (including tourism) within this zone, which forces its inhabitants to look for alternatives for the generation of income and sometimes going against conservation principles.

In the development of this study, Kawsak Sacha territory is analysed as a complex socio-ecological system where the natural and cultural structures are intertwined and mutually affect each other. The area is studied as a whole in order to understand its true complexity and find means of enhancing the resilience of the reserve, seeking social development of the communities and at the same time the conservation of the biological and cultural diversity.

It is proposed for this research that the means of development for this territory is tourism, as this is considered as a compatible economic activity with the diversity of the YBR (MAE, 2016) and also extremely important is the fact that the Kichwas of the Curaray are interested in developing a tourist project in their territory and have sent tourist management plans to the organization Kawsak Sacha and the Ministry of Tourism. However, these plans were rejected since the Kichwas along the Curaray river do not have a formal education, and they have not had the possibility of elaborating tourism management plans that meet the ministries' requests. Currently, there is not any touristic activity going on in the research area the communities through Kawsak Sacha organization are working their way to start developing tourism on their territory. It is these same inhabitants who demand a study of the implementation of tourism in their territory that is consistent with their worldview which at the same time allows socioeconomic development of their communities without harming the fragile balance of the environment in which they live.

There is a lack of work in the analysis of how the introduction of a new variable such as tourism affects the resilience of an SES in Amazon sensitive areas. The management of tourism depending on its natural and cultural environment is essential, however at the same time a globalised world pressures tourism to respond and adapt to several external factors. In order to obtain the socio-economic change in favour of the communities, and at the same time to provide integral protection for their territory, it is necessary to direct the initiatives of several actors, where the fundamental ones are the communities but the State and private participation cannot be neglected. It is only through joint participation of all the actors involved in the management, research, development and protection of this area, will it be possible to develop the banks of the Curaray River sustainably.

1.1. Problem definition, knowledge gap, and relevance of the research

Considering the fragility of the SES of the of the rainforest surrounding the Curaray river it is probable that an external shock may lead to transform this environment in a non-desirable way without chance of returning to the previous state. This, would mean the extinction of the isolated tribes as well as the degradation of the current highly diverse ecosystem and a limitation for the Kichwas who obtain almost all of their resources from the forest. This is the reason why empowerment of the territory is crucial due to it strengthen resilience of communities and as stated by Timothy (2006) empowerment can be accomplished only through the exercise of power which in this research will be study of the impact of socioeconomic power over the resilience level on the area and the development of the communities.

Economic development of the Kichwa communities of Curaray is crucial for the preservation of their culture and their environment. Being communities that have not been taken into account within the economic development plan of recent decades, these communities have been forced to carry out illegal hunting and logging activities, which puts at risk the environment where they live and therefore their own security (Kawsak Sacha, 2011). Economically, ecotourism brings gains at the community level; income is divided among those who form communities and generates visible improvements (Scheyvens, 1999).

Available literature on the impacts of tourism development on indigenous communities is substantial and as presented by Sindiga (1995) a community- based approach of tourism accepts the need to improve the quality of life of people and at the same time the promotes conservation of resources. However, a C-SES as sensitive as the banks of the Curaray river is comparatively under-researched. The high complexity of the Kawsak Sacha territory makes it an exciting site to develop research and clarify real potential of tourism in a local scale and how it affects not only the local but also its implications on higher scale levels.

Furthermore, the banks of the Curaray river constitutes the southern natural barrier of the “Tagaeri and Taromenane Intangible Zone”, the territory of the only two (known up to date) isolated tribes within the Ecuadorian boundaries. This represents a unique characteristic of this research, as no literature is available regarding the possible impacts of touristic development in the adjacent areas of isolated peoples’ territory in the aim to protect them from external threats.

Concluding, the underlying problem is that existing literature indicates that tourism can bring development at local levels. However, it is not clear what impacts it may cause in such complicated area for both the Kichwa communities, peoples in isolation and the environment. It is neither defined how these impacts can influence resilience in the higher scale system. Considering that tourism projects have been successful in neighbouring communities, the Kichwas from the Curaray are predisposed to the start developing tourism into their territory (tourism is considered successful when the income has been reinvested in the development of the communities by establishing schools or medical centres Further, in cases as Napo Wildlife Centre from Kichwas from the Napo river, tourism has been the mean of preserving

their culture by explaining it to tourist from all over the world, and recovering the pride of being indigenous in a society where discrimination to indigenous people still is present).

Despite the great publicity of tourism as the means of sustainable development in the Amazon, there are no real studies that validate the effects of tourism in a complex and remote area; it is even unknown to what extent it is feasible to carry out Tourism in areas like this. Thus, this research aims to answer the question: To what extent the economic development of the Kichwa communities of the Curaray River through tourism improves the resilience in a complex socio-ecological system?

2. THEORETICAL FRAMEWORK

The theoretical framework of this research is based on analysing the territory of the Kichwas of Curaray as a complex socio-ecological system. In this setting, it is foreseen to establish all the inherent interactions of the system as well as the interaction with the superior systems, in this case the YBR, and how they influence each other. In this framework, it will be analysed how the introduction of a new factor, such as tourism, will influence the system and will influence the resilience, adaptability and transformability of the Kichwa territory.

2.1. Kawsak Sacha territory in the context of a complex Socio – ecological system

The concept of socio ecological systems started to shape from the sharp criticism of reductionism during the twentieth century, unleashing the emergence of systems thinking, which affirms that the world is a system and that the analysis of phenomena has to be fundamentally analysed in this way since everything that constitutes the system is intrinsically related (Flood et al. 2010). However, the social and ecological dimensions were, at first, treated as independent prefixes that interact with each other, this concept did not fully show the complexity of a system, Therefore, Berkes, F. & Folke C. (1998) came up with the term “social-ecological” which stress the inseparable connectivity of humans and nature and the powerful reciprocal feedbacks between systems (Folke et al., 2005).

SES can be understood by analysing its dynamics, which are described in terms of **adaptive cycles**. These cycles consist of four phases, nevertheless the following description of the cycles does not suggest fixed and continues cycling. Systems can move forward or backwards and jump phases in addition to the interactions with systems at different scales (Walker et al., 2004).

- Growth and exploration (r)
- Conservation (K)
- Collapse and release (Ω)
- Reorganization (α)

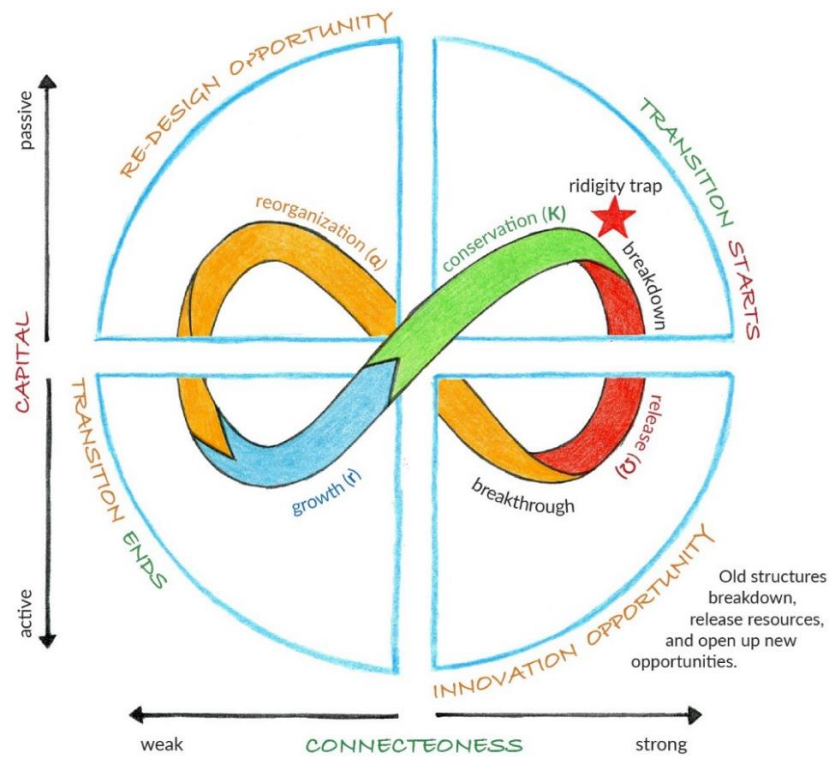


Figure 1. Representation of the adaptive cycle. (Wahl, D., 2016)

During the **growth and conservation phases** a slow forward loop of the cycle is described, in these periods dynamics of the system are up to a certain point predictable. Then as the conservation phase continues the system becomes rigid and less responsive to external shocks and resources are scarce. Then it is inevitable that the system rapidly **collapses** in the release phase quickly followed by the **reorganization** of the system, where innovation is conceivable. However, it is in these two last phases when uncertainty of the continues path of the cycle is more prominent (Walker et al., 2004).

This view of the SES properties has a larger macroscopic view where **interaction of the different scale systems** emerges. Constant feedback from higher and lower systems influence both individuals and also the macrosystem (Levin et al., 2012). It is in the framework of SESs that that social learning based on both traditional and scientific knowledge is imperative (Luthe et al. 2014). Constantly, management practices in the community level, where over long period of time interactions between ecosystems and society have shape unique structures, are key to fully understand the adaptive cycle of a SES (Folke, 2004).

In this sense, for the present investigation two SESs emerge first, the YBR as a complex system, socially formed by diverse human groups and interests economically and environmentally by different tropical ecosystems. On the other hand, the territory on the banks of the Curaray river is in itself an SES with its intrinsic, and that interacts with the YBR and influence each other. This research seeks to define the

foundational characteristics of these SESs and their mutual interaction, as the dynamics of a SES in which the geographical and economic isolation are so prominent and at the same time developed in a territory of high environmental fragility has been under-researched.

2.2. Resilience of Socio – Ecological Systems

Resilience theory has been evolving integrating a broader field of research during the last decades from a concept-oriented only to ecological aspects or often limited to an idea of return rate to a static equilibrium point to a framework that accounts the binding interactions between nature and society (Folke et al., 2010). One of the most spread definitions that takes into account these interactions is the one developed by Walker et al. (2004 p. 7): “**resilience** is the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks”.

First of all, it is necessary to make clear that when referring to resilience also the concepts of **adaptability** and **transformability** play an essential role, as these three processes are intertwined (Smit et al., 2006). It may seem contradictory that adaptation and even more transformation controls resilience. Yet the ability to adapt and transform towards a desired state is the base of the resilience of SESs (Folke et al., 2010). Adaptability is the capacity of the society involved to manage resilience even though there is never an intent in the systems as a whole, society greatly affects and shapes resilience. On the other hand, transformability means the establishment of new components to an unsustainable system conforming in that way a new system. (Walker et al., 2004).

Resilience, can be understood by analysing the **state** space constituted by all variables and all possible combinations in a three-dimensional structure (Figure 2). It is in this layer where **attractors** shape basins, being these the equilibrium states, spaces where the system leans towards to remain. The area formed by the basins and its boundaries are described by Holling et al., (2001) as **stability landscapes**. Although, these landscapes with clearly defined basins are a simplified model of the reality (Folke et al., 2010), they explain in a straightforward way the aspects of resilience.

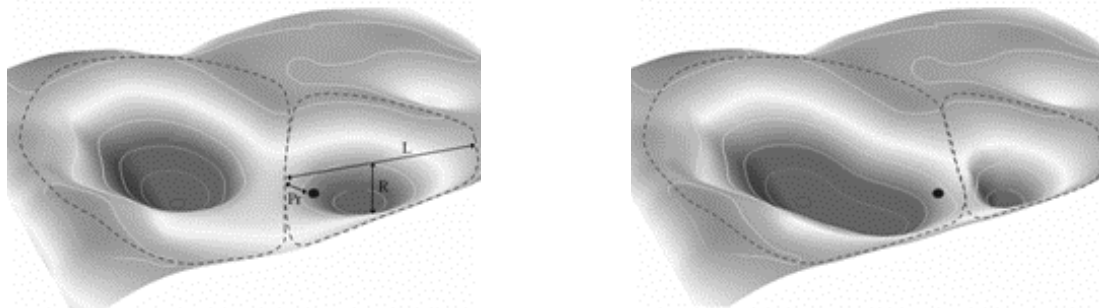


Figure 2. Representation of stability landscapes (Walker et al., 2004)

In figure 3 **latitude** (L) the first aspect of resilience is represented by the extension of the basin and relates to the ability of the system to remain the same when facing the changes in the system. **Resistance** (R) is represented by how deep or shallow is the basin; this topology characterises how difficult it is to change a system; deeper basins would require greater forces to change. Lastly, precariousness (Pr) is the path the system is currently taking and how distant it is from a limit (Becken, 2013; Walker et al., 2004).

Furthermore, **cross-scale interactions** (from systems above and below) directly affect the three aspects of resilience at the focal scale, which are influenced by the events in the **panarchy**, which is also the fourth aspect of resilience. Therefore, it is imperative to understand these relationships between scales of systems to determine how they configure the focal system (Kinzig et al., 2006).

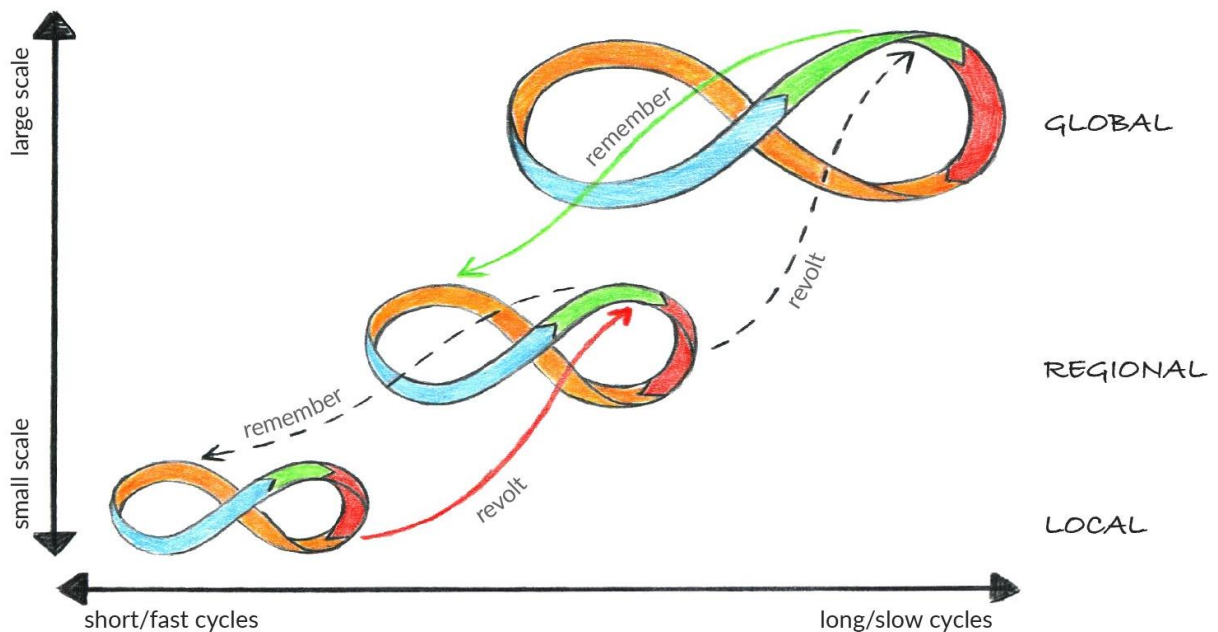


Figure 3. Influence of panarchy at different spatial scales. (Wahl, D., 2016)

The context of the of the Kichwa communities along the Curaray river provides a compelling case, as both aspects of resilience, social and ecological, are more definitely intertwined in communities that are strongly dependent on natural resources (Adger, 2000). Moreover, these communities are clearly identifiable as a subsystem of the Yasuní Biosphere Reserve (system) which permits to identify the cross-scale interactions occurring between different hierarchies and how they shape the socio-ecological environment of the Kichwa communities.

2.3. Tourism as a mean of empowerment of indigenous people and influence on resilience

Tourism directly influence the capacity of SESs to deal with stresses (internal or external) by maintaining a stable tourism economy and at the same time ensuring the necessary flexibility in the system to keep adapting and becoming more resilient in a system thinking (innovating) (Luthe, et al., 2014). As expressed by Pansiri (2008), in tourism context it is clear that a greater quantity of coordination and collaboration activities can improve performance of the individuals and the system as a whole.

In the studying of SES in crucial not to overview the importance of human beings as the primary factor of fate of the system. This is why the importance of an economic development of the inhabitants of the Curaray territory is essential. Sustainable tourism has shown that it influences resilience of a SES and in the cases of small localities **community-based-tourism (CBT)** has proven to be effective in improving resilience of the system (Ballesteros, 2011).

The focus of CBT can be very diverse; tourism development can have as a market objective different types of tourist, then, it is necessary that the communities in which a tourism activity will be established agree on what type of tourism they wish to implement, in order to take the path that is most compatible with the social context. However, due to the environment of the area, located in a National Park and Biosphere Reserve, tourism will inevitable differ from the traditional mass kind and will follow the guidelines of **protected-area-tourism (PAT)** which established certain types of tourism as compatible with the system. Ecotourism, nature-based, research tourism are some of the most known compatible types.

In the present research the implementation of tourism through **community management** and together with the limitations that a **PAT** dictated marks the path to follow. A tourism project can be considered successful, only when the communities maintain control over the dynamics and when the socio-economic gains have been distributed with equity (Scheyvens, 1999). The success in the long term may be dictated by the collaboration, coordination and integration of all actors and resources (Luthe, et al., 2014).

This success outlines the importance of empowerment of the communities of the SES of which they are part. **Empowerment** can be understood as the capacity of groups to control their own matters and to manage the issues that affects their lives (). Empowerment brings benefits to both, the individuals of the communities and the socioeconomic process that is held. In this context, tourism can be important as it has the potential to increase access to information and to external contacts, brings new language skills, creates confidence and strengthens confidence, all, elements of **empowerment** (Cole, 2006).

Furthermore, the empowerment of the territory is based extensively on **human rights, collective rights and the rights of indigenous peoples**. In this sense, on the one hand, it is proposed that the empowerment of the Kichwa consolidate an action of adequate protection to the **rights of self-determination** of the indigenous peoples in voluntary isolation, as well as strengthen the execution of the **principle of non-contact** proposed by IARHR. (2013) which states "For indigenous peoples in voluntary isolation and initial contact, the right to self-determination is directly and profoundly related to the rights to their lands, territories, and natural resources". In this sense, it has to be understood the tourism is meant to be developed outside the ZITT, in the area next to it, and would act as a barrier to protect from external threats, and will never intrude the limit established for the ZITT. On the other hand, through the development of an economic activity in a territory where there is no consolidated activity, it is tackled the **right to the economic equality** of indigenous peoples (Kichwas) with the rest of society. Besides, the **right to their territories and management of resources** is strengthened since, by administratively consolidating the communities, they can exercise more effectively and consciously their **right of informed consent** in the face of an externality, and this reinforces the **right to protection and preservation of their culture** (UN, 2013).

Finally, as expressed by Luthé (2014), limited research has been made in regards of dealing with the complexity of tourism development and management from a resilience perspective and even less literature is available in a social context as sensitive as the presented where the respect of human right represents the survival of entire peoples. This research aims to contribute to the understanding of the influence of tourism, from a community base approach and a protected area context, over resilience dynamics in a SES framework.

The following graphic summarizes the conceptual framework of the research where all the components of the SES Kawsak Sacha are integrated and the interactions with the higher systems. Under this analysis framework, community-based tourism implementation is studied in terms of its impacts on the SES resilience, empowerment of communities and the implications to isolated peoples.

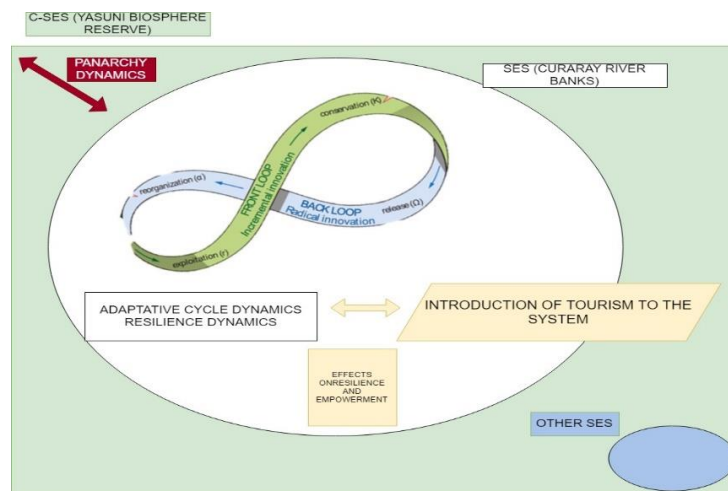


Figure 4. Research framework including the various stages. (Author's own).

3. RESEARCH FRAMEWORK

3.1. Research Questions

The following main research question is proposed: ***To what extent the economic development of the Kichwa communities of the Curaray River through tourism improves the resilience in a complex socio-ecological system?*** The research question investigates what the potential for sustainable development would be that tourism may bring to the area.

Considering the scope of this research, the central research question would be clarified by successfully answering the following specific questions:

- Which actors are potentially involved in the shaping of Kawsak Sacha territory as a complex socio-ecological system?
- To what extent is tourism feasible in Kawsak Sacha territory and what are the expected impacts?
- How does the introduction of tourism affect community empowerment of Kichwa people?
- How does the introduction of tourism impact the ecosystems on the southern border of Yasuní National Park?
- To what extent does tourism would have an impact on the territory of peoples in voluntary isolation?

In order to answer these questions a research framework has been developed as presented in the table below. It integrates the phases of the research according to the theoretical framework and links these phases to the questions to be answered and the methodology that will be applied.

	Research Question	Methodology	Theory
Phase 1	Which actors are potentially involved in the shaping of Kawsak Sacha territory as a complex socio-ecological system?	Desk study Interviews GIS analysis	Framing up the context of the research area. Identify actors involved in the Kichwa territory.
	To what extent is tourism feasible in Kawsak Sacha territory and what are the expected impacts?	Interviews Focus groups Field observation	
Phase 2	How does the introduction of tourism affect community empowerment of Kichwa people?	Interviews Focus groups Participatory mapping Field observation	Shaping the banks of the Curaray River as a SES, determining resilience dynamics and empowerment.
	How does the introduction of tourism impact the ecosystems on the southern border of Yasuní National Park?	Desk study Interviews Focus groups Participatory mapping Field observation	
	To what extent does tourism would have an impact on the territory of peoples in voluntary isolation?	Desk study Interviews Focus groups Participatory mapping Field observation	
Phase 3	To what extent the economic development of the Kichwa communities of the Curaray River through tourism improves the resilience in a complex socio-ecological system?	Qualitative analysis GIS analysis Validate findings	

Table 1. Research theoretical framework. (Author's own).

3.2. REGIONAL FRAMEWORK

This research will be conducted in two places. First, for the analysis of the governmental instances as well as the first approaches with the hosting organisation the investigation site will be Quito. Here all the government institutions and social organisations are found.

For the studies with the communities, an on-site work will be carried out. This will be performed in the communities along the entire Curaray River, from the intersection of the Villano River to the border with the Republic of Peru, this route is approximately 411 kilometres. It is estimated that there are 60 families divided into 8 central communities. However, there are smaller communities and isolated dwellings which should be taken into consideration.



Figure 5. Maps of the location of the research areas (Author's own).

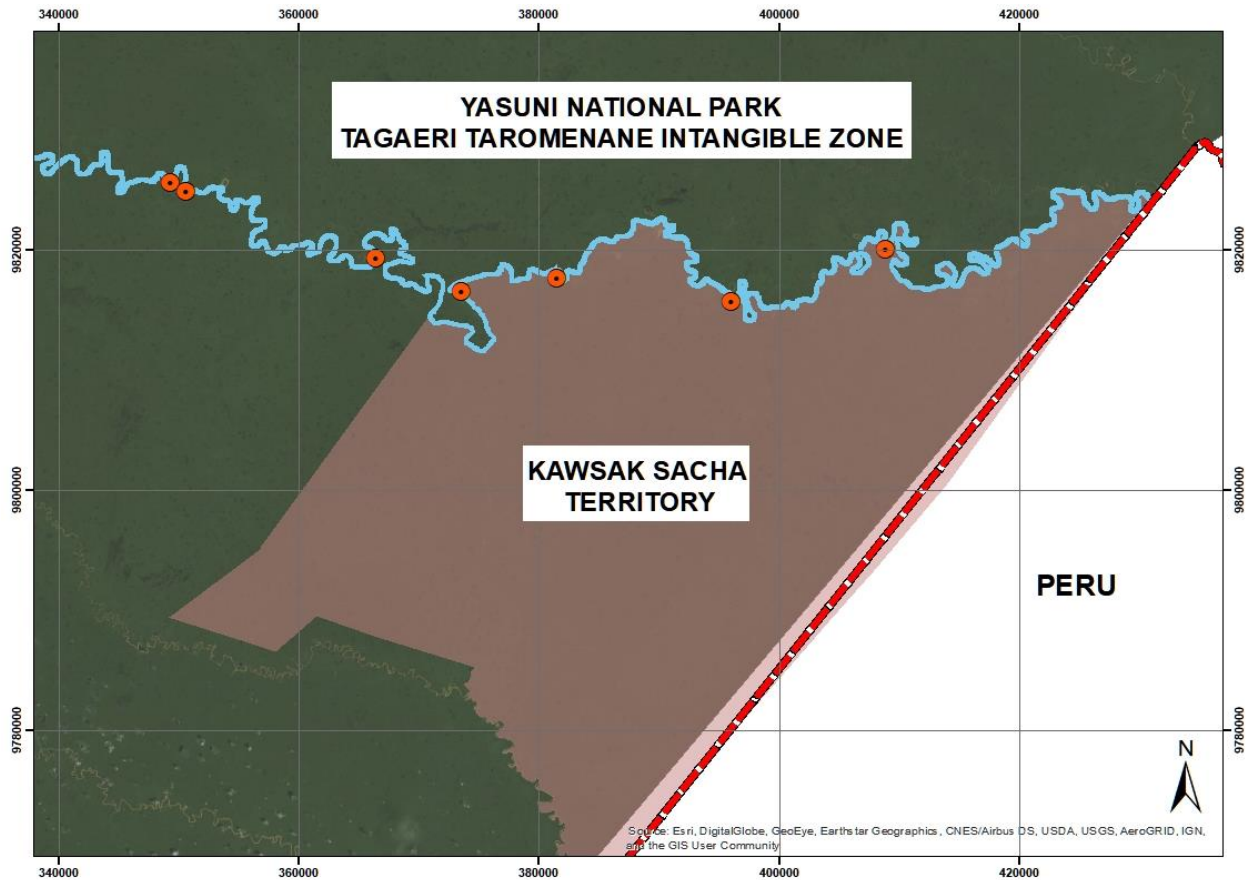


Figure 6. Maps of the delimitation of Kawsak Sacha territory (Author's own).

3.2.1. The social complexity of the research area

The Ecuadorian Amazon is a socially complex area. Numerous human groups have inhabited these territories since before the colonial period of the American continent. However, they have also undergone many changes throughout history, from territorial changes by wars between clans and nationalities to events that completely changed the social environment of this territory. The desire for rubber, the entry of religious missionaries and finally the entrance of the oil industry are some of the main reasons why much of the cultural diversity of this territory was decimate and shape the region to what it currently is (Cabodevilla, 2010).

This conformation of the territory where several nationalities coexist in areas where limits are often diffuse makes territorial management difficult. That is why, the indigenous nationalities have gone through a process of delimitation and formal adjudication of their territories, establishing clear limits to avoid conflicts of interest between ethnic groups.

In this context, the Kichwa nationality, which is the one along with which this investigation will be carried out, is limiting the territories of the Waorani, Zapara, Shuar and Achuar territories, as can be seen in Figure 7. However, the focal group (Kichwas from the Curaray) limits only with the ancestral land of the Tagaeri and Tarmenane, the two known isolated peoples that lives north from the Curaray river, as this represent for them a natural barrier due to its width.



Figure 7. Map of indigenous territories on the Ecuadorian Amazon (La Hora, 2014)

3.2.1.1. Curaray's Kichwas and Kawsak Sacha organization

The Kichwa nationality in the Ecuadorian Amazonia are settled in the provinces of Sucumbíos, Napo and Pastaza, they make up the largest indigenous group around Yasuni National Park (PNY, by its acronym in Spanish), settled mostly on both the northern and southern banks of the Napo river (Villaverde et al., 2005). Its origin dates back to the fusion of several Amazonian peoples with indigenous Kichwas of the highlands, who due to the expansion of Spanish colonisers were forced to migrate into the jungle, establishing themselves in other communities.

This research will focus on the territory of the Ancestral People “Kichwa - Kawsak Sacha” which is located in the border area from the province of Pastaza, between the lower basins of the Curaray and Pindu Yacu rivers, occupying an approximate area of 245734.79 hectares (as shown on figure 2) of highly biodiverse terrestrial and aquatic ecosystems, which are still in a healthy environmental condition thanks to management of the territory by the Kichwas (Kawsak Sacha, 2011).

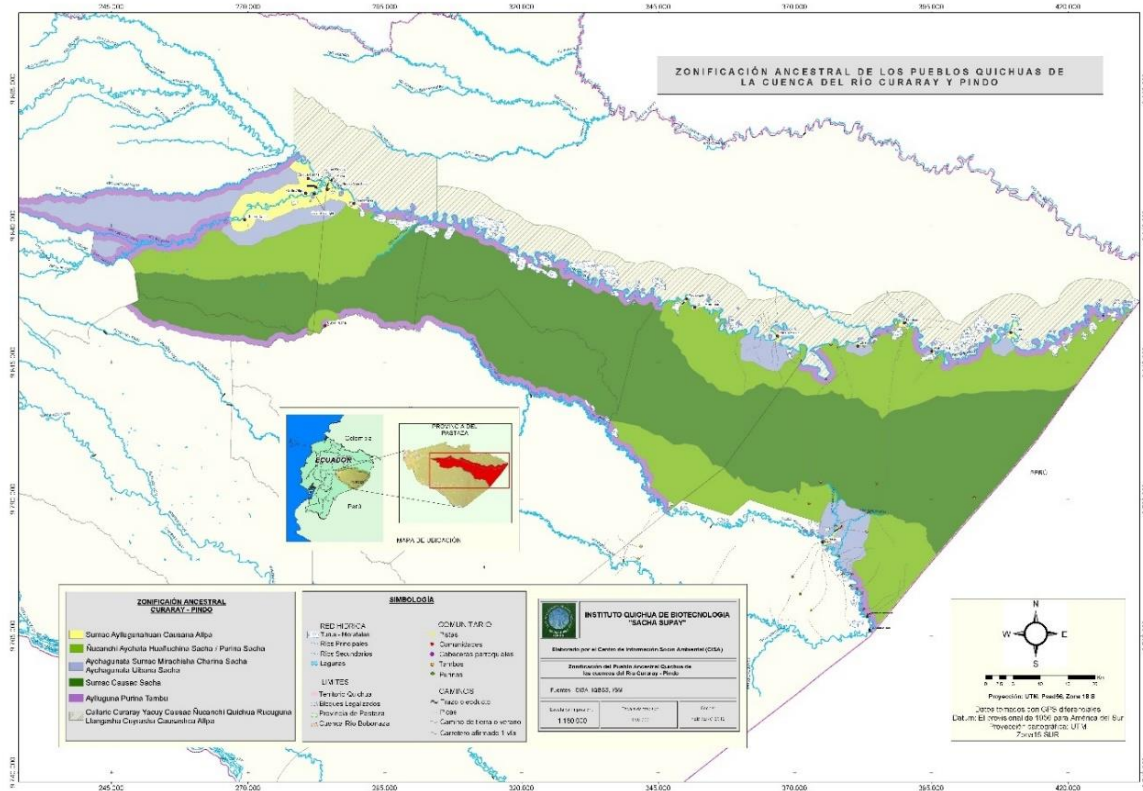


Figure 8. Map of the Kichwa - Kawsak Sacha territory (IQBSS, 2012)

Family and cultural ties closely link the indigenous communities that make up the Ancestral Kichwa Kawsak Sacha People. They have proposed since years ago to undertake a sustained process of recovery and revalorization of ancestral knowledge for the control of their Territory and the sustainable management of the environment, as one of the strategies to achieve a good standard of living and an authentic inter-community development based on the vision of life of the Kichwa people of Pastaza.

However, the lack of public and private support, the hard accessibility and the economic restrictions of the Kawsak Sacha area have limited their economic development and integration to the national economy, leading them to a point of vulnerability where the access to education and basic services is minimal. These limitations have forced some members of the communities to be involved in illegal hunting or logging to earn money to cover some of their most basic needs.

The last census, conducted in 2011, indicates that 334 inhabitants are forming 60 families along the Curaray River in the Kawsak Sacha territory, however, after seven years since the census, it is estimated that its population has increased considerably. These families are the population this research intends to work with and aims to have a positive impact.

3.2.1.2. Isolated tribes – Tagaeri & Taromenane

First, it is necessary to mention that the names Tagaeri & Taromenane are terms that refer to the Ecuadorian isolated tribes and not a term of self-recognition by the tribes, even when there are historical indications for the use of these names. The Inter-American Commission on Human Rights, IACHR (2013) describes indigenous peoples in voluntary isolation as indigenous peoples or segments of peoples who do not maintain contact with the major population. The term voluntary is used by the IACHR to denote the decision to remain isolated as a response to the current or historical social pressure in their surroundings.

The Tagaeri & Taromenane are the only two known isolated indigenous groups living in the Ecuadorean Amazon region from the Napo river in the north to the Curaray river in the south (Pappalardo et al., 2013). The first, Tagaeri, are a faction of the Waorani indigenous group which decided to remain isolated in 1968 after the contact by missionaries while there is even less knowledge about the Taromenane.

In order to protect the territory of these indigenous groups two Presidential Decrees were issued. The first one on 1999 which established an Intangible Zone called “Zona Intangible Tagaeri Taromenane” (ZITT) with an area of 758051 hectares. The second one, in 2007 the limits are reviewed and redefined (De Marchi et al., 2013). According to the Ecuadorian constitution the intangible zones are protected areas of great cultural and biological importance, where any extractive activity is forbidden.

However, the ZITT territory overlaps with the Waorani Nationality Territory and borders the Kichwas of the Curaray to the south. It is in these circumstances that the development of economic activities compatible with this environment is imperative. Tourism has proven to be beneficial for communities as long as it has been carefully planned and well executed (Verner, 2009). The implementation of an economic activity in the communities surrounding the Tagaeri Taromenane implies that the inhabitants of these communities will desist in entering to the uncontacted tribes' territory for hunting and gathering activities, as well as raising awareness of the importance of the Tagaeri and Taromenane among the members of the community who will end considering the uncontacted people as limiting to their development and instead consider them part of their development.

In this research the principle of no contact is a high priority as it is the right of the Tagaeri & Taromenane to self-determination expressed by their will to remain isolated.

4. METHODOLOGY

In the following chapter, the methodology of the research is described, this involves the strategy to carry out the investigation, the methods employed in the design, application and analysis cycles, as well as the operationalization of concepts, methodological limitations and ethical aspects that were taken into account during the development of the research.

The research employs an in-depth case study approach that is predominantly qualitative focused on the opinions of the communities and supported by the views of experts and organizations involved in the study area, complemented by spatial analysis and literature comparison. Due to the aforementioned limitation of specific information an exploratory study with experts, stakeholders, organizations and researchers that have had an approach with the communities is deemed appropriate.

4.1. RESEARCH STRATEGY

This research intends to establish a greater understanding of the potential of tourism in remote areas with high biodiversity and fragility where other activities are difficult or impossible to establish for the communities. The influence that tourism has within a socio-ecological system and how it affects its resilience is analysed. Further, it is intended to determine up to what degree tourism may give voice to the communities in decisions that may affect them as extractive activities.

This research is built upon by the concepts of SESs, socio-ecological resilience and empowerment through tourism. Aiming to cover the above-described knowledge gap and answer the research questions, this research is design with a case study method that is extensive in its nature, which considers each community as a research unit.

The research process consisted of three phases, the first, preliminary that seeks to contextualize the research, as well as find key actors, the second that is the core of the research is to work together with the communities of Curaray and finally integrate the results to obtain conclusions and in this way and answer the research questions. Although the centre of the study is the communities, many other actors were part of the information gathering. Finally, it is essential to point out that, although three times were delimited for the investigation, the methods used transcend these times and serves for several of them.

4.1.1. Framing up the Curaray context. Semi – structured interviews and GIS analysis

This first step is the primary basis for executing the research. During this phase, the methodology and expected results are aligned with the concepts established in the theoretical framework and in response to research questions, thus ensuring that the knowledge gap is fully covered.

It was planned firstly to outline the administrative-political context under which any socio-economic activity is ruled on Ecuadorian territory and determine which actors intervene in the Kichwa territory (research sub-question 1), for this, the researcher relied on three research techniques: 1) analysis of political documents, 2) semi-structured interviews and 3) GIS analysis.

Literature and political documents (as executive decrees, ministerial decrees, international agreements, among others) focused on the area of study were analysed. This analysis, besides, contextualising the research area also allowed to determine the first actors that intervene in the area and to whom interviews will be conducted to obtain current and detailed information.

4.1.2. Shaping the banks of the Curaray River as a SES, determining resilience dynamics and empowerment. Semi – structured interviews, Focus groups and Participatory mapping.

Although the information gathered in the previous phase serves as a basis, it is essential to gather primary information from the inhabitants of the Curaray in order to know with certainty and in greater detail which are the parts that constitute their territory as an SES, what are their aspirations with the Tourism and how it could be a mean of empowerment and what is the current socio-environmental resilience capacity and how it can be influenced by tourism. For this, interviews were conducted with community leaders and focus groups and participatory mapping with the communities.

4.1.3. Integrating findings. Qualitative analysis and GIS analysis

The final stage integrates all the findings and establishes conclusions. The integration of the results was carried out through two methods. In the first instance, a qualitative analysis of all the interviews, focus groups and information obtained from the collective mapping process were carried out. The information was processed in the NVivo 12 software. By applying this technique, it was obtained: 1) the detailed structure and state of the SES on the banks of the Curaray 2) the current state of the resilience of the system 3) the potential for empowerment of tourism in the Curaray sector and its impacts on the different components of the SES.

On the other hand, the GIS analysis prior to the work with the communities was integrated together with the participatory mapping information digitized and analysed in order to obtain a territorial perspective of what the potentialities and restrictions for tourism of the Kichwa communities are, in addition to obtaining information that has been omitted during the application of qualitative methods.

4.2. DATA COLLECTION

The data collection process was based on a mixed qualitative methods approach and spatial analysis with the application of participatory mapping and use of GIS. The primary information (specific and complementary) was collected in several cities of Ecuador: Quito, where the majority of complementary primary information was taken in addition to Puyo and Baños de Agua Santa. In the case of the primary information specific to the study group, it was collected in 7 of the 9 communities that are on the banks of the Curaray River, as well as two interviews with Kichwas in the cities of Puyo and Baños de Agua Santa.

All the information (both specific and complementary) from the detailed interviews and focus group discussions were transcribed and later codified through the use of NVIVO 12 software, which speeded up the coding process and allowed a more detailed analysis of the information previously obtained. Also, NVIVO eased to maintain the consistency between the information analysed with the research questions, and the concepts developed in the theoretical framework.

The spatial analysis process was carried out in two instances of the research, one before working with the communities to determine the spatial context, as well as the administrative delimitations and to identify actors that intervene in the communities. The second instance was after the work with the communities, where the information collected through participatory mapping was digitized and analysed in order to gather even more information from the communities, which could not be determined through FGD or in-depth interviews. The combination of several qualitative methods and spatial analysis allows to contrast the information obtained during the data collection stage, in order to validate the findings and results of the research, this improves the credibility of the investigation by discarding information that could be erroneous or biased (Verschuren et al., 2010).

4.2.1. In-depth interviews

An interview is a method of collecting personalised information where the researcher's interaction is carried out with only one interviewee at a time. The purpose of this method is to deepen the discussion on specific topics previously chosen by the researcher and established in an interview guide which will be used only as a tool to direct the discussion and to keep in mind what issues have been addressed, so no topics are left aside (Hennink et al., 2010). However, it should not be a rigid method, the reactions

between the researcher and the interviewee that lead to treating topics of interest not delineated in the guide make it especially useful to gather information in detail.

In the case of this research, two interview guides have been developed, the first applied to the Kichwa leaders and carried out in the communities, and the second, which aims to gather specific information on several topics and was applied to experts, academics and public institutions.

4.2.1.1. *Community leaders' in-depth interviews*

Hierarchy plays an important role in the Kichwa communities as a voice of experience and knowledge but not as a form of imposition in decisions since all decide community resolutions within a meeting and never solely by their leaders. Thus, in-depth interviews were conducted with 4 Kichwa leaders. Since they are in charge of organizing the community and carrying out the projects that have been proposed, they have a clearer idea of the opportunities and limitations that the communities have. In addition, they are the ones who have the most contact with organizations and public institutions. Therefore, they can explain in more detail what the interactions with these institutions are like.



Figure 9. In-depth interview with Ninamaru community leader. (Liseth Castañeda,2019).

Of the interviews, only one was performed to a community leader (Ninamaru), the rest were 2 to Kawsak Sacha leaders and 1 to a Sarayaku leader who lives in the Sisa community. No more interviews were conducted with the leaders since in the rest of the communities the leaders participated within the FGD since this resembled more a traditional Kichwa assembly.

4.2.1.2. *Experts and stakeholders' in-depth interviews*

A total of 18 semi-structured interviews were conducted in which public institutions, civil society organizations, experts and academics intervened. The interviews were designed with a joint base; however, small adjustments were made to the interview guides, differentiating them from those applied to academics and civil society organizations with those applied to public institutions, in order to obtain a more significant amount and information from each type of information, taking into account their specific areas of work.

The interviews served to gather information regarding specific issues that each organization specializes in, then, the general topics that were treated are specified:

- Peoples in voluntary isolation: As it is a very specific topic, there are few institutions that have generated research in this area, such as the case of Land is Life or FEPP, which has a history of more than three decades in anthropological and sociological research of Amazonian indigenous people and is one of the few institutions that carries out specific studies of isolated peoples. Besides, the role played by the SDH and its policies to protect peoples in isolation provided valuable information for this investigation.

- Biological, biodiversity and ecosystem studies: In this topic, the Catholic and San Francisco universities constituted the most notable sources of academic information. Since they are the only institutions that have research centres within the PNY, in addition to having a vast number of researches on this topic, further, the interviewees provided a critical view of tourism in protected areas as well as covering issues such as ecosystem resilience and threats to diversity.

- Curaray social context: Even though all the organizations interviewed had some degree of first-hand knowledge about the social context of the communities, FEPP and HRS due to the social nature of their study areas and most of all due to the high approach they have had with the communities, were very important sources of information regarding problems, needs, expectations, actors, among other issues.

- Perceptions of tourism in the study area: The perceptions were addressed from the social and environmental perspectives, where the possible threats and opportunities that this industry can exercise in the Kichwa territory were exposed. In addition to obtaining a vision of the process necessary to carry out this activity.

4.2.2. Focus group discussions

A focus group is a participatory discussion among several participants, ideally six to eight, who have been previously selected and where a moderator presents the topics to be discussed and guides the conversation without introducing his/her point of view. Focus groups are conducted following a research-based recruitment, dividing groups by sex and age when the size of the community allows it, aiming that hierarchy or gender issues do not interfere with the process (Hennink et al., 2010). However, the communities where the FGDs took place did not have enough participants to divide the discussions; therefore, a unique focus group took place in each community and only in Sisa and Macao communities, the population was big enough to divide the discussions by gender.

However, it is relevant to mention that due to the social structure of the communities, the realisation of mixed focus groups did not affect the participation of the members of any gender. Since the usual form of decision-making is carried out within sessions where all the members of the community participate, and everyone has a voice and vote, having a style very similar to the one carried out within the focus groups.



Figure 10: Focus group discussion with Sisa women. (Liseth Castañeda,2019).

The invitation to the discussions was made open to all the members of the community and a total of 9 FGD were carried out, where 53 people participated, representing nearly all of the adults that were present at that time in the community, existing very few cases of people who did not want to be part of the discussions. The members of the community that did not participate in the FGD were mainly people who were in the city or had gone out hunting, which may take up to three days before they return to the community. Due to the high percentage of community participation, the information obtained represents an integral view of the communities.

The process of discussions is aligned with the concepts of the theoretical framework and focused on answering the research questions. We were able to obtain even more information on the constitutive social and environmental elements of the Kichwa territory, as well as the community's point of view and relations with the rest of the actors that intervene in its territory. Regarding tourism, it provided knowledge about their previous experiences with this activity and what their future expectations are. The information gathered in these discussions is the fundamental source for determining the influence of tourism on socio-environmental resilience and territorial empowerment.

4.2.3. Spatial analysis

Spatial analysis allows the management of geographical data with scientific rigour in order to model territories and their dynamics. An advantage of GIS analysis is that it is possible to capture tangible and intangible characteristics of the territory within a model. In the specific case of this research, the aim was, on the one hand, to clearly represent the political and administrative influences of the Curaray territory and analyse how these influences shapes the context of the Kichwas. On the other hand, by using **participatory mapping** and analysing its results, it was possible to obtain valuable information about the communities that was not possible to obtain by FGD or interviews.

4.2.3.1. Participatory mapping

Participatory mapping alongside GIS has evolved notably in the last decade, stimulating its potential to retrieve information in a dynamic and comfortable way. This has allowed to obtain information that could possibly be overlooked with traditional qualitative methods. Participatory mapping is the path to construct a story that integrates the different perceptions of the whole population. The information is socialized openly in a single focus group per community, it is an instance of collective construction and open participation, which allows critical knowledge production of diverse realities starting from local memory.

To effectively carry out a participatory mapping, it was necessary first to analyse the available spatial information of the territory and establish which elements will certainly help the development of the

mapping and which could become a bias during the process with the community. It was decided that for this purpose the following elements will be integrated into the base cartography (an example of a base map for the participatory mapping process can be seen in Figure 11.) on which the communities mapped their territory:

- Curaray river including its abandoned meanders: By constituting the "avenue of communication" of the communities among themselves and the only way out to the city, this river constitutes the fundamental basis for the orientation of the communities, so its inclusion was considered primary in the base map. Additionally, the abandoned meanders are considered lagoons by the inhabitants of the communities and are essential sites for them.
- Secondary rivers of greater importance: Important rivers and estuaries are often points of territorial delimitation and references for orientation.
- Location of the communities: At the centre of the base map, it was decided to incorporate the location of the community, from this point, the mapping process with the communities began.
- Grid: It was decided to incorporate a grid of one square kilometre to facilitate the estimation of distances of the mapping of elements by the inhabitants of the communities. The mentioned, in the knowledge of its inhabitants, significantly uses the estimation of distances in kilometres, which greatly facilitated the mapping process and generated more significant interaction among the participants.
- PNY and ZITT: Although these elements were not integrated into the map, they were implicitly in it, being the northern area of the Curaray River, which, although well known among the inhabitants, was mentioned during the introduction to mapping participatory

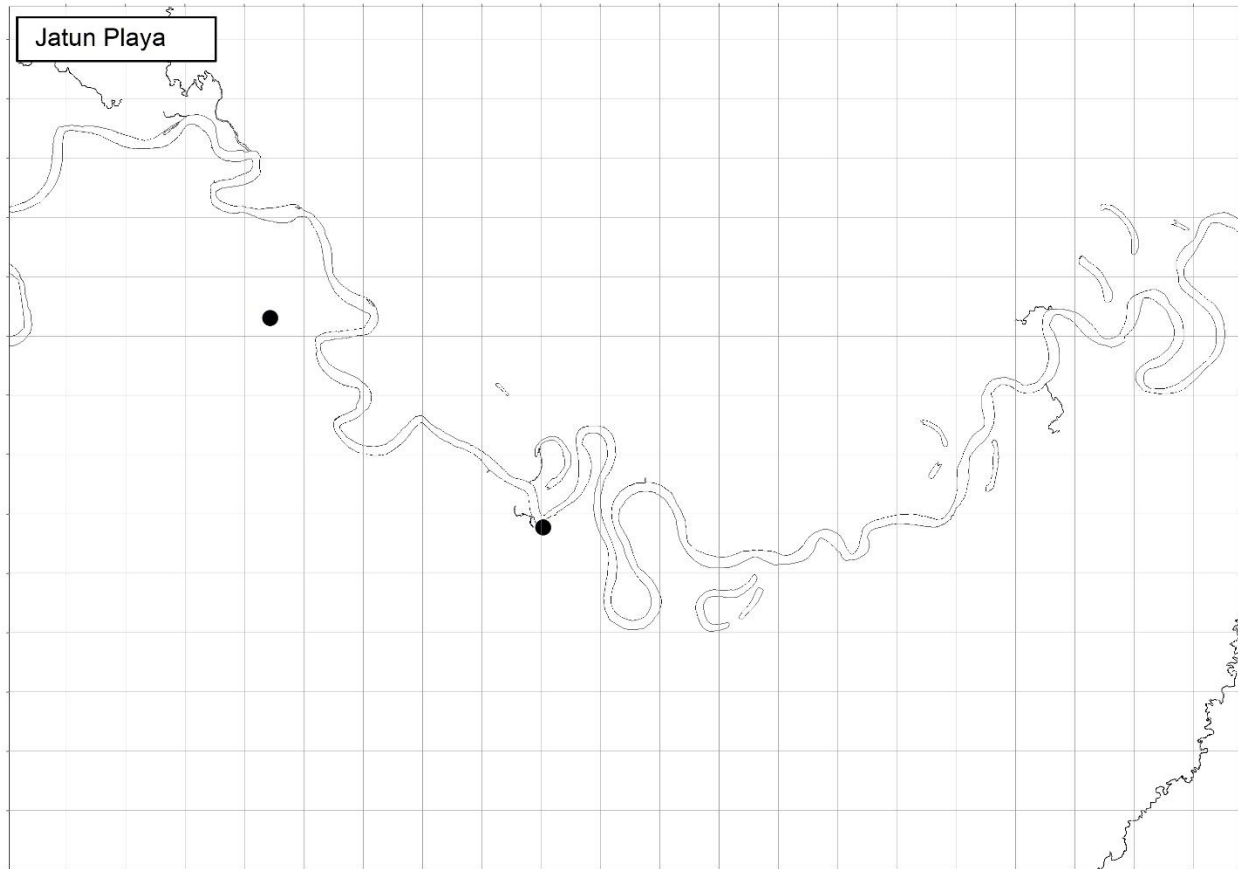


Figure 11. Base map of Jatun Playa community, used for participatory mapping, original size A1. (authors own).

During the methodological design, it was intended to apply the participatory mapping after completing the FGD. However, in practice, the process of mapping with the community proved to be an excellent way to create rapport with the community, the discussion of the spatial theme generated an environment of integration of the participants, which in turn facilitated the development of the subsequent FGD. For this reason, it was opted to develop the participatory mapping first.

Firstly, all the information was provided to the participants of the mapping showing them what has already been worked (base cartography). The mapping aims to integrate the perception of the structure of their territory and how they see the other components of the SES as peoples in isolation, accessibility, resources (and their availability), boundaries of communities, landmarks in their territory, among others. The mapping seeks to offer a clearer and more tangible vision of how the SES of the Curaray is structured from the perspective of its inhabitants, and how and where within this it is desired to establish tourist facilities that satisfy its inhabitants.

In terms of tourism, this process fulfilled its purpose of determining how much the communities want to carry out tourism in their territory, what their expectations are and what they intend to offer within the tourism industry.



Figure 12: Participatory mapping process with Ninamaru people. (Liseth Castañeda,2019).

4.2.3.2. *GIS analysis*

As mentioned above, the spatial analysis had two instances; the first consisted of gathering existing geographic information from public institutions, academic organizations and the organization of Kawsak Sacha itself. The information collected was analysed using ArcGIS 10.7 where the layers of vector information were superimposed, and the interaction between them was analysed, as well as how territorial demarcations overlap with Kichwa territory and how does this impact its inhabitants.

This information was used to generate preliminary cartography (see figure 13) which served as a basis for determining which actors besides their inhabitants intervene in the Curaray territory, it was also possible to define, for some of the actors, what influence they have on the territory and in its inhabitants.

Besides, it was possible to determine some pressures and threats for the territory that were taken into account for the preparation of the interview guides and FGD.

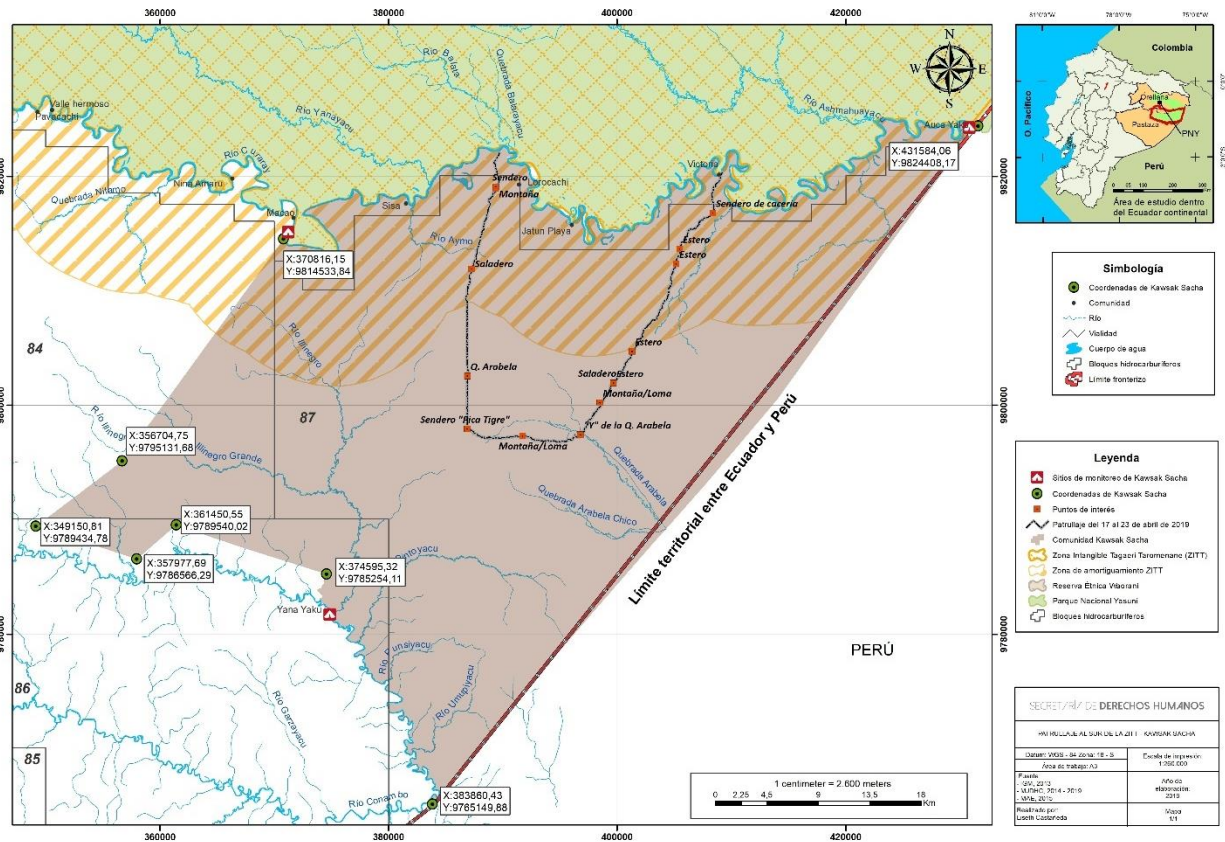


Figure 13. Map of geographical delimitations for the Curaray territory. (authors own).

On the other hand, after the participatory mapping and the FGD, the information collected in the field during the participatory mapping was digitized using ArcGIS and added to the preliminary cartography to obtain maps of each community that allow to observe and analyse in detail all its elements and how they are related to each other. The main technique used was the map algebra process, which combines different spatial layers through operations and spatial analysis functions in order to spatially represent the interactions and influence of the social, economic and environmental phenomena in this territory.

The final map of each community was later contrasted with the findings obtained from the qualitative research. The purpose of using the combination of qualitative analysis with spatial analysis is to achieve outcomes that are consistent both in social research as well as in territory management and that fully answer the research questions proposed in this study.

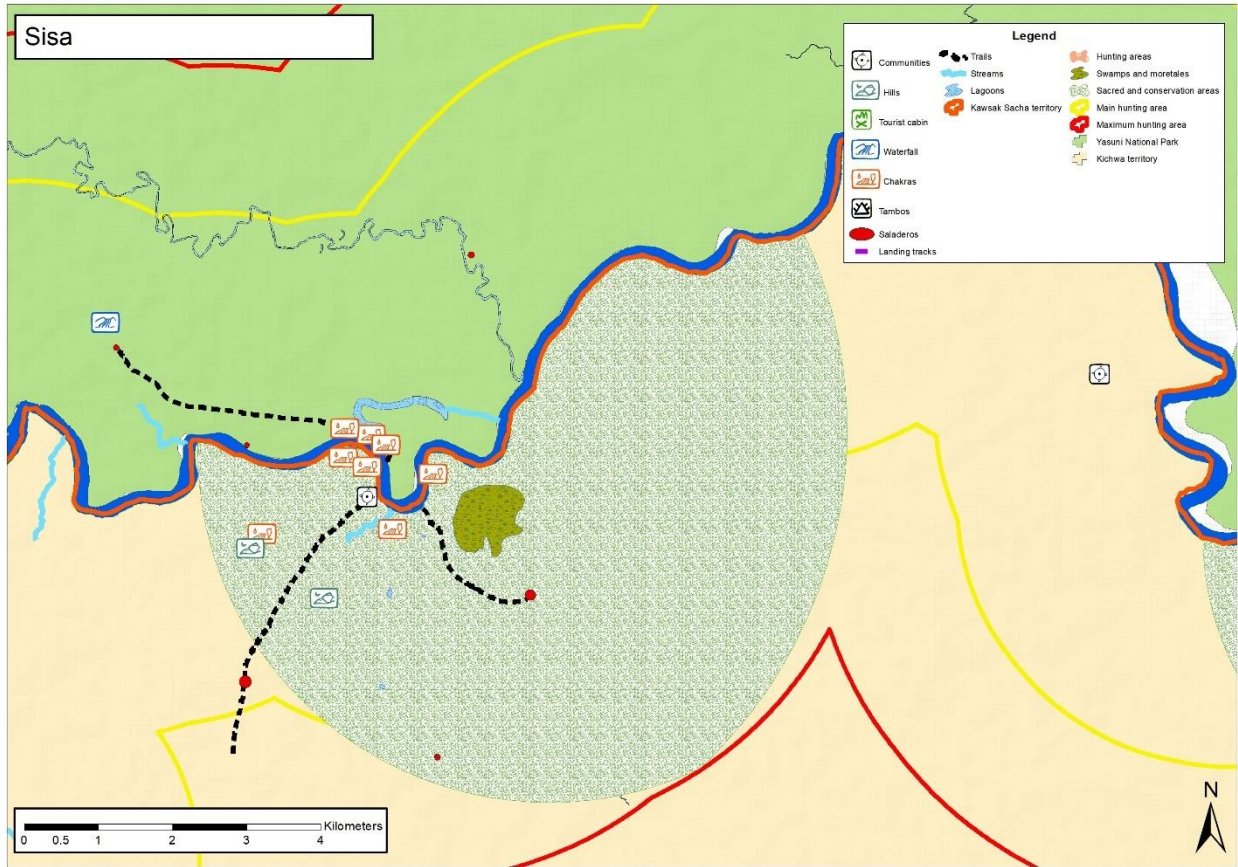


Figure 14. Final map of Sisa community. (authors own).

4.3. METHODOLOGICAL LIMITATIONS AND CONSIDERATIONS

The presence of limitations is inherent to all research, and this research is not the exception, it is subject to several methodological limitations which will be covered in this section in order to assure consistency during the interpretation of the findings and give appropriate value to the results presented. This research seeks to be transparent both in its design and in the collection and analysis of data, thus expecting to strengthen its validity.

The method of access to communities can be considered as the first limitation for the collection of data since it was arranged with the support of Kichwas from the communities who work within the Human Rights Secretariat (SDH), a public institution. Even though the researcher was introduced as external to the institution and the discourse of the Kichwa public workers always went front to the support of their communities before, to the public function, this can bring some bias. However, the respondents were critical of the management of the State in their territory and accepted the events that have brought

benefits to the communities without showing an apparent bias, but this does not eliminate the possibility of having generated a less noticeable bias during the collection of data.

In this sense, because the logistics for the development of the research with the communities depended on the schedule of the SDH. Also, due to the inaccessibility for two days through the Villano River, the only access to the Curaray. It was not possible to carry out FGD in the community of San José del Curaray, the first community of the Curaray River and the largest in the western sector of the river. In this community, it was only possible to stay a few hours, not enough to produce an idea of the community through participatory observation rather than brief features.

Even though all the Focus Group Discussions were carried out in Spanish, it is necessary to mention that a minority did not know Spanish and speak only Quichua. Even though the Kichwa facilitator, like the rest of the participants in the discussions, had an outstanding capacity in both languages, (they are bilingual) and actively participated in the translations, it is inevitable that in this process the information is subject to the interpretations of the translator and the researcher, thus losing part of the information.

In the same way, the interaction with the inhabitants of the communities and between them during the stay and in the participatory observation process was carried out in Spanish for the most part. However, it is necessary to mention that on different occasions, the communication between the inhabitants was only in Quichua what also leaves to the interpretation of the researcher of what happened in these situations.

Moreover, in the case of respondents of civil society organizations and State institutions, they may have biases inherent to their functions and institutional objectives, especially in an area that has generated so much controversy in Ecuador during the time the research was conducted. The bias is present to a lesser extent with experts in biology and anthropological issues of Kichwas and isolated peoples since their foundation was understood proven in facts rather than points of view.

Finally, it is necessary to note that the Kichwa communities cannot be considered as homogenous among themselves or within them, although there are well-defined manners of community management that apply to all communities as well as history and social development in common, discrepancies between its inhabitants are present and even differences of power. While this is part of what has made this research vibrant and is a foundation for generating recommendations and describing findings, it is crucial to mention it in order to contextualize the research.

4.4. RESEARCH ETHICS

All researches must follow ethical procedures even more when this research in particular took place in a context of minorities and vulnerable people, as also in the territory of extremely endangered tribes. It is the duty of the researcher to carry out the processes based on the issue of informed consent (Miller et al., 2012) and take in account the protection of indigenous knowledge and heritage at all times (Battiste, 2007). Research in a SES as complex as the YBR involves many actors and raises a variety of ethical questions. Interests of the actors with stronger power relations have to be considered during all the information gathering process.

Since the research requires detailed information about the communities and their inhabitants, sensitive topics were often treated, which could generate tension on the respondents within the FGD and semi-structured interviews. In order to cover these issues, a methodological procedure with an ethical foundation was developed. All the interviews, FGD and interactions with the people were held within the framework of an informed consent process. That is, from the first instance, the respondents were explained that their participation was completely voluntary and there were no pressures to respond to issues that they did not want to do. Besides, all interviewees were asked for their permission to record their opinions and anonymity was maintained throughout the investigation process.

With qualitative research methods such as the FGD applied in this research, it is difficult to predict the sensitivity of all the topics that will be discussed due to the intrinsic unpredictability of the method (Orb et al., 2001). However, it is the researcher who is responsible for anticipating the potential damage that a specific issue may cause. In this case, the necessary precautions were taken by generating a list of sensitive topics during the design stage to take into account how and when to address them or if to address them at all.

The guidelines of no contact with peoples in isolation determined by the IARHR. (2013) was present during all the data collection process on the banks of the Curaray River. Also, the researcher as well as all the team who aid in the gathering of information were trained and knew all the procedures of the contingency plans in case of sighting or contact as detailed by the SDH following the IARHR procedures. It is understood that breaking any of these rules is considered a crime in Ecuadorian territory as well as a serious violation of human rights

As mentioned, it is essential to respect the decision of no contact. However, it should be clarified that the development of the research in this area did not imply the possibility of contact since the researcher and all the team followed the procedure for admission to the ZITT. Additionally, the Curaray river is a natural barrier for the isolated tribes, by focusing on the communities, which are located on the southern side, no contact with Tagaeri or Taromenane did occur.

Furthermore, a previous study of the social context of Kichwas was carried out to ensure awareness about cultural differences and their social structure. Also, the western influence that the Ecuadorian State applies towards the communities was taken into account, as well as how this has changed their social structure. In this way, the risk that misunderstandings were minimized, thus avoiding that information gathering has been undermined.

5. RESULTS: IDENTIFICATION OF KEY ACTORS, INFLUENCES AND CURRENT STRUCTURE OF THE SES.

An essential part of the present study is to establish what are the constitutive elements of the Socio-Ecological System, that is to say, on the one hand, to determine how the internal structure of the communities and the organization between communities in the Curaray territory are shaped, and what are the external actors that influence the communities in different levels. On the other hand, it characterizes the ecosystem that constitutes not only the centre of the Kichwa territory but also the subsistence support of its inhabitants. Thus, this chapter discusses the competent results of sub-question 1: Which actors are involved in the Curaray Kichwa territory and how these affect the establishment of tourism in the area?

5.1. KEY ACTORS AND INFLUENCES

Key actors are considered all organizations that, in some way, influence the dynamics of the populations or ecosystems of the Curaray Kichwa territory. These organizations can be internal, that is to say, of the communities and their inhabitants or they may have external nature that due to their objectives and presence in the Kichwa territory have some interaction with their inhabitants and exert some influence in the research area.

5.1.1. Kawsak Sacha

Kawsak Sacha is the only organization of internal character, and this is the Kichwa organization that formally associates the Eastern communities of Macao, Sisa, Lorocachi, Jatun Playa and Victoria. It has a legally established territory which is recognized by the Ecuadorian legislation and covers 202037 hectares of Amazon rainforest. Additionally, Ninamaru community, which is located on the border of the Kawsak Sacha limits, is considered as a member of the organization even though legally it does not belong to it.

This organization is the voice of its inhabitants and the only formal channel of communication with the Ecuadorian State or with organizations that intend to carry out some work or project in more than one community. It has a traditional Kichwa model of organization, that is, the decisions are taken in general assemblies held in the Lorocachi community because this is the central community, which account to half of the 468 members of Kawsak Sacha and more efficiently in terms of access to communication. In these assemblies, which are held only for the taking of an important decision or elections, all inhabitants are invited, who are called "associates of the organization" and the assembly is moderated by the leader of the organization who is elected by general voting every two years. All associates of the organization, men and women, have the same weight in their votes and opinions, and a simple majority model takes decisions.

The position of Kawsak Sacha regarding the management of its territory is in favour of conservation and against extractive activities as mentioned by the president of the organization's territory:

*"Here we conserve our territory because it is our market, it provides us with food and everything we need, and we do not want oil or mining or those things because we know that they come to damage our territory, and then they leave The best inheritance that we can leave to our children is a conserved nature, just as we received it ... "*¹

The organization since 2016 has received an incentive to the conservation of its territory by the Ecuadorian State through the SocioBosque program, which is a project of the Ministry of Environment which consists of payment for environmental services similar to REDD +. From this project, the organization receives an income of around 60.000 USD per year and is the only source of income to the communities. This money is used mainly in support of community development projects and for the management of the organization.

5.1.2. Public institutions

Public institutions are the only ones that have a semi-permanent presence in the sector through their different dependencies. The presence of these varies greatly between one institution and another, as well as the purpose of their presence in the Kichwa territory. The opinion of the inhabitants is fragmented concerning the administration of the State in their territory, and there are very marked contrasts between the opinions of different institutions. However, due mainly to the implementation of the SocioBosque project, the inhabitants show an optimistic but critical attitude towards the State.

¹ Author's interview with Kawsak Sacha territory president. Baños de Agua Santa, June 4, 2019

Human Rights Secretary – HRS

The precautionary measures in favour of the protection of the Tagaeri and Taromenane peoples issued by the IACHR are executed by the Human Rights Secretary (HRS) through the Directorate for the Protection of Peoples in Voluntary Isolation (DPPIAV). This directorate is responsible for implementing the protection guidelines established by the IACHR through 1) continuous monitoring of the ZITT and its buffer zone 2) education on indigenous peoples in isolation issues for the communities in the area of influence of the ZITT 3) anthropological and geographic research 4) analysis and establishment of national policies in favour of the protection of peoples in isolation.

The relations between the DPPIAV and the communities remain in good terms due to several factors. First, this is the State institution which does not offer social services (such as health) that have the most active presence in the territory. It is the only State institution that has collected social information in the Curaray area. Moreover, the most important reason is that the personnel in charge of the work in the area are two Kichwa, one from the community of Jatun Playa and another from the community of Sisa. This last reason has facilitated the dialogue between the communities and the State as it mentions the Fieldwork Coordinator of the DPPIAV and an inhabitant of the community of Pavacachi:

"... we maintain good relations with the Curaray Kichwa communities, taking into account that it is still necessary to deepen the relationship, ..., I think it would... let's say the middle-high banks of the Curaray, always thinking about the area of influence in the intangible zone Tagaeri - Taromenane, it is still necessary to deepen relations and ties institutionally. While I believe, that towards the low bank of the Curaray, what would be the ancestral Kichwa Kawsak Sacha territory, there have been activities that have allowed a greater institutional relationship. "²

The HRS has greatly influenced the Kichwas by having members of their communities in the DPPIAV staff since they have been trained and are perceived by the rest of the communities as members with greater knowledge and better relationship with the people of the city. The influence is such that currently one of them is considered as the possible next leader of Kawsak Sacha.

On the other hand, by following the guidelines of the IACHR, this institution exercises constant control over the territory on which activities may violate the rights of the peoples in isolation. In the specific sense of this research, there are limitations to the tourist activity that must be taken into account. Although the communities are outside the Intangible Zone, they are within the area of influence, and there is a protocol that must be followed, this protocol specifies:

² Author's interview with the Fieldwork Coordinator for Protection of Peoples in Voluntary Isolation, Quito, May 9 2019

- The indigenous communities settled in the buffer zone -which in this case are mostly communities belonging to the Waorani and Kichwas people- are authorized to carry out moderate and controlled tourism activities, under a system of restriction and low impact.
- In case there are authorizations to carry out tourist activities in territories with indications of the presence of indigenous peoples in voluntary isolation or initial contact, adopt regulations and mechanisms to ensure that said activities strictly respect the principle of non-contact either direct or indirect.

Ministry of Environment

This ministry is responsible for the control of productive activities that could have an impact on the environment of protected areas; further, it is the institution in charge of monitoring the biodiversity and the condition of conservation of these areas. In the case of this research project, it is the institution responsible for issuing environmental certifications for the execution of any tourist project within the Yasuní National Park. The head of the Yasuní National Park is in charge of reviewing the plan and ensuring that the environmental standards established for the management of this protected area are respected. It is also responsible for following over time the project once it is in the implementation phase.

Additionally, within its projects are those that are focused on the promotion of conservation of forest areas nationwide through payments for environmental services through the SocioBosque program. As explained earlier, this is the only income received by the Kawsak Sacha communities. This project has served so that the relations between this institution and the communities has improved, however, the communities are still critical about the actions that this institution exercises in its territory as mentioned by the director of the Yasuní National Park:

"Well in recent years we have been improving communication with them, we have already done processes of socialization of the activities and competencies that the Ministry of the Environment has, and the Yasuní National Park, there in the sector ... The communities of the Curaray sector are quite willing to work with the Ministry of the Environment on issues of control, in fact, a large part of the Quichua communities that are in the part of the Curaray have a conservation incentive that, from SocioBosque. Within the conservation incentive of SocioBosque there is an investment plan, and in the investment plan there is the maintenance of community foresters, who work in coordination with us."³

³ Author's interview with the Chief from Yasuní National Park, Quito, May 8 2019

As regards the Ministry's management in favour of conservation, there are many limitations, especially in terms of financing and personnel available to the PNY Directorate for the control of illicit activities in this territory. However, despite having a staff limitation and the inability to cover the PNY area and specifically the Curaray area, there have not been enough actions to integrate the inhabitants of these areas into an environmental protection plan. Further, the response effectiveness to stop an activity that destroys the environment is very limited since the time it takes from the alert to the action can take several days or weeks and, in some cases, there is no control at all.

"It is difficult to control all the illicit activities that can occur within the Park because we only have 14 park rangers who work half a month in fieldwork and this is insufficient to cover the 100000 hectares of the PNY. When they give us an alert about an illegal act, everything possible is done to solve it, but it also depends on the political will because, as some areas are the responsibility of other ministries, it has to be coordinated with them and that makes it be delayed..."⁴

The influence of this institution on communities has been growing stronger in recent years due to environmental education workshops and more than anything to the economic income that communities have through SocioBosque. This can be seen in the conservation discourse of the inhabitants of Curaray, which in turn is critical of previous generations of Kichwas, affirming that before there was no sense of conservation and that today the new generations are more aware of this.

Ministry of Public Health

The Ministry of Public Health is the last public institution that regularly visits the territory. It works through two health sub-centers for all the Curaray communities, the sub-centers are located in the two largest communities of Curaray, San José del Curaray in the western end and Lorocachi in the east. From there, medical brigades are deployed that visit the communities providing dental services, general medicine, pediatrics and obstetrics. However, this is the institution that has the most criticism from the Kichwa since according to them the frequency of medical services most of the times is only twice a year, which does not provide a preventive service for diseases. Besides, for the attention of emergencies, the inhabitants must move to one of these two communities, which can take more than 4 hours and only extreme cases are considered emergencies that require calling an air ambulance. All this has caused death cases among some inhabitants of the communities, making visible the lack of access to an efficient health service.

⁴ Author's interview with the Leader from Yasuní Technical Team, Quito, May 7 2019

"Sometimes (there have been cases of death) especially in the matter of children, for example, there are very distant communities, such as Victoria or Macao, so there is nowhere to take them (to do a medical check-up) ... Children have died for lack of medical attention..."⁵

"In the case of children, doctors here sometimes notice when it is very critical, they consider it dangerous; if the patient is not too sick, it means for them that you are okay. For example, a girl was very sick and in mid-flight, the girl died... that was 8 months ago... then the pilot had to land back with the corpse here."⁶

Despite the mentioned shortcomings of the institution, the health brigades have been able to identify some common problems in the communities that have persisted over time due to different factors, some intrinsic to Kichwa society and others due to the natural environment in which they live, as detailed below by the leader of a medical brigade.

"The endemic (problem), the most prevalent is malaria, that is the one that is giving us problems because it is difficult to control. As you can see, there are many vectors, such as mosquitoes ... Besides, the problems that will always be in the population, as it is in children under 5 years old there is malnutrition, diarrhea, children with low weight and height ... Also, a huge problem in the communities is the high rate of pregnancies, especially among adolescents and the large number of children that each woman has. We have given talks about family planning and the use of contraceptives, but there is not much interest ... "⁷

However, it is necessary to make visible that the responsibility for health management falls heavily on its inhabitants as it can be seen that there are practices of communities that increase the risk of diseases, for example, stagnant water, the main reason for the outbreak of malaria, has almost no management by the communities. On the other hand, the high birth rate in the communities is something very related to the Kichwa society as well as the lack of work, as stated by a leader of the Jatun Playa community.

"The problem is that here, there are many young men and women who get married early because they do not dedicate themselves to anything, indeed, they cannot do anything, I cannot take a young man and tell him to dedicate himself to work. The young man is going to tell me: I can work two or three pineapple or cane fields, but whom am I going to sell? And what am I going to answer?"⁸

⁵ Author's FGD with men from Sisa Community

⁶ Author's FGD with men from Sisa Community

⁷ Author's interview with Leader of medical brigades for the Lorocachi area, Victoria, May 28 2019

⁸ Author's FGD with Jatun Playa community

This ministry, because it provides such an essential service, is where the deficiencies in government responsibilities can be made visible and, possibly together with education, this is service that the communities request the most. It is in this lack of access to public health that the need for communities to become economically independent from the State becomes evident so that they can manage at least the most basic services for the benefit of their inhabitants. However, with such a limited economy, the Kichwas come to settle for the service offered because they feel annoyed but helpless before this reality.

Other public institutions

There are other public institutions that intervene in the research area. However, their presence is minimal, and their influence is very limited. These are:

- Ministry of Defense through the military company that is located in the community of Lorocachi. Its presence in the Curaray has changed a lot in the last decade, from being a military battalion with 300 men to be a military company with only 10 men of which not all are permanently in the territory. Both the residents and the head of the military company assure that the dismantling of the military unit by the State has brought problems not only to the military personnel but also to the relations they have with the inhabitants of Curaray. They say that some years ago, due to the number of personnel that were located there, the military-Kichwas relationship was good because their presence potentiated the trade of products such as meat, vegetables or fish by the inhabitants and thus they obtained some income. Besides, due to the investment to maintain a unit of 300 people, they were also in a position to give support to the communities (mainly Lorocachi) in terms of health, drinking water and electric power, something that does not happen today.

However, the impact on the environment that this battalion generated during its stay can be considered one of the most important since precious woods were extracted, and the hunting rate was very high to feed the personnel.

"The military itself exploited all the fine wood, only the rejections that have left today we are trying to conserve."⁹

⁹ Author's FGD with Victoria Community

Today, the environmental impact is minimal, but also the relations with the Kichwas are very tense, they blame the military for abusing of their position and not giving anything in return even though they are located in their territory.

- Ministry of Education. The education service in the communities of the Curaray is present only through the provision of teachers to single-unit educational units, that is, a single teacher is in charge at the same time of teaching students of all levels of education, from first grade of primary education up to seventh grade of primary education in most cases and up to the tenth grade of primary education in the case of Lorocachi. Moreover, there is no agreement with the requirements to practice as a teacher in the urban sectors with remote rural. Then, the teachers available in the communities are not people with proper training in teaching, they are mainly people who have obtained the degree from high school and they have the interest to teach in the communities, some of them because they have felt comfortable and have even become part of the Kichwa society. As detailed in the following table, not all communities have even access to this type of education:

Community	Access to education
Pavacachi	No access to education
Valle Hermoso	Education until seventh grade
Ninamaru	Education until seventh grade
Macao	Education until seventh grade
Sisa	Education until seventh grade
Lorocachi	Education until tenth grade
Jatun Playa	Education until seventh grade
Victoria	No access to education (currently building a school)

Table 2. Access to education per community (Author's own).

The educational service demands that the communities build their schools so that they can provide a teacher through the educational system, which the communities see as a fair request and as is the case of Victoria that is currently building the educational building through of community work. Further, the process of requesting a teacher has to be done in Quito, which is difficult for the communities due to the costs of mobilization and stay in the capital city. Moreover, limited access to education is the leading cause of migration among young people, which severely affects communities in several ways.

First, it generates economic pressure on families that cannot be alleviated, since in many cases the economic demand of merely living in the city where everything has a price such as transportation, food, housing, basic services, school uniforms, among others, cannot be covered. Even more when a family currently has an average of 5 or 6 children.

It produces a cultural loss that is increasingly evident among the communities since, on the one hand, the new generations decrease in number because not all the young people return to the communities after completing their studies. On the other hand, the young people who return to the communities have not learned traditional practices or developed skills necessary for community life, such as traditional hunting and fishing or preparing the soil for a chakra among others. As well as being influenced by the dynamics of the cities and bringing with them new practices that in many cases are not compatible with the life on the communities and for this reason, many young people perceive themselves with nothing to do in the communities and can become non-productive members.

- Administrations of the provincial government of Pastaza and municipal of Pastaza. Its functions are that of immediate connection to the requirements of the communities, as well as to carry out evaluations of their conditions and provide basic services. However, in practice, there is no real approach from the administrations of local governments. The inhabitants state that they are only present during the time of elections. However, the communities have benefited from the provision of electric service through the installation of solar panels in the communities, this project began seven months prior the fieldwork of this research and is in its final stage, where only the communities of Jatun Playa and Victoria they remain to be endowed with this service.

Besides, they are the institutions that endorse any project that the communities want to develop and direct to higher instances in case they need other endorsements. The offices of the two local governments are located in the city of Puyo, and this is where any requirement, complaint or proposal has to be carried out, this is the reason this city is where the majority of the population migrates permanently or temporarily.

- Ministry of Energy and Non-Renewable Natural Resources. It is in charge of hydrocarbon extraction projects, mining and energy projects. Relations with communities are currently minimal since there are currently no such activities in the research area; however, currently, the oil blocks that overlap the Kichwa territory are in the process of bidding for future exploitation, which generates divided reactions among the inhabitants of the communities. On the one hand, Kawsak Sacha has a conservation stand, and many of its inhabitants share this position, but they (the inhabitants as individuals) also see in the extraction of non-renewable resources an opportunity to have access to all the services that have never been provided besides access to jobs and so improve their living standard.

Although the presence of this ministry in the territory has been almost nil, it is crucial to bear in mind that this difference of opinion currently causes division in the communities, but on a small scale. Contrasting with previous experiences of other communities, it is easy to predict that this institution would be one of the most influential on the inhabitants if the extraction of non-renewable resources in this area materializes.

5.1.3. Other organizations

There are other organizations that are directly or indirectly related to the Curaray area and are mainly academic organizations such as the two universities that have their research centres in the Yasuní and are the primary sources of biological information in the area, or organizations of civil society that for the most part fight for environmental and social rights.

- Academic organizations. As previously mentioned, there are two biological research centres in the PNY, one in the Maxus route belonging to the Catholic University of Ecuador and another in the Tiputini, belonging to the San Francisco University of Quito. These universities are the largest producers of biological information in the area, together with the Ministry of the Environment. However, its presence in the Curaray area is limited to a few explorations and has been maintained mainly within its research centres.

On the other hand, FEPP, Fondo Ecuatoriano Populorum Progressio is a private foundation with a social purpose, non-profit and ecumenical, sponsored by the Ecuadorian Episcopal Conference. This foundation has carried out several projects for the development of indigenous peoples in addition to several anthropological publications and one of the most important foundations in the production of scientific knowledge about indigenous peoples and the few institutions that have conducted studies on indigenous peoples in isolation in Ecuador. Specifically, in the area of research, FEPP has directed the most detailed ethnographic and historical study of the Curaray area and has maintained a closer relationship with its inhabitants.

- Civil society organizations. Due to the events of the last decade, where extractive projects have been approved in the Ecuadorian Amazon and specifically in the Yasuní National Park, many social groups have focused their efforts on the defence of indigenous rights and the rights of nature. However, many of these efforts have been focused on the northern limit of the PNY due to the controversy of the exploitation of blocks 31 and 43 and existing.

Land is Life is an international organization that supports the communities and indigenous peoples at a global level and currently has a program for the development of activities in favour of the protection of peoples in isolation through the financing of protection activities in the southern limit of the intangible zone Tagaeri Taromenane, that is to say the Curaray River. There is a close connection with the communities of Curaray and is emerging as one of the organizations that can generate potential projects with communities in the future.

Instituto Quichua de Biotecnología Sacha Supay (IQBSS) is a non-governmental organization focused on the management of indigenous territories in the province of Pastaza. This organization is made up of Kichwas with the support of researchers and is the organization that supported the generation of community management plans for the communities of Curaray, but its presence in the territory of Curaray has been limited in recent years.

Yasunidos, Acción Ecológica, Geografía Crítica are the leading organizations of civil society that have opposed the extraction of primary resources in the PNY. They have maintained relations with the indigenous peoples that inhabit the area. However, due to the fact that most of the extractive activities currently are located in the north of the Yasuní, its connection with the Kichwas in the south, in Curaray, has been minimal.

5.1.4. Other actors

There are, however, actors who are outside any type of organization and enter both Kichwa and PNY - ZIIT territories in an alternate way, but that has lasted over time. First, few tourists have visited this area, and it has been possible to confirm that there have been community initiatives with the support of organizations to develop tourism in the area. Tourist activity has remained small in all initiatives and has not lasted over time, due mainly to the lack of knowledge about how to attract tourists to an area with such accessibility conditions and limited interaction with cities. Tourists who have visited the area have been Ecuadorians and foreigners, but at no time have they attracted tourism in a remarkable way for economic development.

On the other hand, two actors are illegally in the territory; they are illegal fishermen and loggers of Peruvian origin who sail upriver the Curaray and cross the border to carry out their economic activities there.

"... the Peruvian ships that enter our territory and cause an environmental impact because we have found nets, with which they not only catch fish but also catch rays, piranhas, even pink dolphins."¹⁰

"The main threats to me are, the issue of illegal wildlife trafficking, illegal timber trafficking, there is a lot of timber extraction by Peruvians in this sector, because unfortunately, the sale of wood is super profitable. The species there, as I told you, are still super conserved, then you can find cedar trees, chuncho trees, species that are exceptionally economically appreciated."¹¹

¹⁰ Author's FGD with Victoria Community

¹¹ Author's interview with the Leader from Yasuní Technical Team, Quito, May 7 2019

These are the actors that currently threaten the terrestrial and marine ecosystems of the sector. On the one hand, the fishing boats go up to Ecuadorian territory since the Peruvian Amazon has a very considerable urban and economic development and that is why the aquatic fauna is depleted over there, and now they see in the Ecuadorian Curaray a place with the enormous potential of fishing exploitation to continue with the business.

The loggers, when carrying out selective wood extraction, impact the ecosystems by cutting down the most massive trees in the sector that are the basis for the ecosystem balance. Besides, they are the most critical threat in the eastern sector of the ZITT towards peoples in isolation that settle there. The border control is very weak, especially since the entry is made by estuaries from Peru that have no connection in Ecuador, which requires the binational organization to stop these activities. However, there have been ten years of public awareness regarding the extraction of wood and fish illegally in the area, yet no effective action of control has been done.

5.1.5. Summary of actors and implications to the SES

The actors involved in the SES are mainly of three types: 1) Public institutions, 2) Academic and civil society organizations and 3) Illegal actors. Of all these, public institutions are the only ones that maintain constant and, in some cases, strong relationships with Kawsak Sacha. The rest of the organizations are present in the Kichwa territory sporadically, and it cannot be considered that there are ties between these organizations and Kawsak Sacha.

Even more civil society organizations, some public institutions and the illegal actors (fishers and loggers) have an indirect relationship with the communities, that is to say, they influence the territory due to their political influence or avoid maintaining relations with the communities, but they stay present in the territory.

This implies on the one hand, that only the State has a certain level of interference in the decisions of Kawsak Sacha, while the rest of the actors, even when they have the potential to intervene, do not. At first glance, it would seem that Kawsak Sacha SES is made up solely of its inhabitants and few groups of state officials, but more detailed analysis shows that this territory is more complicated than it appears and there are many interests of many organizations. It is also clear that it is a disorganized space, where virtually communication between actors is non-existent.

The following figure summarizes the actors involved in the system and the relationships they have with Kawsak Sacha. The actors are divided by clusters: Public institutions (blue), academic organizations (green), civil society organizations (purple), NGOs (yellow) and illegal actors (orange).

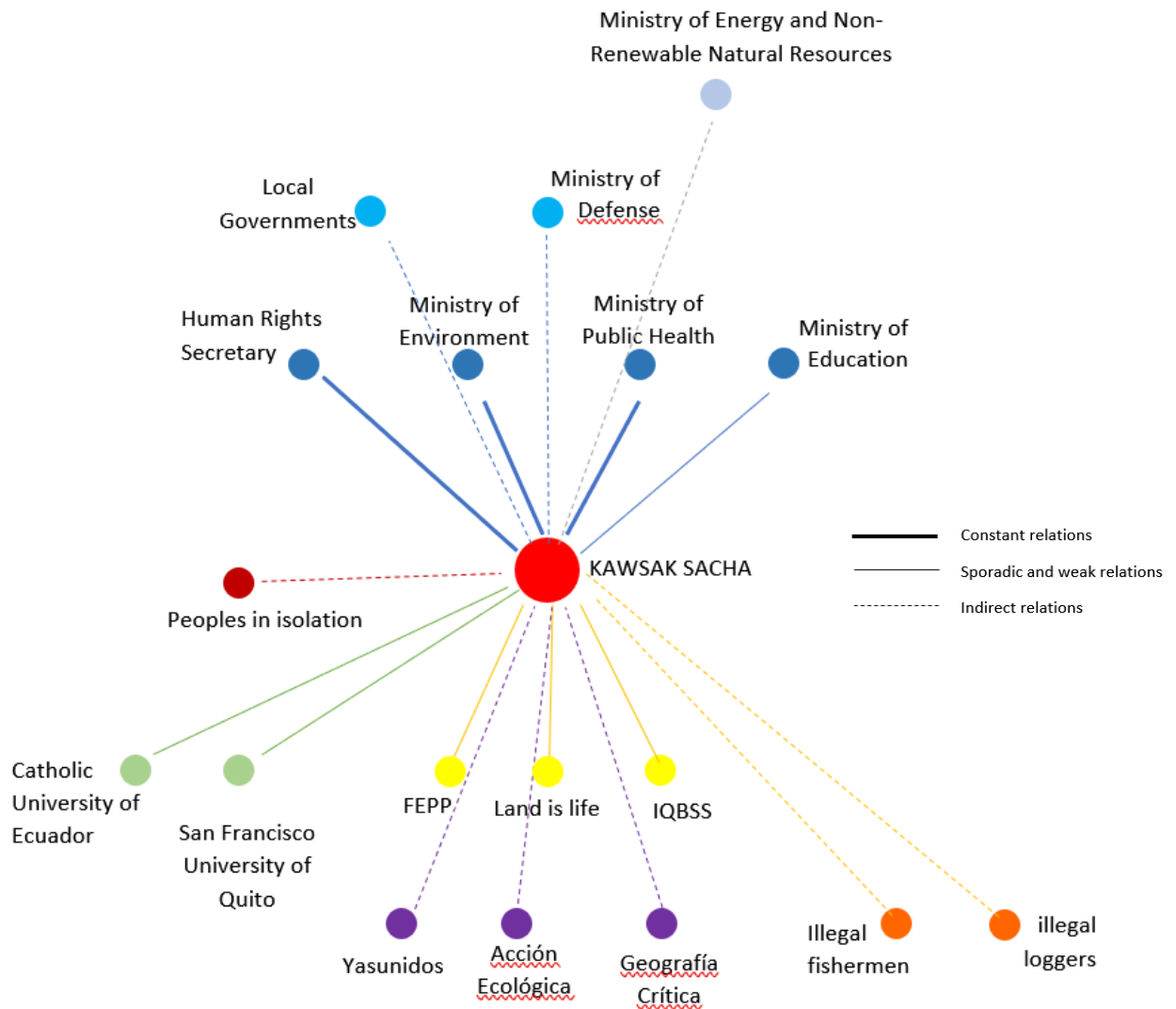


Figure 15. Diagram of key actors and relations in the Kawsak Sacha SES. (authors own).

5.2. CURRENT SES STRUCTURE OF THE CURARAY AREA

The framework of the socio-ecological system of the Curaray's river banks can be determined by analyzing it through the components that constitute it. According to Ostrom (2009), an SES is composed of four subsystems; on the one hand, we have the resource system and resource units which are directly

related. The resource system refers to the territory in general that is being studied while the resource units are constituent parts of this system. On the other hand, we have a system of governance and users. The governance system refers to the organizations that manage the area that is being analyzed while the users are the individuals that make use of its resources and services. This is why the previous identification of actors is essential for the analysis of the banks of the Curaray as an SES.

However, it has been useful to adapt the structure presented by Ostrom (2009) and divide it into two components, ecological and social. Where the first covers the resources system and its units and the second system of governance and users. In this way, the relations between the two components are made more evident, relationships that are the ones that integrate the components and determine an SES.

5.2.1. Ecological component

Referring to the resource system, that is, taking into account the entire area of research, it must be noted that it is an under researched area due to the difficulty of access that it presents. However, in turn, this has led to it being, a highly conserved area compared to other areas of the Ecuadorian Amazon and the Amazon in general. On the other hand, as mentioned by Professor Kelly Swing, founding director of the Tiputini Biodiversity Station:

*"... they say that if we do not go to a place, we do not know anything about that place and that is not true, so much valuable information has been gathered in Yasuní and we know that crossing a river does not imply a decisive change in the structure of the ecosystem ... Then we can infer that if the Yasuní is a megadiverse amazon forest, then the area that is south of the Curaray river will share these characteristics without a significant change."*¹²

Then, the most accurate description of the study area, of the Kichwa territory south of the Curaray River, is that this is a hotspot of biological diversity, containing a remarkable biological richness, accompanying with plentiful of resources (Finer et al., 2009) (as can be seen in Figure 16). An Amazon forest that due to being the spot of transition between the foothills of the Andes and the Amazonian plain has unique characteristics, even more, when the influence of the western society has not had a significant influence on it.

¹² Author's interview with the director and founder of the Tiputini Scientific Station, Quito, June 6 2019

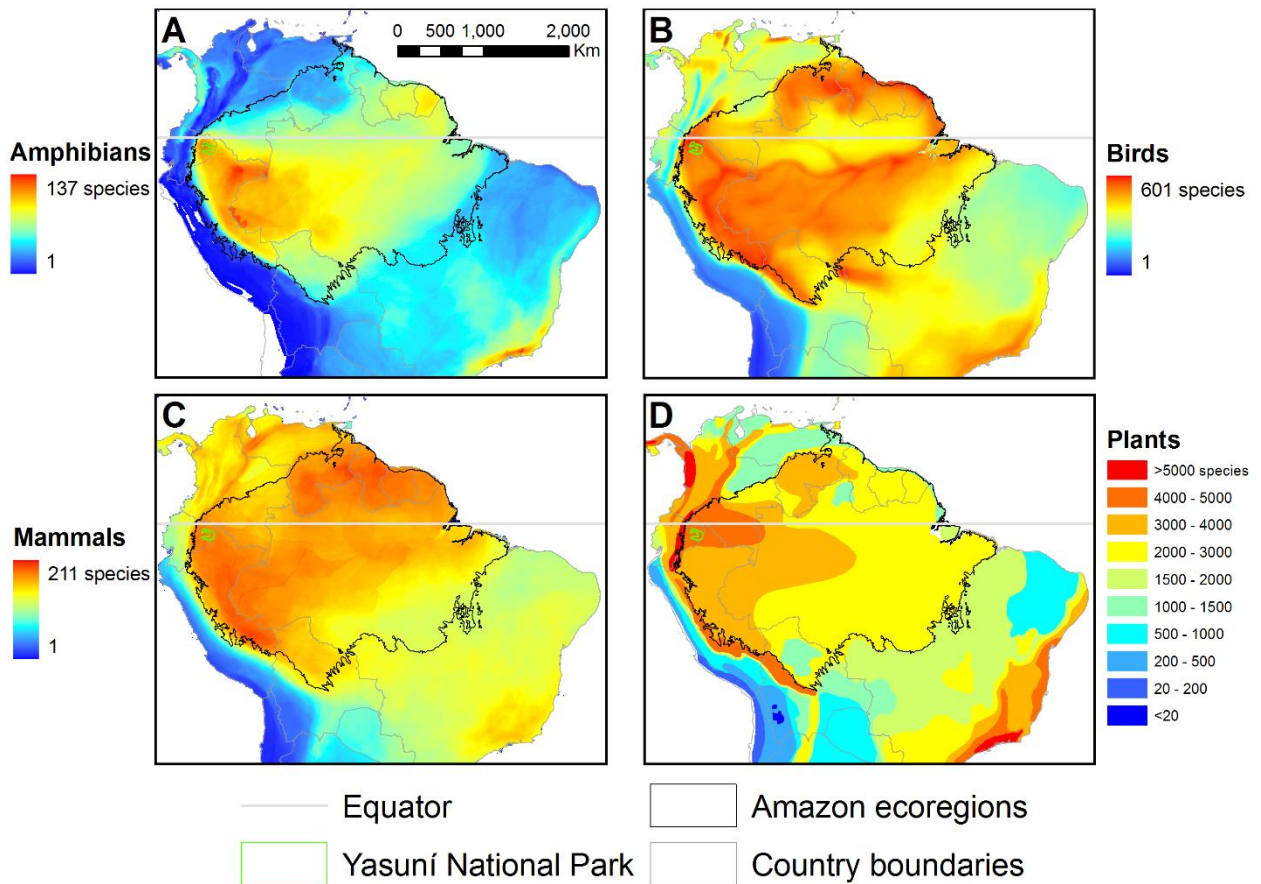


Figure 16. Species richness patterns of northern South America. (Bass et al., 2010)

Regarding the resource unit component, as mention, this area offers plenty of resources of all kinds in all the spectrum. However, the most important are the resources required by the inhabitants of the communities, which are taken on a permanent basis. During the FGD with the people from the communities, some resources appeared essential for their survival of the inhabitants, which are constantly obtained from the system.

"...the river is fundamental, we live from it, it is a market for us and not only us, for the animals that live in the jungle and for the indigenous peoples that live in the jungle."¹³

"For me, the environment is like a market that we have here in the community, where we have ... we can collect animals a little to sustain the family; therefore, we must conserve a lot... the woods too, we

¹³ Author's FGD with Victoria community

use only to do meaningful work, for example, the house, do the canoe, we do not use anything; instead we are taking care of it."¹⁴

Resource system	Resource unit	Purpose of resource	Frequency of use
Rivers and aquatic ecosystems	Fish	Food	Weekly
	Water	Drinking	Daily
	River and streams	Commuting	Daily
Forest and land ecosystems	Animals	Food	Weekly
	Fruits, nuts and seeds	Food	Weekly
		Handicrafts	Rarely
	Soil (clay)	Vessels	Rarely
	Land	Crops	Permanent (minimal area)
		Settlement	Permanent (minimal area)
	Plants	Medicine	Only when needed
	Wood	Boats	Once per member
Houses		Once per household	
Spears and blowguns		Once or twice per household	
Underground system	Oil	Not currently exploited	
	Minerals		

Table 3. Resources from the Kawsak Sacha SES (Author's own).

The table presented above summarizes the ecological component, showing the existing resource systems and the resource units for each system, as well as the purpose and frequency of use. It should be remarked that other resource units have not been included, as are environmental services that, although used by the inhabitants of the area, are used with the same frequency in an indirect mean by the rest of the population in general. For environmental services, we refer to climate regulation and water supply that at different scales are relevant services given that the vegetation is closely related to the flows of energy and water between the surface of the earth and the atmosphere (Betts, 2001).

5.2.2. Socio-economical component

The social component of such a remote area at first glance might seem simple to the point that only its inhabitants seem to have some role as users of the SES and the governance system would seem to be very limited or non-existent. However, this is far from reality as could be observed in the identification of

¹⁴ Author's FGD with Jatun Playa community

actors, and there are several levels of organization and multiple users interacting with the resources of the system.

First, it is needed to understand that the structure of the communities that are settled there is not limited to the area of human settlement where most houses are gathered. The communities are also made up of connectivity structures, control and production areas.

- Connectivity structures are the trails that connect some communities or communities with relevant areas such as lagoons and estuaries. Also, there are hunting trails where the probability of finding hunting animals is higher, and also connect with points of agglomeration of species such as "saladeros" (feeding and bathing places animals) or "moretales" (marshy areas where the main species is the "morete" which is home to a diversity of species). Besides, within some communities, there are landing tracks, a fundamental structure for a quick exit to the cities in case of emergency. Finally, there is a fourth connectivity structure, the "tambos", are huts that serve to sleep or rest during trips in the river; all inhabitants commonly use the tambos.
- Control areas can be of two types: the first is sacred areas, where hunting is prohibited. On the other hand, there are specific areas that are intended for hunting, this in order to promote the state of conservation of the territory.
- The production areas refer specifically to the "chakras", which are small areas of agricultural production, where almost exclusively banana and yucca are produced. The chakras are located almost entirely in areas adjacent to the Curaray River because these are the best lands for production; however, this means that they are susceptible to flooding.

Relating the social component to the theoretical framework identifies the governance systems and the users of the Kichwa territory. On the one hand, three different types of governance systems can be clearly defined:

- Indigenous organizations
- Government institutions
- Non-governmental institutions

Although the interactions between these three governance systems are not regularly carried out, there is, in a way, a more continuous relationship with governmental institutions on the part of the indigenous organization while the relations with other organizations are sporadic.

On the other hand, eight types of users have been identified, each of which exercises a different type of interaction with the environment, different pressure on resources and generates different threats to the ecosystem and other users.

- Inhabitants
- Peoples in isolation
- Military
- The staff of government institutions
- The staff of non-governmental institutions
- Tourists
- Illegal loggers
- Illegal fishermen

5.3. CONCLUSION: INTEGRATING THE CURARAY BANKS AS A SOCIO-ECOLOGICAL SYSTEM

This chapter focuses on answering the first research sub-question: Which actors are potentially involved in the shaping of Kawsak Sacha territory as a complex socio-ecological system? Table 4 integrates clusters of key actors with the environmental resources units that make up the ecological subsystem; also pressures of use (simplified in three categories) of each of these resources, as well as the temporary frequency of use (simplified in three categories) is determined by the findings obtained from the Kichwas and experts interviewed. This systematization serves to analyse the dynamics that occur between the social and ecological subsystems of the SES Kawsak Sacha. The results address how each of these actors could influence (positive or negative) tourism development in the sector.

Actor	Resource	Pressure on resource	Frequency of use
Inhabitants	Terrestrial fauna	Medium	Frequent
	Aquatic fauna	Medium	Frequent
	Flora	Medium	Occasional
	Water	Low	Permanent
	Land	Low	Permanent
People in isolation	Terrestrial fauna	Low	Frequent
	Aquatic fauna	Low	Occasional
	Flora	Low	Frequent
	Water	Low	Permanent
	Land	Low	Permanent
Government institution staff (doctors, military, park rangers)	Terrestrial fauna	Low	Occasional
	Aquatic fauna	Low	Occasional
	Flora		No use
	Water	Low	Occasional
	Land	Low	Permanent

Non-Government institution staff (researchers, activists)	Terrestrial fauna		No use
	Aquatic fauna		No use
	Flora		No use
	Water	Low	Occasional
	Land		No use
Tourists	Terrestrial fauna	Low	Occasional
	Aquatic fauna	Low	Occasional
	Flora		No use
	Water	Low	Occasional
	Land		No use
Illegal loggers	Terrestrial fauna	High	Frequent
	Aquatic fauna	Medium	Frequent
	Flora	Very high	Frequent
	Water	Low	Frequent
	Land		No use
Illegal fishermen	Terrestrial fauna	Low	Occasional
	Aquatic fauna	Very High	Frequent
	Flora		No use
	Water	Low	Frequent
	Land		No use

Table 4. Actors and pressure on resources from the Kawsak Sacha SES (Author's own).

First, the only permanent actors in the research area are the Kichwas who are settled in communities along the river, from its origin on the west to Victoria community at a distance of two hours from the border with Peru. Therefore, communities and their inhabitants are the only actors that can effectively control the territory, a territory that by law belongs to them. However, the financial, logistical and technical requirements to carry out an effective control and socio-environmental protection of the area far exceed what the communities have and even when there is a willingness to protect, this is only done through their life and daily actions, but external actors cannot be controlled. In terms of pressure on resources, the communities continue to carry out ancestral hunting and gathering activities in addition to limited agriculture and, due to the number of inhabitants that settle in the sector, there is no significant impact from the Kichwas in the area, even more, when they have incorporated to their "community life plan" practices of environmental conservation.

Second, external actors that illegally carry out extractive activities, specifically loggers and fishers, are the most significant environmental and social threats that have been identified. As corroborated by the head of the Lorocachi military company and the head of the PNY, these individuals enter armed to Kichwa territory both to hunt and subsist the time that the extraction of resources lasts, as well as for protection. This is critical in the case of the loggers who carry out their activities in the ZITT who have a high probability of encountering people in isolation, in which case it could degenerate into the killing of isolated indigenous people and, due to the difficulty of access to the area, it cannot be discarded the fact that an event like the one mentioned could have already happened in this sector or its surroundings.

Third, the peoples in isolation are settled crossing the northern edge of the Curaray River, which, although it is PNY and ZITT, here hunting is allowed to the Kichwa communities, which due to the incentive of the SocioBosque program implemented two years, they have selected the area of the PNY as the favourite to hunt and thus maintain their territory with a higher level of conservation. Then, increasing the chances of encountering peoples in isolation, especially in cases where a Kichwa member has hunted for sale in the city because the intensity of hunt is higher, producing more noise and staying longer in the ZITT.

Fourth, the governmental organizations have little presence in the territory, limited to the doctors in the two sub-centres of health for all the Curaray, to the military personnel, and to the park rangers and technicians of the DPPIAV who carry out sporadic fieldwork in the area. However, it is the government institutions that make decisions from Quito about what will happen in the Kichwa territory, as is the case of the bidding of oil blocks.

Fifth, non-governmental institutions have virtually no direct presence in the area of study; their function has been mostly of biological, historical and anthropological research in the case academic and scientific institutions and activism in favour of the protection of environmental and communities' rights in a general sense but not in knowledge of the case of Curaray.

The social mesh is complicated in the research area; however, it is clear that the fate of this territory depends on its inhabitants and the empowerment they achieve to stop threats to them or their territory. This, however, is not an easy task, and the support of the other actors becomes imperative by working together with the communities and from the perspective of its inhabitants.

Finally, after analysing the competencies and positions of each institution regarding tourism, it is clear that the development of tourism depends entirely on the capacity of the communities to establish this type of business. Both governmental and non-governmental organizations can offer support to this initiative, and no restrictions have been found on the development of tourism activities in the Kichwa territory. However, access with tourists to the PNY and ZITT it is necessary to obtain a permit from SDH and MAE but these institutions do not forbid tourism in their competent territories.

6. RESULTS: CURRENT SES RESILIENCE CAPACITY AND INFLUENCE OF TOURISM OVER, EMPOWERMENT, RESILIENCE AND UNCONTACTED TRIBES.

In this chapter, we discuss the results referring to the three remaining sub-questions of this research:

- To what extent is tourism feasible in Kawsak Sacha territory and what are the expected impacts?
- How does the introduction of tourism affect community empowerment of Kichwa people?
- How does the introduction of tourism impact the ecosystems on the southern border of Yasuní National Park?
- To what extent does tourism would have an impact on the territory of peoples in voluntary isolation?

The concepts of resilience and empowerment are discussed from a bottom-up perspective, where the experiences and perceptions of the communities regarding tourism and its impact are intertwined with experiences in tourism in places of similar characteristics in addition to the opinions of experts in biological and anthropological issues and regarding peoples in isolation. In this way, it is intended to respond clearly and with all the necessary knowledge to the research questions.

6.1. DEFINING TOURISM FOR THE STUDY AREA AND ITS FEASIBILITY

The tourism industry is highly diverse and favours to choose between several alternatives according to what best suits the needs and objectives of each case. However, in the Curaray context, the tourism business is pointed at particular tourism models due to the logistics, culture, and what the area offers. Even more, the meaning of this investigation leads to a specific path to follow so that tourism becomes sustainable and positively impacts socio-ecological resilience and community empowerment without endangering the neighbouring tribes in isolation.

The way forward must meet the following requirements:

- Be completely community-based.
- Carry out previous studies of tourist zoning and carrying capacity with a scientific basis.
- Determine a desired and compatible tourist target.

It is crucial for the success of the project to be developed with an external expert in tourism matters support, but proposals for how to carry out tourism should come mostly from the inhabitants of this territory. To be community-based means that the returns of the project will go to the communities for their socio-economic development. Besides, this is the position all respondents held when discussing tourism during the FGDs and interviews, in addition to showing their interest in getting involved in tourism businesses.

However, the fact of being community-based does not mean excluding the opportunity of operating together with an external agent. Moreover, for this project due to the limited experience from the Kichwas in terms of national and international tourist recruitment, building of tourist appropriate infrastructures, provision of basic services, food management, itinerary design, search and hiring of specialized multilingual naturalist guides, implementation of an agency in Quito, among other requirements; an alliance with a tourism dedicated counterpart appears necessary. It is essential that the negotiation has bases of social responsibility and socio-environmental sustainability, this would ensure that the net profits of the project are distributed to the communities and that measures are taken so that the environmental and social impacts are the minimum.

The aforementioned is intimately related to the need for conducting prior environmental studies. Poorly managed tourism can be very detrimental for the environment, numerous of these cases exist around the world, and in an environment as biodiverse and fragile as this one not even the least chance of environmental damage can be allowed. For this purpose two primary studies are required (supported by several secondary studies) the first is to determine the carrying capacity of the areas where the project will be carried out to determine the tourist quotas per year, in this case clearly a mass tourism is not compatible and instead the optimum is to handle small groups. The second study has to do with the zoning of the territory; for example, there are areas that despite their natural beauty and certainty of sighting many animal species are also very sensitive to disturbances and have to be excluded from any tourist visit.

"... you have to do a zoning, in the case of tourism, if you are going to do a study... a tourism project has to be very clear about which are the most sensitive areas of that space, which can never be visited, others are going to be visited only by rowing, others that may suddenly be visited by motor but always at low speeds, so I think that the danger that tourism brings is the poor planning of a tourism project, when you simply believe that is to arrive, assemble cabins and say ok, we will take them here and there, without previously knowing the area and without making a zoning, with knowledge of the area."¹⁵

Finally, taking into account the above conditions, the target of tourists is settled to two varieties, scientists and non-scientists with a desire for wildlife sighting and contact with Amazonian cultures and

¹⁵ Author's interview with the Director of Planning and Strategic Management of the Yasuní Scientific Station, Quito, May 1 2019.

environments. Due to the logistics required for the reaching the area and favouring conservation of the territory through the management of small groups only, the economic categorization of the tourist product goes towards a higher-end market, which would categorize it as ecological and scientific luxury tourism.

Regarding the feasibility of carrying out tourism of the nature defined above, there are examples in Ecuador, being the most similar in characteristics the aforementioned Napo Wildlife Centre (also managed by Kichwas), which meets all the described characteristics and It is successful in terms of the distribution of profits to the community, environmental care and the quality of service offered to tourists.

Another critical factor to consider the tourism project feasible is the existing competition, although, in the broad southern area of the Yasuní National Park, this project would have no competition, the main competition would be in the centre and north end of the Park. However, no other project in the Ecuadorian Amazon currently offers a tourist product in such a remote; little intervened and not scientifically studied area, which differentiates it from the rest of the competition.

In short, the tourism project that is being proposed in this research is luxurious community-based tourism of ecological and scientific nature. Also, the project is presented as highly feasible.

6.2. EXPERIENCES WITH TOURISM

Due to the remoteness of the region and the limited accessibility, it is not unexpected that despite the scenic beauty akin to some eco-friendly or scientific tourism projects, tourists in the research area has been limited only to the few people who have had the opportunity to meet an inhabitant of the communities and thus reach the Curaray.

There are only two communities that have carried out small tourism projects, Pavacachi and Lorocachi in addition to specific family-based projects in other communities. Tourism remained active only for a few years due to the limited capacity for promotion. All cases had similar ways of carrying out tourism and therefore, comparable outcomes. Tourists were scarce, and the tourism offer was made solely through acquaintances and relatives that reside in the cities who were in charge of spreading the word. Furthermore, according to testimonies of the Kichwas who performed tourism, no planning was executed, and improvisation of places of stay and visit, food and prices for the tourist service was the conventional procedure.

This approach to tourism, coupled with the limited use of money and knowledge about running a business, brought minimal profit margins for the communities. Even so, revenues, although rather scanty, have been appreciated and served to supply some of the most immediate needs but no social investment or reinvestment on the tourism business was viable. Consequently, tangible benefits are not evident in the communities that carried out tourism projects.

This type of tourism, although it has been minimal in scale, has generated some indirect impacts on the environment, such as the use of resources to meet the food needs of tourists, which produces an increased strain to the ecosystem, especially the wildlife component. Moreover, in one of these communities the misconception that wildlife in captivity, such as a jaguar and a harpy eagle, could be an attraction for tourists, led to a wildlife control operation by the MAE with military support. This event greatly deteriorated the relations between communities and government, and its effects can be felt in the people even now.

Social impacts have also been limited but had a more positive connotation. These experiences allowed communities to have a glimpse of some requirements they must fulfil in order to offer an attractive service; moreover, the involvement of the inhabitants has allowed them to reflect their role in tourism. Besides, they have been able to feel the need to learn new skills, a recurring desire of the inhabitants who have worked in tourism is to learn English to be able to offer a better service to foreigners and learn from other cultures. Even more, in the case of working as a guide for a private company, to speak English is a determining factor for hiring and for receiving a better income.

Currently, several communities see tourism as the only economical alternative. Knowledge about tourism has increased as well as awareness about the global importance of Amazon rainforest and the urgency of its protection. The recurring statement that tourism is a way to generate income while taking care of their jungle is a sample of the after mentioned. They have learned from mistakes, recognizing that planning is necessary in order to avoid damage to the ecosystems with tourism and also to consolidate their territory as a desirable tourist destination.

A compelling case is Victoria community where the daughter of the community leader is one of the few cases where a Kichwa of the Curaray has reached university education, at the time of fieldwork, she was in her final year of the undergraduate programme in tourism. This has generated expectation in the community; hence, they are preparing to receive tourist in a somewhat near future. An area near the community has already been selected where they are building two traditional cabins to house tourists.



Figure 17: Building process of traditional cabins for tourism in Victoria community. (Authors own, 2019).

In general, the majority of inhabitants of the Curaray believe that tourism is the economical alternative that best fits their reality and that it will conserve the environment. However, although traditional knowledge of environmental care is a fundamental basis for a tourism project, its inhabitants lack technical and scientific knowledge of how to do tourism in a genuinely sustainable way, and they do not know how to promote their territory as a tourist destination. Even more members of the association of communities Kawsak Sacha believe that tourism would bring more benefits and better income distribution among all communities if it is managed in a single, more significant project managed by Kawsak Sacha and recognize that the intervention of tourism experts is necessary to make this project feasible.

6.3. IMPACTS OF TOURISM IN THE RESEARCH AREA

6.3.1. Impact of tourism over community empowerment

Community participation is a critical factor for sustainable tourism development to be considered successful. However, the mere participation of communities is not enough to acknowledge that community empowerment has been achieved to any stage. In order to achieve this goal, communities must be involved in decision making as well as in the approach of strategies and solutions (Boley, 2014). As described by Scheyvens, R. (1999) the empowerment of communities is decomposed in four different realms: psychological empowerment, social empowerment, political empowerment and economic empowerment, but additionally, it was determined that the territory empowerment should have its independent analysis. These realms are not isolated one another, rather they are intertwined and what affects one will influence the rest.

Psychological empowerment, according to Di Castri (2004), refers to the feeling of pride in coming from a specific culture and environment. The reaffirmation of this feeling of pride is a manifestation of empowerment. For the Curaray Kichwas who are conscious of the unique and valuable culture and traditions they possess and the ecosystemic importance of the environment they call home but who have also been victims of discrimination outside their territory, tourism is for many the mechanism to avoid discrimination by showing the world their culture, territory and expand the very limited interaction with other cultures.

Besides, it is in these cultural exchange spaces where the individual skills are put into practice, exhibiting the relevance of each person and the community as a whole. All the Curaray Kichwas consider that they could perform a job within the tourism business and although the confidence in their skills varies considerably among the inhabitants, it is clear that all these skills are necessary for tourism development.

Furthermore, people share the traditions and resources of the communities with tourists, which preserves their culture and disperses their recognition far beyond their territory and mobility areas. Even more, the possibility that during work in tourism they might be trained generates much expectation, there are various areas in which each person wishes to be trained from the domain of a new language to learning gastronomy. This high expectation is not only since training will make them more efficient in their potential roles in tourism, but the acquisition of new skills positions them in a somewhat more special status within the community.

Social empowerment relates to the improvement of communities' internal relations, the establishment of objectives that lead to a better lifestyle and the joint and organized work of the

communities' members. Social power, according to Friedmann (1992) is the essential realm of the four and is the foundation of political and psychological empowerment through knowledge, skills (as described in psychological empowerment) and social relationships. Due to the social aspects of work and decision-making, the Kichwas can be considered socially empowered, community relations are the basis of their way of life, the work is done through "mingas" or collective work and decisions are discussed, analysed and taken among all.

Notwithstanding all the communities are assembled into a single organization, Kawsak Sacha, and all communities maintain the same management policies, the level of social empowerment is not homogeneous among the communities. There are differences in the degree of predisposition to perform collective work, which is reflected in the physical structure of the community, as mentioned below:

"... not all people are determined and in accordance with the activities, then always (a project) has to be done with a target group, a community that says, we do want to get into this, and we are committed to moving forward, no to fail but to get ahead because perhaps a community does not have the same spirit of collaborative work that other communities that can work through many mingas and others cannot, do not have the time and enthusiasm. "¹⁶

In this case the influence of tourism on social empowerment is uncertain, in cases such as Kapawi, in Shuar territory, the establishment of a community-based tourism business with an agreement with private enterprise, impact on community cooperation relations weakening them, in the same way, the social structure underwent change, where tourism treated the members of the community unequally (Stronza et al. 2008). In contrast, there is the case of the mentioned Napo Wildlife Center, a tourist project entirely designed by the Kichwas of Napo and which claims to be completely community-based. In this case, since the community has designed the way of working of the employees who are almost entirely Kichwas, the work among the members of the community has become stronger as mentioned by the community development manager of the Napo Wildlife Center:

"... in addition to the fact that tourism has helped us to educate our children, we have also learned how to work better as a team and to divide tasks and the living within the tourist complex is quite good, and this is replicated in life in the communities where we can put into practice new knowledge that we have acquired..."¹⁷

However, the way in which the Curaray Kichwas have divided the job opportunities of the scarce labor demand reveals how the management of tourism by the communities could be envisioned. It is the

¹⁶ Author's FGD with men from Sisa community.

¹⁷ Author's interview with the Napo Wildlife Center community development manager, Quito, June 12 2019.

community leader who decides the member o members who will perform the offered work, and only those who have not previously participated are taken into account, thus ensuring that all members have the same opportunities. In this sense, and only if the communities are the primary decision-makers in a tourism project, can the communities be expected to reach a higher degree of social empowerment.

The third realm, political empowerment in the context of tourism, refers to fair representation for all members and is directly linked to the equitable distribution of economic and social benefits. Political empowerment means having complete control over internal affairs, and even more, it implies having a voice and active participation within local government (Boley et al., 2014).

As described in the social realm, the decision-making structure and overall internal politics of the Kichwa people of Kawsak Sacha, guarantee within their worldview the representativeness of all its members, equal conditions and decision-making based on democracy. However, and despite the plausible high degree of political empowerment, the influence of Kawsak Sacha or any Kichwa community in local government decisions is nonexistent. It is at this case that the vast majority of community members expect tourism to be a mean not only of internal socio-economic development, but also to be recognized locally and taken into account within the plans of the local government.

Economic empowerment of communities is probably the aspect that comes straight to mind when talking about tourism, but even if it becomes economically profitable and generates dividends, the efficient administration of these new economic resources is the determining factor to achieve real empowerment. The division of economic benefits must be carried out in an equal and fair manner, power actors such as community leaders or Kawsak Sacha should not receive personal benefits and the investment of new income in communities should be the way forward.

For the Kichwa, the fair distribution of economic benefits among the communities has been and continues to be standard practice, however, the lack of technical knowledge regarding economic management is distinct and even recognized by its inhabitants.

"... before the little money that the government gave us to the Kichwas, we do not know how that money was spent, and I never saw that money, even now with this of SocioBosque, we have somewhat improved, and sometimes we plan on what it will be spent, but not we know well how to use that money..."¹⁸

¹⁸ Author's FGD with women from Macao community.

Those as mentioned above undermines the economic benefits for the Kichwas, which is visible in the capital management of SocioBosque program, which frequently has been spent without planning, thus limiting the benefits for the communities. To overcome this limitation, it is necessary that within the tourism project scheme the need to provide training and advice regarding economic management to the Kichwa population is considered in order to take advantage of the economic benefits of the business, as suggested by the Kawsak Sacha territory leader.

"This is a good experience of the SocioBosque program, because we have the opportunity to make our investment plan, we throw accounts, what in other communities does not happen, SocioBosque teaches us to manage money, but first we make a plan together of investment, we calculate percentage, and that is what we decided, but we still need to know even more how to handle the money, and if it would be good that with tourism we also are trained in how to handle that money ... "¹⁹

In a territory like Curaray where formal work is non-existent, income is scarce and basic needs are never entirely covered; Tourism stands out as the alternative to start with the process of economic independence, especially from the State. If the profits are distributed in favor of the communities' social development, then the dependence from State for the provision of services will decline, which leads to a lower interference of the State in Kichwa territory decisions and therefore to a more significant negotiation process when there are governmental interests in Kichwa territory.

Finally, the empowerment of the territory provides its inhabitants with the ability to make independent decisions without external pressures. The decision-making capacity is not only limited to the legal right to manage the territory but to a real decision-making process where there are alternatives developed from the communities and not only the alternatives imposed by outside organizations. It is proposed that tourism managed by the community and with conservation connotations could be an alternative to achieve this territorial empowerment and maintain it in the long term.

Taking into account that the extractive borders have advanced non-stop in recent years in the Ecuadorian Amazon and that in the current political situation this scenario appears to spread to more areas, it is only a matter of time before the first approaches to propose non-renewable resource extraction activities in the Curaray are carried out. In this case, the fact that the communities are empowered of their territory means that at the time of carrying out the prior and informed consultation process on extractive activities in their territory the negotiation processes will be carried out among equals, that is, the difference in power between the State, extractive companies and communities, will be smaller, thus

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- ¹⁹ Author's interview with the Kawsak Sacha territory president, Baños de Agua Santa, June 4, 2019

providing the opportunity for communities to analyze the proposals and freely decide the fate of their territory and their peoples.

In general, tourism, as described in this research, is presented as a way to empower communities; however, to achieve this, it is not only necessary to implement the community-based tourism project. Regular work with populations is necessary to overcome the intrinsic limitations that communities may have to achieve real empowerment as detailed in the following table.

Realm of empowerment	Signs of empowerment	Limitations
Psychological empowerment	<ul style="list-style-type: none"> • Pride of own culture • Confidence in skills and knowledge • Recognition of traditions and culture outside Kawsak Sacha territory 	<ul style="list-style-type: none"> • Discrimination • Distrust in own skills
Social empowerment	<ul style="list-style-type: none"> • Improvement in social cohesion • Improvement in community cooperation relations • Improvement in means of social inclusion • Reduction of internal inequalities 	<ul style="list-style-type: none"> • Differences predisposition to perform collective work among communities • Differences in women empowerment among communities
Political empowerment	<ul style="list-style-type: none"> • Fair representation of all members • Total control of internal affairs • Representation in local governments 	<ul style="list-style-type: none"> • Nonexciting interest of local governments to integrate Kichwas in their decisions • Interference and political pressure from the State in internal Kichwas affairs
Economic empowerment	<ul style="list-style-type: none"> • Economic independence • Fair division of economic benefits • Effective use of communitarian economic capital • Generation of economic alternatives according to the context 	<ul style="list-style-type: none"> • Dependence on the State for economy and services • Lack of knowledge of economic management

Empowerment of the territory	<ul style="list-style-type: none"> • Independence of decision within own territory • Improvement in power of negotiation in own territory • No interference of third-parties in own territory 	<ul style="list-style-type: none"> • Dependence on the State • Lack of alternatives of socio-economic development • Lack of legal knowledge • Imbalance in power of negotiation in own territory
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Table 5. Signs of empowerment and limitations in Kawsak Sacha context (Author's own).

6.3.2. Impact of tourism over Socio-Ecological System resilience

In his article on resilience in SES Sterk et al. (2017) point out that a broader vision of resilience contemplates humans as part of the Earth system and not as external agents that merely interact with their environment. This statement is especially true in the context of this investigation. The relationship between communities and the ecosystem is profound; the preservation of the environment ensures the preservation of communities; its inhabitants require a healthy ecosystem to survive.

The current state of system resilience is defined through the analysis of each subsystem's constituent parts and the interactions among them. Defining the position of the adaptive cycle in which the system is currently located is imperative in order to infer what is its Safe Operating Space, SOS, that is, determine the thresholds that define a favourable state for the system (Scheffer et. Al., 2015). Adaptive cycles consist of long periods of transformation and accumulation of resources and short spaces where innovation is conducive (Holling et. Al., 2002). In what refers to the Kawsak Sacha SES, it is in the limit between these two moments. For a long time, people have depended only on the resources offered by the rainforest and the services provided by the government. However, the interaction with urban culture and the unconformity of the quality and accessibility of essential services have led to the conception of small independent business projects in each community. However, these efforts have been brief and their gains have not lasted over time, which drives to the current state of the Kichwas examining the possibility of executing a project amongst all communities, under the management of Kawsak Sacha, taking advantage of the fact that for the first time they receive an income (SocioBosque program) that can be reinvested.

It is undeniable that consolidating a new economic activity causes different sorts of impacts on any SES and consequently on its resilience. In this case, potential impacts of including a tourism project similar to the one described above are considered, that is, ecological-scientific tourism. Possible impacts are analysed based on statements of academics and experts, as well as perceptions of the inhabitants and then correlate to how these impacts influence the structure of the SES and its resilience.

The first series of factors that define the stability landscape for this system are those related to the environment. Currently, the Curaray's ecosystems area profoundly healthy and consist almost entirely of primary forest, only having small degradation points around the communities as can be seen in Figure 18. The response to disturbances occurs as in any Amazonian primary forest, the resilience to shocks of this sort of forest is high, as long as the disturbances are not constant, do not affect critical species and do not drastically change the structure of the ecosystem.

*"... it depends on what proportion of the forest that is suffering this (a pressure), if we get to cut most of the forest, as we see north of Napo or in the area of Lago Agrio or Shushufindi, I think that idea of resilience is very tight. If we have a little bit of opening in the forest for chakras, maybe we can lose a third and still have opportunities to recover, but that recovery depends totally on a moment when people leave and there is the complication ... "*²⁰



Figure 18: Photography from plane that shows the extent of impact of a community. (Authors own, 2019).

²⁰ Author's interview with the Director and founder of the Tiputini Scientific Station, Quito, June 6 2019.

The main threats to ecosystems in this territory currently are selective illegal logging, illegal fishing and hunting and in the near future, the possibility of mineral and oil extraction. Ecosystems cope with current pressures and commence their regenerative process immediately after the disturbances cease. This process of regeneration has a rather diverse time window depending on the impact, for example, the restoration of species affected by hunting at current intensity can once again have populations considered healthy in a few decades, while the regeneration of felled tree species can take up to hundreds of years.

The implementation of tourism in the Curaray would affect ecological resilience capacity by reducing the disturbances produced by hunting and fishing events focused on the sale of bushmeat in cities. Both hunting and fishing on a scale other than subsistence affect ecosystems; however, hunting is declared illegal by the MAE while fishing is allowed. The Kichwas carry out these activities as these are one of the few means to earn income, even if it is minimal. Since there is an alternative to generate income, especially one such as ecological and scientific tourism that is based on the excellent health of the ecosystems, these activities that are harmful to the environment would be reduced, thus allowing the regeneration of species, as mentioned by the inhabitants of the Kichwas communities.

"... there is no income, sometimes someone has to fish and with that buy the list of supplies (for the children's school), ... most families do that; then we are going to exterminate the fish. ..., then we lack an (alternative) economy. "²¹

Regarding selective logging, this is done legally by the Kichwas for the construction of houses and boats. The frequency of timber extraction is limited since the addition rate of houses in the communities is gradual, and in Lorocachi community which is the largest, it can be noticed that the use of new construction methods such as the bricks or cement is beginning to be incorporated into the house design. Also, it is mentioned that today there is a greater conservation awareness than in past decades when it comes to the use of wood, a tree is cut down only when necessary and with better selection criteria to less affect the surrounding environment of the communities.

"Before, almost 8 years ago people didn't think like now, we never thought... they hunted when there was a battalion here of the military, they hunted dantas, catfish, paiches, everything that is big... they cut the big chunchos, if it was hollow they just throw it and cut another, that is ended those chunchos that were hundreds, thousands of years standing there ... "²²

²¹ Author's FGD with women from Sisa community.

²² Author's FGD with Jatun Playa community.

Concerning illegal logging of timber species which is done by Peruvian citizens, tourism implementation could represent a point of control, but their influence would be minimal, especially if one takes into account that illegal logging points are far from the communities and the Curaray River, mainly within the ZITT, several kilometers north of the Curaray River, areas where the Kichwas do not access. The direct influence that tourism could have on this factor is limited, but it could be one more factor that puts pressure on the government to carry out the necessary environmental controls since there has been no real action by the government in more than 20 years of cases of timber extraction in the Quebrada del Rio Lobo, the best-known point of illegal logging in this sector.

On the other hand, tourism also implies specific risks that must be taken into account so that they do not become environmental pressures due to tourism implementation. Access by tourists on a regular basis to sensitive areas such as breeding areas can lead to a decrease in the reproduction rate of individual species and even the abandonment of these areas. As mentioned earlier, it is necessary to carry out a previous study of zoning of areas for tourist activity, thus avoiding such problems.

Another factor to take into account is the food for tourists. The crops traditionally grown by the Kichwas can be part for tourist food, but the diversity of environmentally compatible plant-based foods should be expanded, using the same traditional method of "chakras" to have the least impact environmental. Also, the need to bring food from outside the Curaray should be considered, so the type and quantity analysis of food needed must be carried out as part of the tourism scheme, taking into account the method of storage once in the Curaray. Although part of tourism is the coexistence and learning of the Kichwas traditions which gastronomy is part of, the provision of meat from native animals of the jungle must be carefully analyzed and, if possible, avoided, to not generate more pressure on the animal species that serve as food for the Kichwas.

On the other hand, waste management is an issue that should be planned at an early stage of the design of the tourism project; a minimum waste model must be implemented, avoiding the entry of single-use products as much as possible. The waste generated in the tourist complex must be treated in a way that generates the least impact, and the care of water streams has to be taken into account at all times. For the minimization of impacts on the environment, a study of carrying capacity is essential. The implementation of annual tourist quotas is a mechanism that, if scientifically supported, allows the project to generate more benefits than pressures on ecosystems.

In summary, the ecological system component has an established resilience stability landscape, where the system's adaptability to small disturbances is very efficient, allowing tourism with sustainable characteristics to be carried out. Moreover, examining the possible benefits and threats that tourism could bring, this type of business has the potential to be a method of control to the threats that exist today and have a positive impact on ecosystems, releasing pressures and strengthening the resilience of the SES.

Regarding the social section, many of the impacts of tourism have been covered in the previous section. In summary, tourism has the potential to affect the Kichwas in the following aspects positively:

- Strengthen community pride.
- Preserve ancestral culture and traditions, besides, to expand the recognition of Kichwa culture outside their territory.
- Strengthen community cohesion.
- Access to cultural exchange spaces.
- Provide new skills and knowledge.
- Generate sources of work and income.
- Investment of profits in social development.
- Constitute a means of approach with local governments.
- Government independence for the provision of essential services.
- Higher bargaining power with external actors.

However, there are some concerns on the part of the Kichwas, as well as experts. There is fear that, due to constant contact with different and varied cultures, the Kichwas culture undergoes significant changes that undermine Kichwa traditions and ancestral way of life, as the leader of Ninamaru mentions. However, because the contact is not permanent, nor with all the community members, the likelihood that this scenario is right is minimal. It is evident that in the majority of community-based tourism projects in the Ecuadorian Amazon and once again referring to the case of the Napo Wildlife Center, for being the most similar case in characteristics and for being managed by the same ethnic group; The contact with tourists of various nationalities far from changing their culture, has further strengthened the pride of being Kichwa.

*"I believe that every project, everything has a minimal threat or problem ... there are always changes in tourism because young people sometimes see tattoos, they see a tourist who comes with earrings, and they then want to do that, so it is a cultural change, and it is something that we have to be careful. Women see that they are painting herself and they want that and it is a change that causes us a big problem."*²³

In short, the SES Curaray have remained in a balance where the environment has received minimal disturbances, but the human population that inhabits it suffers from various needs. Moreover, the vast territory delineates a landscape of stability broad enough to integrate a spatially specific activity such as tourism without the changing SES to another stability basin and rather expanding its boundaries. When

²³ Author's interview with Ninamaru leader. Ninamaru, May 13, 2019

implementing tourism as previously described, the balance between the possible benefits and threats leans towards the benefits for both the environment and its inhabitants. By establishing positive impacts on the stability landscape, its basin deepens, thus making it more challenging to move to another potentially unwanted landscape.

Concerning cross-scale interactions, these are transversal issues in system resilience and extremely limited in the current state of the SES. Nevertheless, the impact that tourism could have on these interactions is clear. When a tourism business, unique in the area, is developed, even more so if it becomes of comparable importance to other projects in the PNY, the Kichwas will have a higher opportunity of owning a voice within the decisions affecting their territory in the local government. Moreover, local governments (municipal and provincial) have historically maintained tourism development within their management agendas, which is why the interest and recognition of the Curaray territory would be more prominent by local governments, leading to a process of dialogue with greater constancy and importance between Kichwas and local governments.

On the other hand, as mentioned in the previous section, territorial empowerment has direct outcomes on the interactions among Kichwas and other government scales, placing the Kichwas in a less dependent position. This higher degree of independence influences the dynamics of negotiations between the State and the Kichwa people who own the territory in which they live. The negotiations can go on the one hand to the demand of the fulfilment of State responsibilities in their territory, based on a greater knowledge and focusing on what they really need, plus having a more significant weight in their demands; On the other hand, in the event that any governmental activity is decided to take place in Kichwa territory, the communities would have a more robust decision-making power based on alternatives. This change in cross-scale interactions produces a change in the resilience of the system. A higher degree of empowerment, independence and participation in the decisions of governments, make the system more resistant to external pressures, and in the case that the communities accept these proposals, will be on their terms, where the pressures never exceed the adaptive capacity of communities.

In summary, the implementation of tourism in the area would potentially increase the resilience of the system based on the ecosystems' capacity to adapt to spatially specific disturbances and on the possible positive impacts. Besides, the degree of influence that the SES Curaray would exert on the upper spatial scales will be higher, being able to project as a reference in the PNY, RBY, municipality and province of Pastaza, in addition to the rest of Kichwa communities and other ethnicities scattered in the Ecuadorian Amazon.

6.3.3. Impact of tourism over uncontacted tribes

The potential impacts that tourism development on uncontacted tribes adjacent to Kichwa territory is possibly the most controversial issue surrounding this research. The incorporation of a new dynamic in this territory undoubtedly entails diverse impacts on all its actors and the peoples in isolation are not the exception.

In order to understand the scope of the possible impacts on PIAVs, it is first necessary to be clear about the social and mobility dynamics of these peoples. It has been possible to know with certainty what are the social characteristics of one faction of the two peoples in isolation, the Tagaeri, due to the anthropological research conducted with the Waorani. This, because the Waorani nationality and the Tagaeri were the same indigenous group and the separation of these occurred at the time of contact, where the contacted faction is known today as Waorani and the faction that has opposed the contact, led by the warrior Taga we know with Tagaeri, or followers of Taga. However, it is necessary not to confuse that, although these factions formed a social group, they did not constitute a nationality altogether; instead, it was about diverse clans that were in wars between themselves. On the other hand, the knowledge about the Tarmenane is much more limited, obtained through the previous experiences and perceptions of the Waorani about this indigenous group.

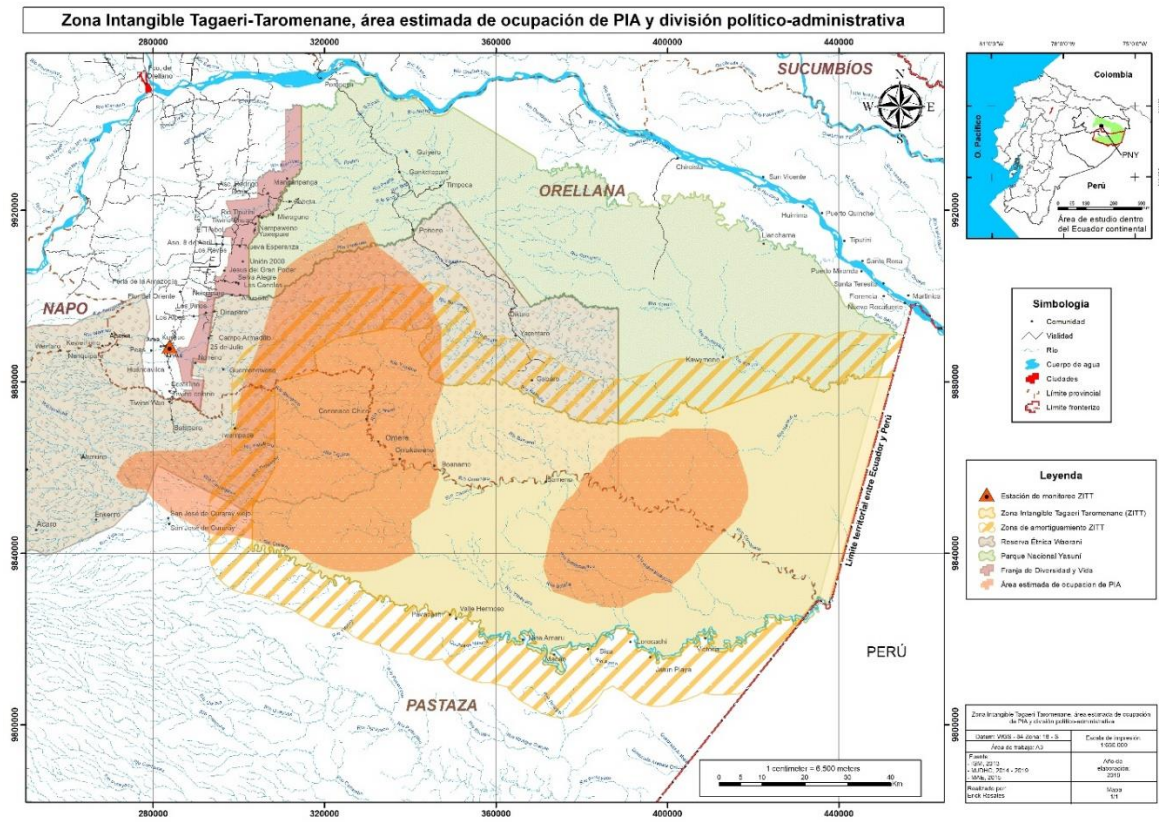


Figure 19. Map of the mobility area of uncontacted tribes (SDH, 2019)

Understanding the mobility area of the uncontacted groups that inhabit the ZITT is essential to determine the possible impacts of tourism. Through ethnohistorical research and supported by the analysis of satellite images and research overflights on the ZITT, the SDH has generated cartography where the mobility areas are determined under the parameters as mentioned above, these areas can be seen in the figure shown above.

There have been situations of contact with the Tagaeri mainly by loggers, oil company workers, nearby settlers and Waorani who share territory. In various cases, people in isolation have either been murdered or have perpetrated murders. However, not all contact events have had this violent characteristic; sometimes, the contact situation responds to the requirement of tools such as machetes from Tagaeri to indigenous people, mostly Waorani.

In the southern limit, there has only been one violent event occurred in the year 2001 where one Kichwa died, presumably by Tagaeri, however, the possibility that it was, in fact, Waorani the ones who perpetrated the killing have not been discarded due to discrepancies in the characteristics of the spears found with the ones of the Tagaeri. Regarding sightings there are several testimonies of the Kichwa inhabitants claiming to feel observed or hear voices that call them when they are hunting, but there has been no definitive evidence.

Thus, the incursion of tourists by the Curaray River does not represent a possibility of contact, but the chance of a sighting even when it is low may be possible. For these cases, some protocols must be followed by the staff, as well as by tourists. This scenario is similar to Madre de Dios in Peru, where tourism is carried out in an area with higher contact events than the Curaray; however, tourism has not caused any contact event or conflict with peoples in isolation due to the rigidity in terms of implementation of contact prevention protocols.

Ensuring compliance with tourism procedures according to the protocols of respect and non-contact to isolated indigenous is a task that requires extensive training to all people involved in the tourism project, as well as monitoring compliance with the protocols. However, the inclusion of non-contact protocols can be done more effectively in a legally constituted company than in the daily activities of each inhabitant of the communities.

“(If tourism is established) depending on where they access and how they access, if the conditions are established in advance and the people who are going are prepared and aware, I believe that the impacts can be minimized. There are several areas and different experiences, not only here in the country but also in other parts such as in Peru in the area of Madre de Dios, where you have a whole tourist

structure in this case, of tourism organization, managed by the communities where they prepare you super well, they tell you where you are going to enter, what are the conditions where you can go... ”²⁴

On the other hand, scientific and luxury tourism can provide a solution to some of the economic needs of the communities and at the same time be a source of work for some members of the Kichwas communities. These opportunities could be reasons to discourage wildlife hunting for sale in the cities, which is the main risk of contact between Kichwas and uncontacted people because this kind of hunting is performed mainly in the ZITT area.

In conclusion, tourism is not an absolute solution in favour of respecting the rights of self-determination of peoples in isolation and non-contact. Nevertheless, it can be a way to reduce the threats of possible contact, but to achieve this reduction of threats, the establishment of any tourist activity must be carefully planned taking into account the non-contact protocols in order to guarantee the rights of peoples in isolation, otherwise tourism could be as harmful to tribes in isolation as any other activity.

6.4. CONCLUSIONS

This chapter, in the first section, defines the essential characteristics of the tourism project that should be considered to follow a long-term sustainable business model and explains that it is feasible that a project like the one described can be implemented. In the second part, it analyses the impact on the empowerment of communities, on the resilience of the system and over isolated peoples.

First, due to the geographical location, the environmental and cultural elements which can be offered in tourism and the need to manage a sustainability model, the tourism model that adapts to all needs is luxury ecological - scientific tourism. This type of tourism focuses on attracting people with a high degree of knowledge and interest in biological and anthropological issues, which makes it more likely that the tourists would have a greater conservation awareness making them compatible with the environment. Besides, annual tourist entrance quota is handled, becoming a more exclusive destination and respecting the carrying capacity. To all this, the luxury tourism model is added, which in this case means providing comfort in primary forest. All this is summarized in the entry of fewer tourists annually but with a higher economic cost. This economic model has proven feasible in other Amazonian tourism projects in Ecuador, which do not have such a high degree of conservation or cultural context as in the Curaray, making it a desirable place for its implementation.

²⁴ Author's interview with the Anthropologist researcher of the material culture of the indigenous peoples in isolation from FEPP, Quito, April 26 2019

Regarding the project management, proposals from its inhabitants are imperative with the development of the communities as an objective. The community-based tourism model is the most conducive to this end. However, an agreement with an external actor specialized in tourism is necessary, for the management of all technical processes, since there is no such knowledge among the Kichwas.

Second, tourism is shown as a way to empower Amazonian indigenous societies which, despite having cultural importance, in addition to valuable traditional knowledge continue to be discriminated in other places, especially cities, for racial reasons, but more than anything due to the limited economic capacity of its members. The five fields of empowerment influence each other, and despite being impacted at different scales by the implementation of tourism, the overall empowerment of Kichwas communities is potentially impacted positively.

A higher degree of empowerment allows the territory to be better managed and provides its inhabitants with more powerful bargaining power over any external intervention in their territory. Also, related to the aforementioned, it provides communities with a higher degree of independence, especially from the State, which through their organizations have the most influence on the communities and their inhabitants. The tourism project being community-based can serve as a tool to strengthen the structure and social dynamics. Moreover, it addresses the problems of discrimination, on the one hand, by generating a space of contact with other cultures reaffirming the value of protecting their traditions and on the other hand solving some of the economic problems that afflict them.

This degree of empowerment can only be achieved if in the design of the project the Kichwas are the basis in decision making and their worldview is respected throughout the process; otherwise, the impacts far from being positive could be adverse, generating dependence on an imposed model, limiting social investment and undermining Kichwas traditions.

Third, tourism has the potential to improve the resilience of Kawsak Sacha SES, on the one hand, social resilience benefits from the empowerment of its inhabitants and improves social adaptability to possible changes and external influences that may occur in the future. Resilient Kichwa society is less likely to turn on to economic income alternatives that produce impacts at the expense of environmental detriments, such as illegal hunting. Also, taking into account that tourism benefits while better ecosystem health possesses the territory in which it is carried out, its inhabitants are more likely to be more committed to preventing its degradation by external people such as fishermen and illegal loggers.

Tourism can influence the stability of the system; however, it is not possible that this activity can reach all Kichwas inhabitants or the entire extent of the vast territory of the Curaray. The SES would benefit from carrying out this business, it is not a solution for all the socio-economic and environmental problems

of the study area, but it can serve as a starting point for the sustainable development of the Curaray territories.

Finally, the possibility that tourism violate the rights of isolated peoples is unlikely, there are management protocols that must be complied for the approval of a project like this, also if it is taken into account that the Curaray river is the natural barrier of the isolated peoples, the probability of sighting them is minimal and the probability of contact is null, as long as the aforementioned protocols are carried out and the purpose of tourism is not the search and contact of these tribes. On the other hand, tourism can work together with the SDH and serve as a mean of control and alert of outsiders' inclusion to the ZITT territory so that the relevant actions are taken by the government.

In general, in a territory with the configuration that exhibits the banks of the Curaray River, tourism is the most viable economic option to be implemented, where the positive impacts outweigh the possible adverse shocks by enhancing social empowerment and the resilience of communities and ecosystems that make up the system. In addition to serving as a means of protection of peoples in isolation.

7. DISCUSSION

This research focuses on determining the potential that tourism has to improve the resilience of a remote Amazonian socio-ecological system constituted by culturally related communities and organized under an administrative system. All communities develop under a homogeneous environment and maintain highly similar characteristics with each other. This homogeneity constitutes the starting point for the system analysis. This chapter deepens the results previously presented in the context of the challenges, limitations, as well as providing recommendations to public policies.

7.1. Limitations and challenges of implementing tourism in the Curaray territory

Even when Kichwa social cohesion is presented as well-founded, a system where decision making benefits everyone, and the common good is sought. It is demanding to manage a project of the scale referred to in this research. The Kichwas work together to develop several projects in common between several communities, but there is not a project that encompasses all communities working together in the long term, such as tourism, as explained here would do.

Previous projects throughout the history of the Curaray Kichwas reflect it, projects that have been designed outside their communities and applied under standards not always compatible with their worldviews, like are the construction of the military project in Locoachi or the most recent SocioBosque

project. It would be the first time that a full-scale project of the entire Kawsak Sacha organization is carried out. The results show that the organization is on track, and they are interested in developing an economic project for themselves. However, deficiencies in technical knowledge, social relations outside their territories and capital investment to sustain themselves without the influence or support of third parties are evident.

Throughout the investigation and as a component of the feasibility the existence of several tourist projects throughout the Ecuadorian Amazon are described in such a way that the effectiveness of the tourist destination will depend significantly on the internal cooperation of the communities and agreements with third parties to cope with these competencies and succeed in tourism (Wang et al., 2008). Although the Curaray area has many inherent traits to exploit for tourism, it depends a lot on how it is carried out so that tourism becomes a transversal axis in the Kichwas communities and its sustainability in the long term. Furthermore, it should be taken into account that dependence on a single activity by an entire population entails considerable risks for its inhabitants, who would be severely affected if the business fails. In that case, the tourism business should serve as the first step in long-term economic diversification.

However, though not directly, the Kichwas respondents have suggested how they plan to overcome these limitations. The outstanding desire for educational development in its territory is the main alternative to the economic dependence of a single type of income. The desire that new generations complete university education is the way for them to generate feasible proposals, compatible and sustainable with their territory, that are fully developed from their communities.

7.2. Public policies recommendations

Throughout this research, the public interests and the management of the State of the territory were analysed, from this it could be inferred that while public interests in the research area are varied, the means for the fulfilment of the public objectives are limited and, in many cases, incipient. The state capacity for environmental and social protection and control of the ZITT and PNY is deficient, considering the vast surface these territories represent. The operational capacity required for effective management dramatically exceeds the resources that the Ecuadorian State possesses, especially taking into account the economic-political situation at the investigation period.

Nevertheless, the development of public policies for protection and control of the environment and peoples in isolation has absolutely ignored the importance of the Kichwas, the only permanent actors in the area, in addition to being the ones who know the territory at its best, its dynamics, problems and possible solutions. This research shows the importance of integrating the inhabitants of the areas into the design of public policy execution mechanisms. In this case, the inclusion of the Kichwas in the public

management of their territory would bring mutual benefits to the State as to the Kichwas. On the one hand, the governance levels would be strengthened; the State's decisions would become more effective while the inhabitants of the communities would benefit economically and socially from being included in these policies. The SDH in the first phase of such inclusion process, where its relationships with the communities are the best between all the State's institutions. Territorial context knowledge has dramatically expanded following the Secretary's interests, allowing the Kichwas to redistribute the income of those who work for the State, in addition to being able to make use of the logistics that the Secretary offers.

Finally, understanding a system and all its components requires a more profound analysis by policymakers, evidencing the need for decision-making based on research that favours people over political interests. This deep understanding would avoid problems such as the transfer of areas of wildlife predation and log outside the limits of REDD+ type projects like SocioBosque project to other areas equally sensitive and ecologically similar, but with less political importance and unknowledge of the executing organizations. To obtain the understanding of this context, once again the joint work with those who permanently reside in this territory becomes relevant.

7.3. Theoretical implications and reflections on resilience and empowerment through tourism

The resilience perspective presented in the theoretical framework of this research, responds to the vast theory that exists of resilience on socio-ecological systems, in which an essential part of the definition of systems is their link and relationship with the rest of the higher social systems. Still, as stated in this study, the geographic isolation perspective is included in the definitions, a subject that presents severe limitations in terms of variety and length in the literature.

Resilience and empowerment theory mainly consider systems standardized to western culture where physical and social connectivity has specific characteristics; leaving out from the research's scope, the characteristics and behaviour of the systems that have developed in a certain degree of isolation due to geographical or cultural issues. Furthermore, the inclusion of specific actors such as tribes in isolation to the analysis of resilience and empowerment has been overseen, and literature is very limited outside the anthropological fields, leaving aside the indirect relationships that these tribes have with their surroundings and other actors who live in a territory and knows no boundaries related to western connotations.

The real influences that tourism can have in an area like the one analysed in this research are to some extent unclear and although the perspectives of its inhabitants constitute the fundamental basis for inferring results, the most effective way to measure the scope of tourism implications for both isolated

peoples, focal communities and ecosystems, is the materialization of a project with these characteristics. This research has deepened in potential tourism implications on resilience and empowerment, serving as the basis for future studies, as well as a guide for tourism implementation.

8. CONCLUSION

This thesis stresses the alarming biological diversity and native vegetation coverage loss rate in favour of the "progress" of the States. Moreover, the rate of loss of languages and cultural diversity suffers the same consequences. In this case, the degradation of Amazonian rainforests in Ecuador, as well as a cultural change of the indigenous inhabitants are often enforced by the government in exchange of unsustainable economic projects such as oil extraction and mining. However, there are alternatives and means of protection, especially for areas that have remained in relative isolation from the government and society in general. It is imperative that every action is taken in favour of the protection of the remnants of primary forest as well as encourage the restoration of degraded areas, thus preserving scientifically unexplored forest surfaces that have the potential to expand knowledge regarding wildlife diversity and flora as well as the extensions of territory occupied by the last isolated peoples, which cannot maintain the levels of pressure exerted on their territory and which, if they continue in this way, imply their forced contact or disappearance. This chapter summarizes three research sub-questions (environmental resilience, empowerment and peoples in isolation) and concludes by answering the central question.

Expanding the understanding of the dynamics of the research area constitutes the fundamental part of this thesis, from this point an analysis of tourism impacts on the different fields that this research proposes can be carried out more accurately. The Kichwas are the central axis of this investigation, on which the rest of the subjects unveil. The limited literature on the Curaray is contrasted with the extensive study on eight of the ten communities that settle on the banks of the Curaray River, contributing to the literature on Amazonian indigenous peoples on economic, social and environmental issues. The experiences and perceptions of the inhabitants of the Curaray are the basis for the determination of results; however, their statements are analysed against the facts presented by experts in ecological and anthropological issues with knowledge of the study area to further deepen the analyses and have a contrast mean that allows inferring real results.

The empowerment analysis constitutes a basis for the determination of social resilience; gaining understanding about the current situation of empowerment of the Kichwas allows determining what the possible impacts that tourism could have on the social structure of the communities and on its inhabitants. Determining the degrees of empowerment in the different realms was a very encouraging process of discovering the perceptions about the needs and strengths of each community and at an individual level. The high degree of community participation was an essential element to understand their social dynamics. The cornerstone of the Kichwas organization is its ancestral community management where everyone is

equal and has the same obligations and rights, regardless of gender, age or family to which they belong. The social structure of the Kichwas provides them with a higher degree of empowerment than of other indigenous communities where the importance of leaders is deeply marked, and the division of gender roles an important social dynamic. However, tourism can increase this degree of empowerment, facing external social problems such as discrimination or internal economic problems such as the evident lack of money to overcome the economic needs.

Evaluation of the influence on environmental resilience by tourism is, to some extent, linked to the empowerment of the Kichwas. While literature and official organizations refer to illegal logging and fishing by people outside the communities as the only environmental threat that arises in the study area, hunting for commercialization of wildlife by the Kichwas is not taken into account, nor the threat of the increasingly crave for oil and mining exploitation in this territory. On different scales, all these threats are faced by the implementation of tourism managed by the Kichwas. As all the Kichwas respondents mentioned, the reason why some of them hunt and sell meat from wild animals is due to economic needs. Thus, tourism is introduced as a mechanism to reduce these hunting cases since it would provide the necessary economic means for some of its inhabitants. While logging and fishing by others would directly impact tourism negatively, the Kichwas would be more motivated to control these activities and not allow them to happen in their territory. Finally, the exploitation of mineral and hydrocarbon resources is not well seen by the Kichwas, and if the fact that they can remain economically independent of the State is added, the possibility of the Kichwas allowing to enter these unsustainable activities into their territory would be reduced even more.

The presence of isolated peoples is the characteristic that defines this socio-ecological system and at some point their presence has limited the degradation of forests by third parties but also limits the variety of economic activities that can be carried out in its surroundings, outlining in this way a path to follow for the Kichwas economic development. However, the Kichwas have known how to live as good neighbours with isolated tribes, without considering them as enemies as other indigenous nationalities do, and are aware that they are also responsible for their protection. This context broadens the objective of tourism to not only as means of empowerment and resilience for the Kichwas and their environment but also encourages tourism to act as means of protection for isolated peoples, limiting the entry of third parties into their territory and functioning as means of alert in case of observing any threat.

The answer to the research sub-questions in the previous paragraphs is the basis for answering the central question of this thesis:

To what extent the economic development of the Kichwa communities of the Curaray River through tourism improves the resilience in a complex socio-ecological system?

Having determined which are the constituent parts of the resilience of a socio-ecological system and putting it in the context of the area of the present investigation, the results of this study suggest that tourism would have a significant positive impact on the resilience of the system in general. This study takes into account that the analysis of the social subsystem and the ecological subsystem makes no sense if they are not analysed as a system where their parts are deeply intertwined and influence each other. In this context, there is evidence that tourism has the potential to influence the resilience of the overall SES. Although the results of the incorporation of tourism are more likely to be seen in the medium or long term, there are short-term impacts, which could be observed since the designed phase of the tourism project, such as the impact on social cohesion and the work of large portion of the Kichwa population in a common goal on a scale never worked before. While long-term impacts, especially on environmental restoration, could be observed solely if the project is successful and has been running for years.

It is evident that today, there is a growing need for actions that protect sensitive and mega-diverse ecosystems, as well as endangered cultures. However, the responsibility does not lie solely with governments through the proper management of their protected areas. The inclusion of the inhabitants who live in these areas is imperative, and it is not possible to expect environmental protection while there are socio-economic problems that afflict their populations. The means to achieve this socio-environmental protection and establish a resilient socio-ecological system differs significantly in each case, but for Amazonian and geographically isolated systems, where most economic activities such as commercial agriculture or cattle raising are incompatible or not feasible. Tourism is presented as an alternative.

Community-based tourism of scientific nature and its influence on remote socio-ecological systems is an innovative approach that offers additional analysis to the issues of resilience and empowerment. While tourism in neighbouring communities to isolates peoples is a controversial issue, deeper context-based knowledge is needed, this study, far from seeking an absolute solution, aims to provide alternatives to problems that require immediate solutions, since doing nothing in the short term, may hinder finding solutions in the future.

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10. APPENDICES

10.1. Appendix 1: List of Participants in Focus Group Discussions in Communities

- FGD in Pavacachi Community: 4 males, 3 females
- FGD in Valle Hermoso Community: 3 males, 5 females
- FGD in Ninamaru Community: 2 males, 3 females
- FGD in Macao Community: 5 males
- FGD in Macao Community 6 females
- FGD in Sisa Community: 5 males
- FGD in Sisa Community: 5 females
- FGD in Jatun Playa Community: 4 males, 2 females
- FGD in Victoria Community: 4 males, 2 females

10.2. Appendix 2: List of Participants in Semi-structured interviews in Communities

- Author's interview with Ninamaru leader (male). Ninamaru, May 13, 2019
- Author's interview with Kawsak Sacha leader (female). Sisa, May 16, 2019
- Author's interview with Kawsak Sacha territory president (male). Baños de Agua Santa, June 4, 2019
- Author's interview with Sarayaku leader living in Sisa (male). Puyo, June 5, 2019

10.3. Appendix 3: List of Key informant and expert Semi-structured interviews

Organization	Position within the organization	Place and Date	Gender
Secretary of Human Rights - Directorate for the Protection of Peoples in Voluntary Isolation	Fieldwork Coordinator for Protection of Peoples in Voluntary Isolation	Quito, May 9 2019	Male
	Leader researcher for the protection of Peoples in Voluntary Isolation	Quito, May 6 2019	Female
	Fieldwork technician and community facilitator for the Curaray area (Kichwa from Jatun Playa community)	Quito, April 26 2019	Male
	Fieldwork technician and community facilitator for the Curaray area (Kichwa from Sisa community)	Puyo, May 10 2019	Male
Ministry of Environment	Leader from Yasuní Technical Team	Quito, May 7 2019	Female
	Fieldwork Coordinator from Yasuní Technical Team	Quito, May 8 2019	Male
	Chief from Yasuní National Park	Quito, May 8 2019	Male
Ministry of Tourism	Director of the promotion of tourist destinations	Quito, April 30 2019	Male
Ministry of Public Health	Leader of medical brigades for the Lorocachi area	Victoria, May 28 2019	Male
Ministry of Defense - Army	Chief of the Lorocachi military company	Lorocachi, May 30 2019	Male
Catholic University of Ecuador	Director of Planning and Strategic Management of the Yasuní Scientific Station	Quito, May 1 2019	Male
	Director of the Amphibian Museum	Quito, May 1 2019	Male
San Francisco University	Director and founder of the Tiputini Scientific Station	Quito, June 6 2019	Male
Fondo Ecuatoriano Populorum Progressio	Anthropologist researcher of the material culture of the indigenous peoples in isolation	Quito, May 9 2019	Male
	Leader researcher of the amazon indigenous culture	Quito, June 7 2019	Male

Geografia Critica	Researcher of socio-environmental conflicts of communities in Ecuador	Quito, May 10 2019	Female
Land is life	Latin America Program Director	Quito, June 10 2019	Male
Napo Wildlife center	Community development manager	Quito, June 12 2019	Female

**10.4. Appendix 4: Semi-structured interview guide with government dependencies
(Translated to English, applied in Spanish)**

INTRODUCTION	
<p>(Introductory greetings) My name is Erick Rosales. First, I want to thank you for taking the time for this interview. The information you provide will be of great value for the completion of the master's thesis research at the University of Utrecht, The Netherlands. The research aims to delineate the ecological, social and economic context of the Kichwa communities on the banks of the Curaray river and the implications that tourism could have on this territory. I am particularly interested in the opinions of public institutions and their officials regarding this issue. Before beginning, I inform you that all the information collected in this interview will be used only for this investigation and will not be disclosed or shared to any person outside the limits of this investigation. Also, the anonymity of the informant is guaranteed, and his name will not be used in any report. During the interview, the conversation will be recorded for further analysis. The recording will be stored and will only serve the purpose of the investigation and will not be disclosed. Do you agree with the conversation being recorded? (confirm consent). Do you have any questions before we start?</p>	
BACKGROUND INFORMATION	
Interview number	
Place of the interview	
Institution that represents	
Position within the institution	
OPENING QUESTIONS	
What is the function of the (institution you represent)?	
Probe: Objectives, within Kawsak Sacha territory	
How is the (institution) set up to carry out its tasks?	
Probe: Methods, type of professionals, communication, a researcher in the field, response capacity, limitations	
QUESTIONS REGARDING POLITICAL AND ADMINISTRATIVE	
How are the relations of the institution with the Kichwas?	
Probe: Difficulty, methods of communication, changes over time, forms of approach, projects, alliances, with whom	
In your opinion, how well do the inhabitants of the communities know about the political-administrative guidelines of the (institution)?	
Probe: Training, socialization	
What role does the Kichwas of the Curaray play within the institutional objectives? (For DPPIAV uncontacted tribes approach)	
Probe: Projects, knowledge, socialization, inclusion	
Are there restrictions on the development of activities or land use in the Kawsak Sacha territory?	
Probe: Reasons, problems, verification, acceptance	
What role does the institution play in the development of communities in the Curaray?	
Probe: Reasons, examples, basic services, environmental protection, limitations, proposals for the future	
QUESTIONS REGARDING UNCONTACTED TRIBES (Only for Human Rights Secretary)	
Within the territory of Kawsak Sacha, have there been encounters (violent or not) with uncontacted tribes?	
Probe: What kind, reasons, consequences, action of the state	
In the southern limit of the intangible zone, what threatens the uncontacted tribes?	
Probe: For whom, state action, support for efforts	

How do you see future relationships with the communities of Curaray in the area of uncontacted tribes' protection?
Probe: What is needed, obstacles, how to overcome them, how to integrate them more
How prepared are the communities to deal with contact situations?
Probe: Mechanisms, training, opening, petitions
What limits Kichwa integration to uncontacted tribes' protection?
Probe: Solutions, opening
What risks to the uncontacted tribes entails the entry of people from outside the communities?
Probe: How to minimize them, control, who controls, projects
What is your point of view about the implementation of tourism on the banks of the Curaray?
Probe: Planned project, consequences, way to take
QUESTIONS TO DEFINE SOCIO ECOLOGICAL SYSTEM
In your opinion, how do you describe the environment in the territory around the Curaray River?
Probe: Changes, before, reasons for change, local level, global
What does the environment provide the inhabitants of the Curaray?
Probe: ecosystem services, basic services, food, materials, limits, potential
What do you consider to be the most significant environmental threats in the Curaray?
Probe: Solutions, reasons, who
What implications do the communities have on the environment on the banks of the Curaray?
Probe: Solutions, responsible
In the face of disturbances to ecosystems, how do you consider the capacity of the environment to withstand these shocks?
Probe: Different disturbances, examples, possibility
How do you consider access to education, health, basic services in the area?
Probe: How this affects the inhabitants, because it is like this, how to improve it
Do you know what the sources of economic income of the Curaray communities are?
Probe: Other sources, external projects
Are there job opportunities for its inhabitants outside the Curaray?
Probe: Possibility of leaving, the social cost of migrating, obtaining those jobs, where the income goes
Are there initiatives for community development?
Probe: State, private, external, results, in the future
QUESTIONS TO DEFINE RESILIENCE AND ADAPTABILITY
How do you see the future development of local communities?
Probe: Because it has not arrived, current progress
What means and resources do you have to reach that development goal that is needed?
Probe: Limits, options, Kichwa posture
In your opinion, what are the main threats to the communities?
Probe: Aer they prepared, cases
How do you consider the level of community organization?
Probe: How to improve

10.5. Appendix 5: Semi-structured interview guide with researchers and civil society organizations (Translated to English, applied in Spanish)

INTRODUCTION	
(Introductory greetings) My name is Erick Rosales. First, I want to thank you for taking the time for this interview. The information you provide will be of great value for the completion of the master's thesis research at the University of Utrecht, The Netherlands. The research aims to delineate the ecological, social and economic context of the Kichwa communities on the banks of the Curaray river and the implications that tourism could have on this territory. I am particularly interested in the opinions of public institutions and their officials regarding this issue. Before beginning, I inform you that all the information collected in this interview will be used only for this investigation and will not be disclosed or shared to any person outside the limits of this investigation. Also, the anonymity of the informant is guaranteed, and his name will not be used in any report. During the interview, the conversation will be recorded for further analysis. The recording will be stored and will only serve the purpose of the investigation and will not be disclosed. Do you agree with the conversation being recorded? (confirm consent). Do you have any questions before we start?	
BACKGROUND INFORMATION	
Interview number	
Place of the interview	
Institution that represents	
Position within the institution	
OPENING QUESTIONS	
What is the function of the (institution you represent)?	
Probe: Objectives, within Kawsak Sacha territory	
How is the (institution) set up to carry out its tasks?	
Probe: Methods, type of professionals, communication, a researcher in the field, response capacity, limitations	
QUESTIONS REGARDING POLITICAL AND ADMINISTRATIVE	
How easy or complex is it to work with communities?	
Probe: As it has changed over time, forms of approach and communication, difficulties, projects, with whom	
In your opinion, how well do the inhabitants of the communities know about the political-administrative guidelines of the (institution)?	
Probe: Training, socialization	
What role does the Kichwas of the Curaray play within the institutional objectives? (For DPPIAV uncontacted tribes' approach)	
Probe: Projects, knowledge, socialization, inclusion	
How do you consider that Kichwa development and maintenance of the area could be supported?	
Probe: Limitations, the extent of responsibilities, other institutions	
QUESTIONS REGARDING UNCONTACTED TRIBES (Only for related organizations)	
Within the territory of Kawsak Sacha, have there been encounters (violent or not) with uncontacted tribes?	
Probe: What kind, reasons, consequences, action of the state	
In the southern limit of the intangible zone, what threatens the uncontacted tribes?	
Probe: For whom, state action, support for efforts	
As for the protection of PIAV, what role do the Kichwas of the Curaray?	
Probe: More inclusion, culture, workshops, socialization	

How do you see future relationships with the communities of Curaray in the area of uncontacted tribes' protection?
Probe: What is needed, obstacles, how to overcome them, how to integrate them more
How prepared are the communities to deal with contact situations?
Probe: Mechanisms, training, opening, petitions
What limits Kichwa integration to uncontacted tribes' protection?
Probe: Solutions, opening
What risks to the uncontacted tribes entails the entry of people from outside the communities?
Probe: How to minimize them, control, who controls, projects
What is your point of view about the implementation of tourism on the banks of the Curaray?
Probe: Planned project, consequences, way to take
QUESTIONS TO DEFINE SOCIO ECOLOGICAL SYSTEM
In your opinion, how do you describe the environment in the territory around the Curaray River?
Probe: Changes, before, reasons for change, local level, global
What does the environment provide the inhabitants of the Curaray?
Probe: ecosystem services, basic services, food, materials, limits, potential
What implications do the communities have on the environment on the banks of the Curaray?
Probe: Solutions, responsible
In the face of disturbances to ecosystems, how do you consider the capacity of the environment to withstand these shocks?
Probe: Different disturbances, examples, possibility
How do you consider access to education, health, basic services in the area?
Probe: How this affects the inhabitants, because it is like this, how to improve it
Do you know what the sources of economic income of the Curaray communities are?
Probe: Other sources, external projects
Are there job opportunities for its inhabitants outside the Curaray?
Probe: Possibility of leaving, the social cost of migrating, obtaining those jobs, where the income goes
Are there initiatives for community development?
Probe: State, private, external, results, in the future
QUESTIONS TO DEFINE RESILIENCE AND ADAPTABILITY
How do you see the future development of local communities?
Probe: Because it has not arrived, current progress
What means and resources do you have to reach that development goal that is needed?
Probe: Limits, options, Kichwa posture
In your opinion, what are the main threats to the communities?
Probe: Aer they prepared, cases
How do you consider the level of community organization?
Probe: How to improve

10.6. Appendix 6: Focus Group Discussion guide with the communities (Translated to English, applied in Spanish)

INTRODUCTION	
(Introductory greetings) First of all, I want to thank all of you for taking the time to be here and share with me your points of view and experiences. The information you provide will be of great value for the completion of the master's thesis research at the University of Utrecht, The Netherlands. The research aims to expand the knowledge and importance of the environment of this area, as well as the social and economic reality of the Kichwa communities on the banks of the Curaray river, all points of view are important to better understand the needs, strengths and opportunities of the communities. I am considering that tourism is a mean for local development and protection of the territory. Even if you do not agree with this, do not hold back to express what you think since your opinions and experiences are very appreciated, and there are no right or wrong answers and being able to integrate all your opinions is what is finally sought in this conversation. Allow me to tell you a little about how the group discussions are going to take place today. The participation of each of you is entirely voluntary, so if you wish at any time, you can leave the conversation. However, each one of your opinions is highly valued. I also want to inform you that all the information collected in this interview will be used only for this investigation and will not be disclosed or shared to any person outside the limits of this investigation. Also, the anonymity of each of you is guaranteed, and none of your names will be used within reports. Since writing down all the information on paper is an impossible task, the conversation will be recorded for further analysis. The recording will be stored and will only serve the purpose of the investigation and will not be disclosed. Are you all in agreement with the conversation being recorded? (confirm consent). Feel free to enter the conversation when everyone wants and in the case of not agreeing with someone to respond to those points of visa, but because of maintaining quality in the recording, it is important that only one person speaks at a time for to be able to identify their opinions in the recording. This conversation will last for about an hour. Before we start. Do you have any questions?	
BACKGROUND INFORMATION	
FGD number	
FGD place	
Participants	
BACKGROUND INFORMATION	
First, let's introduce ourselves, tell us, to what have been the last days dedicated. Work? What have you dedicated your time to?	
What are typically the activities of men and women?	
What do people typically do here? What are the sources of employment?	
SOCIO ECOLOGICAL SYSTEM AND POLITICAL ADMINITRATIVE	
How do you describe the environment here?	
Probe: Changes, before, reasons for change, consequences	
For you, what is the importance of the jungle?	
Probe: Provision of basic services, food, materials, for the rest, diversity,	
Do you think that you can get what you need from the jungle today as before?	
Probe: Reasons, consequences	
Now, by focusing on the community, can you explain to me how are you organized internally	
Probe: Leaders, assemblies, opportunity to speak, take them into account	
And how are communities organized among themselves?	
Probe: Nexus, who controls, projects between communities, objectives, level of effectiveness	
Are all your opinions taken into account? Do you feel included?	
Probe: If not why, take more into account someone, examples	

RESILIENCE AND ADAPTABILITY
What do you think is necessary to improve within the community? What is lacking?
Probe: Sort priorities, requests to the state, changes in time
What do you do to have an income?
Probe: Other sources, opportunities, frequency of entry, migrate
In what do you mainly use your income? If they would have more income to which they would allocate that money?
Probe: How much of income does it occupy, order priorities
How do you see the community in the future?
Probe: Current progress, limitations, what is needed to get there
When there is an emergency, to whom do you go?
Probe: Other institutions or people, effective support, communication, response time
EMPOWERMENT AND IMPACT OF TOURISM
Do you have a plan for community development?
Probe: Who developed it, intercommunity, objectives, how, why not
Are they aware of the laws that affect their community?
Probe: Presence of the state, training, desire to know them
Has there ever been tourism in this area?
Probe: When, result, how do they feel
Why has not tourism developed here?
Probe: Desire to implement it, limitations, solutions, who should support you
Do you think there are dangers in developing tourism in the Curaray?
Probe: Social, cultural change, uncontacted tribes, emergencies
What do you think would be the result of implementing tourism here?
Probe: What is needed to implement it, they feel prepared, what function they would perform, income management, where, who
QUESTIONS REGARDING UNCONTACTED TRIBES
Have there been encounters with uncontacted tribes? Do you know how to act?
Probe: What kind, reasons, consequences, socialization
How do you think tourism could affect uncontacted tribes?
Probe: Reasons
CONCLUSION
We are finishing the discussion. Does anyone want to add something else that has not been discussed today? I want to thank you for taking all this time to share your opinions and experiences with me. All your points of view have been fascinating and essential for me and the investigation.

