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 $\text{cone} = (1/3) \pi r^2 h$
 ABSOLUTE VALUE: $|a| \geq 0$
 $(4/3) \pi r^2 h$
 $99 = XCIX$
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 $\Gamma(x+1) = x \Gamma(x)$
 $|a - b| \geq |a| - |b|$
 $P = C(1 + r)^t$
 $|a| \geq 0$

Change scenarios in Amazonian *Kichwa* rural communities, Anzu valley, Ecuador

Ruth Arias-Gutiérrez (rarias@uea.edu.ec), Manuel Pérez-Quintana (mperez@uea.edu.ec), Elisa López (elopez@uea.edu.ec), Haidee Marín (hmarin@uea.edu.ec).

Professors-Researchers. Universidad Estatal Amazónica, Km. 2½, vía Puyo a Tena (Paso Lateral). Tel. (+593) 32-888-118 / 32-889-118. Postal Code: 160150. Puyo, Ecuador.



Kichwa community, field work



Petroleum



Mines

Negative impact on the environment



Sustainable development strategies



Amazonian State University. Training scenario

Abstract

This paper evaluates change scenarios in rural communities of the *Kichwa* Amazonian territory in the Anzu River Valley, Ecuador, in six communities, from Tzawata, at Northeast to Veinticuatro de Mayo at Southwest; at low, medium and high levels of the Anzu river valley. The communities settled since the end of the nineteenth century, came from the Napo province. Study area includes a portion of *Kichwa* original territory, fragmented by settler possessions, a process that also characterizes the territorial system of which the communities studied are part. The diversity of actors in this territory maintains a growing trend as the colonization process advances, also, the recognition of ancestral rights and community ownership of land, becomes more difficult. The decentralized autonomous local governments don't have competence in the legalization of lands and territories, but they do have competence in the investment for development. The study detected local governments don't include all the communities studied in their area of influence. On the other hand, already in this scenario it is detected that the knowledge of the use of local species is weakened in the communities, as well as their use. The irruption of legal and illegal mining and the persistent threat of oil exploitation create constant conflicts in the *Kichwa* nation. Strategic foresight, as the basis for the development of the territorial system and its application in the communities studied, necessarily recognizes the forms of indigenous and mestizo community social organization, their identity and ancestral values, times and rhythms of life.

Keywords: Ecuador, *Kichwa*, development scenarios, mining.

Introduction

In the world, indigenous peoples have lived from the products of nature, many migrate when the area's resources are depleted, until the natural environment is regenerated and can be used again. Processes related to development, policy decisions, natural resource exploitation, mining, urbanization, modernization, infrastructure

development, climate change and global warming (Salick & Anja, 2007; Climate Frontlines, 2013; Fao, 2013; Dublin & Tanaka, 2014) alter indigenous peoples' livelihoods.

As communities, peoples, governments, associations, unions or confederations, indigenous nations fought until they won rights to inclusion in the Ecuadorian constitutional framework and are still fighting for the rights to reconstitute or legalize territories and reaffirm identity. Occasionally, they have worldwide recognitions, such as the Intangible Heritage of Humanity, granted by UNESCO to the Sapara nation, which in ancient times led to the emergence of the *Kichwa* nation.

There is an international trend towards the recognition of the collective rights of indigenous peoples, whose main claims refer to the recovery of the lands from which they were dispossessed, the collective rights to own, develop, use, control and occupy their lands and the traditional resources found therein, and the recognition of the right to respect for the integrity and conservation of their natural habitat, including environmental protection. The right to respect, integrity and conservation of habitat and natural resources are intimately linked to the defense and protection of the environment by indigenous peoples (Gaona, 2013).

The objective of this paper is to understand the scenarios of change in the rural communities of the *Kichwa* Amazonian territory in the valley of the Anzu River, Ecuador.

Materials and methods

Six communities were studied in the ancestral territory of the original Ecuadorian Amazonian *Kichwa* nation, from Tzawata, at Northeast; to Veinticuatro de Mayo at Southwest, located in the low, medium and high levels of the Anzu River valley; the communities settled since the end of the 19th century and come from Napo province. The exception is Unión de Llandia, with a larger population of migrant peasants from the Inter-Andean region or *Sierra*, product of the colonization process in 1960s. They are rural communities, representative of a common origin; they express a vulnerability gap in relation to the development initiatives carried out by the local decentralized autonomous governments and the planning units.

The territorial synthesis unit known as the "northern Amazonian corridor Lago Agrio-Tena-Puyo" contains the area of study; it is subject to colonization and oil extraction processes; in this case, not all ancestral indigenous territories were legalized because the 1964 uncultivated lands and colonization law favored the legalization of lands occupied by settlers.

Surveys forms and in-depth interviews with variables, were applied in study communities area, located between 508 and 1,200 m in the eastern foothills of the central Andes, south of the sub-Andean zone identified as the Napo uprising; on alluvial soils with a forest vocation and conservation purposes; soils formed by cones in the Amazonian foothills, as a consequence of the fusion of the Plio-Quaternary ice caps and volcanic and seismic activity (Instituto Geográfico Militar, IGM, 2012). Rainfall is no less than 4 000 mm per year and exceeds 6 000 mm per year; the average temperature is between 20 and 24 °C; the climate is humid tropics; the topography corresponds to broken and hilly terrain, with slopes that vary from relatively flat terrain in the lowest areas to slopes of 70° or more at higher altitudes. Landscapes of the permanently humid tropics with tropical forest prevail (González and Salinas, 2010). The life zone corresponds to premontane rainforest (Cañadas, 1983); the plant formation is evergreen Piedmontane forest (Sierra, 1999).

Results and Discussion

The starting situation or current scenario of this analysis establishes that the original *Kichwa* nation remains in communities in the Anzu valley, in a portion of its original territory, fragmented by settler possessions, a process that also characterizes the territorial system of which the communities studied are part. The diversity of actors in this territory maintains a growing trend as the colonization process advances and the recognition of ancestral rights and community ownership of land becomes more difficult. Local governments do not have competence in the legalization of lands and territories but

they do have it in the investment for development, it is detected that they do not include all the communities studied in their area of influence (Ordóñez y Colmenares, 2019).

On the other hand, already in this scenario it is detected that the knowledge of the use of local species is weakened in the communities, as well as their use (Hanazak et al, 2018). This unfavorably influences their future existence, as well as the permanent cycle of restoration of renewable resources that must be present and does not account for the real possibilities of extinction. The peasant communities of colonists also extract native renewable resources without repopulating them, especially timber, taking advantage of their proximity to highways and the key position relatively close to the Amazon trunk. Although indigenous people and settlers depend on local resources, the growing demand of markets and the unfavorable economic situation of the population, who must look outside the locality for the possibilities of higher incomes, threatens the rich biodiversity of the territory.

The irruption of legal and illegal mining and the persistent threat of oil exploitation create constant conflicts in the *Kichwa* nation, not yet present in the territorial system studied, but they hang as a latent threat on the future of these communities, despite the fact that the Constitution of the Republic (National Assembly, 2008) and the national territorial strategy propose the axes of sustainability, the change of the productive matrix and the closing of poverty gaps.

As a result of the protagonist achieved during the last two decades in the issues of sustainable development, indigenous peoples' rights and global environmental problems on an international and regional scale, there is only one formal recognition of the rights of diverse peoples, but racism and discrimination are still preserved, which is reflected in the land dispute, the penetration of settlers in ancestral territories and the growing importance of the market for local communities. However, within the communities there are still family and community social cohesion, knowledge of their culture and value system. There are identity, stable living conditions, education, housing, a capacity for resilience and a workforce in search of entrepreneurship and employment as important ways of earning income for the growing economic needs of families.

It is revealed in the current scenario that the wealth in biodiversity and existing resources, as well as the capacity of reception of the environment for the insertion of activities that do not affect its structure and functioning, are the object of a scarce utilization, mostly of extractive character for the market and to a lesser extent for the domestic economy; they report little income in front of growing expenses of the local population. The population demands the generation of jobs and self-employment, opportunities that society and institutions have not been able to provide, which contribute to the increase in family income. In addition, within the current economic-productive-administrative systems and relations, in the territory studied there is no possibility of maintaining other forms of employment that are not based on their own enterprises.

At the same time, the existence of insufficient networks of services and attention for communities' population does not allow them to strengthen their strengths, while at the same time taking advantage of the opportunities that are constitutionally recognized for them and, in this way, influencing with greater participation in the design of public policies in order to respect their forms of action as social subjects of their own development.

Deficient road access for some communities and efficient in others, do not improve the socio-productive relations of the inhabitants in their territory and with the environment that surrounds them, which facilitates the benefit of external agents on local resources, causing the relicts of forest decrease, as well as places in serious conservation danger. The indigenous system of knowledge and action in the territory is degraded as a function of changes and market pressures, oriented towards resource

extraction, discrimination of social and gender actors, consumption, alcohol, which as a result leads the indigenous population to stop defining itself as such. Cultural loss is provoked, as ancestral peoples.

Numerous companies establish all types of enterprises within the framework of the law, without meaning benefit to the local communities. Systems attempting to be undertaken in the area may take advantage of indigenous knowledge as informants, but leave them without the right to participate. In rural areas, resources are extracted, used, marketed and extinguished; the vicious circle of exhaustion, poverty, hopelessness and social conflict increases.

The possession of the territory and its security, together with the recovery of the ancestral wisdom, the understanding of its resources systems management in the environment, that come from a cultural tradition, of wisdom in the forest, associated to new technological forms that provide economic income for the processing of local resources, gives the individuals and the communities the possibility to renew their pride, as individual-collective bio-psycho-social, that knows and contributes to the consequent use of their environment. However, in addition, for every place is necessary to establish the forms of operation, the times, the modalities of action, according to its identity and culture. Based on knowledge and its current use, resources must be identified. A system of exploitation and revaluation of their cultural use must be propitiated, with an evaluation of the possibilities of creation of networks of own enterprises, processing of resources and alliances with other entrepreneurs and with entities of public interest, in good or public benefit, that can provide an added value and in which the communities, according to their will, can provide raw material and elaborated products or with a certain degree of processing, with mutually beneficial forms, to other entrepreneurs.

The management of the agro-ecosystem must be recovered and intensified, and the sowing and repopulation of promising species, animals and vegetables can be gradually increased. Culturally acceptable forms of action, relationship systems and times can be established within and between indigenous and non-indigenous people. An open system of possibilities does not imply direct employment, but the opportunity to participate, enter and leave the entrepreneurship system. It also takes advantage of the key position in the territory close to roads, services and communication. The desired scenario implies a sustainable, autonomous operation; with alliances and synergies with all types of entities that respect and support the *Kichwa* and mestizo communities.

The authority and effective community presence must be recognized, in condition of equals, frameworks of action and respect must be established to discuss the strategies options for territory management, from strengthened communities, that can be listened and received by the local governments whom can be capable of listening and welcoming to the different actors of the studied territory.

Strategic foresight in the rural communities studied in the *Kichwa* territory at Anzu river valley

Strategic foresight, as the basis for the development of the territorial system and its application in the communities studied, necessarily must recognizes the forms of indigenous and mestizo community social organization, their identity and ancestral values, times and rhythms of life; it represents the basis for the realization of the desired scenario, with sustainable local development projects, the recovery of agroecological practices and forms of adding value to plants, knowledge, ancient traditions of indigenous healing; it favors the conservation and rational use of ecosystems, with family and community work.

It is recognized that obstacles generally appear in the undertakings that tend to slow down their progress and can have their origin in the confrontation between sectorial and territorial policies;

centralized and decentralized structures, as much of management as of planning; local and external institutional environment, among the most relevant (Hidalgo, 2011; Murilo, 2008).

Therefore, the territory must be valued as a key element to propose adequate measures to improve the standard of living of the population consolidate dialogue and integration among its inhabitants and incorporate the productive activities of communities in local markets. It is agreed with Ranaboldo (2008) that this does not mean looking for methods to commodify or sell traditions, but to raise the problem of development based on multiculturalism and diversity, because cultural identity opens a field of enormous possibilities as a component and factor of community development, which together with existing biodiversity and the organization of communities, are fundamental elements of any successful strategic action in the short and medium term, which responds to the demand for improvement of living conditions of local populations, who today largely use the human development bonus for a somewhat more decent subsistence.

Universities in the territory can relearn from local knowledge and participate in advising agro ecological enterprises; contribute to the transformation of products to add value to them, to the understanding of systems of autonomy, development of local theoretical knowledge, ecosystem relations between communities, their organizations, their territories and biodiversity, their landscapes, their times, rhythms of action and forms of enterprise of another nature, which can be valued.

In this same sense, the Universities, with the participation of the communities, are called to play an important role in the support and advice for bio products elaboration, local productions commercialization in the established commercial networks, for example, in the distribution and commercialization of local condiments, medicinal products from Amazonian plants and indigenous knowledge and tradition, conferring to the local products, the representative contents of the indigenous peoples, with naturalist, ecological and traditional quality.

In the strategic axis of education Ibáñez's (2010), about taking into account that no one teaches anyone because we are all educated together, mentioned is necessary to unlearn and relearn again, in the midst of an intense intercultural dialogue that invites us to the creation of a new historical project, whose purpose is to leave the dominant colonization in the imagination of the local society; may be necessary a long work of forgetting everything learned about development and growth.

Finally, it is considered that the universities in the Amazon territory can and should contribute to the exploitation of the region's potentialities, within the framework of sustainability and change of productive matrix in the national development plans, effectively from the extraction of resources to the promotion of bio knowledge, in the community matrix, food sovereignty and non-extreme productivity; in the study and protection of natural systems, their sustainable use, in accordance with the research in plurinationality and ancestral knowledge, the conservation of biodiversity and management of fragile ecosystems, among others that are of interest to the community.

Conclusions

It was possible to evaluate the change scenarios in rural communities of the *Kichwa* Amazonian territory in the Anzu River Valley, Ecuador. In this region public universities should contribute to the exploitation of the region's potentialities, within the framework of sustainability and change of productive matrix in the national development plans, effectively from the extraction of resources to the promotion of bio knowledge, in the community matrix, food sovereignty and non-extremely productivity; in the study and protection of natural systems, their sustainable use, in accordance with

the research in plurinationality and ancestral knowledge, the conservation of biodiversity and management of fragile ecosystems, among others interesting to the community.

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