

RESILIENCE IN THE BRAZILIAN AMAZON: FOR A POLICY AND EDUCATION SYSTEM FOR TRADITIONAL GATHERER POPULATIONS

Anselmo Gonçalves da Silvaⁱ

Fátima Cristina da Silvaⁱⁱ

SUMMARY

The Brazilian Amazon is characterized by its biological, sociocultural richness and ecosystem services to the living populations of the planet. Nowadays, pressures and threats to its ecological systems are growing, especially with the advance of livestock (cattle) and intensive agriculture in the region — which models a future scenario of uncertainties with potential global impacts. If current trends continue, the transformation of the Amazon into a savannah is a real possibility.

Faced with these increasing contemporary pressures — economic, cultural, and political — maintaining the resilience of local traditional populations is a major challenge. This is a strategic key to solutions in this risk scenario. It is important that the federal government of Brazil, state governments, civil society organizations, foreign governments, and other interested parties unite in a joint medium-term effort, listening to the voices that emerge from these populations and constituting a process of reciprocity with them to increase resilience. In this sense, the school and educational systems are important instruments for interventions that seek lasting and effective change for sustainability.

Here, we recommend the design, modeling, and implementation of a differentiated education system for traditional gatherer populations living in Nature Conservation Units in Brazil (with a focus on the Brazilian Amazon), with a view to leveraging local development with resilience — based on ontologies, epistemologies, and other constituent elements of these traditional territorialities.

BACKGROUND

The Amazon region is one of the last great remnants of pre-colonial socio-ecological systems, with a high diversity of life forms constituted over millennia. Within these ecosystems, traditional cultures living in close proximity and reciprocity with non-human lives have

maintained a delicate balance that has, indirectly, preserved this biological and sociocultural diversity [1].

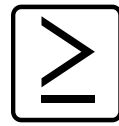
In Brazil, from the 1970s onwards, there was a great surge of agricultural expansion, migrations, and economic and infrastructure projects. These changes reinforced, internally, the implantation of cultures and ways of life and production that were very different from the traditional ones, with impacts on the rapid advance of deforestation [2]. This process lost traction, mainly between 2004 and 2012, as an effect of public policies resulting from the paradigm that the development of societies must be sustainable [3].

In that same period, the recognition of the rights of non-human lives, indigenous peoples, and various traditional Amazonian populations led to the creation of numerous protected areas in the region [4] [5]. Currently, there are 426 Indigenous Lands [6], 99 Nature Conservation Units of Full Protection and 258 of Sustainable Use (some of theseⁱⁱⁱ may recognize the territoriality of traditional gatherer populations^{iv}) [9].

In the last three decades, the idea that the Amazonian destiny should be guided by a policy of sustainable development has been relatively stable. Today, however, this concept seems to be suffering crises and reconfigurations, which increases the uncertainty about future scenarios [10] – in recent years, this context has been taken advantage of by far-right political groups [11]. This crisis directly affects the populations that live in the forest and rivers.

In this process, three sets of factors were essential, with effects on local traditional populations:

1. There was no effective policy to promote well-being in traditional Amazonian territories in general terms; or, in other words, there was no local non-hegemonic development policy based on the cosmologies, potentialities, and opportunities of each population and territory. At the same time, many populations, especially young people [12], have significantly changed what they perceive as a need and project for the future (in relation to previous generations) [13].
2. There is an increased pressure from what we call extractivisms^v [14], as a practice and mentality that lead subjects and political actors outside the territories to question various elements that structure the project of a sustainable Amazon, which was previously stable. These forces, which propose a logic of appropriation of resources, extinction of non-human lives, and ways of living, can be observed in the growing expansion of livestock, intensive agriculture, land grabbing, and irregular land tenure in the region [15].
3. The State has not implemented effective monitoring, control and protection systems (environmental and land tenure). Before, it bet on a procedural design of the legal application that was slow and of low effectiveness, and on a military and police model of monitoring and control based almost exclusively on sporadic inspection operations followed by punishment and fines [16]. Thus, it ignored the opportunity for solutions based on the involvement of the local populations focused on: continuity of actions at the local level, adjustment to regularity (instead of punishment), conflict management (especially territorial ordering), improvements in the



agility of justice application, in local civil participation, in the protagonism of traditional populations in the protection of their protected areas, and in an associated education program.

Thus, the Amazon follows a trend of loss of resilience and points of socio-ecological inflection^{vi} (tipping points) [18] [19] [20]. There is a real chance of the amazon's ecological systems turning gradually into a savannah [21]. It should be noted that the fragility of the resilience^{vii} of many traditional populations is perceptibly increased in the presence of this new conjuncture of contemporary pressures and threats [23]. Considering the importance of these forest and river dwellers for the protection of the Amazon Forest as a large socio-ecological system, it would be strategic to promote the expansion of the resilience of these groups.

This is a population of approximately 352,981 indigenous people [24] and 249,968 gatherers in the Brazilian Amazon [25]. They reside in protected areas that add up to 1,730,898.02 km², which is equivalent to 4.85 times the area of Germany, [9]. Any effort to significantly increase the resilience of these populations, especially along the frontier areas of agricultural expansion, has to be proportional to the diversity of populations and territories [26] [27]. However, state policies and initiatives by governments in Brazil are of low intensity in these territories, and initiatives by civil society organizations and international organizations are generally short-term and fragmented, which has perceptibly shown low effectiveness in lasting conjunctural results.

In our opinion, the strategy with the greatest potential for the desired expansion of resilience, for medium and long-term effects, is the institutionalization of an education project (a policy and differentiated educational systems), contextualized in terms of the socio-cultural, territorial and social dimensions. local issues and opportunities [28] [29].

FINDINGS

The school is a new element in these traditional territories. In many families, this is the first generation that experiences an education trajectory mediated by this institution. Indigenous peoples won the right to have a differentiated education; however, the other traditional Amazonian gatherer populations do not. For this public, in the last three decades, a conventional school was implemented, characterized in the organization of the Brazilian education system as rural education. In practical terms, however, it is very similar to the urban school model [30].

The existence of schools is considered an advance by the population, with positive impacts. Nevertheless, the school also generated negative impacts on the process of traditional social reproduction of these populations. It turns out that the local culture and way of life have always been forged and transmitted by an intense daily experience of practices and socialization, family and community, with a deep overlap with the elements of the territory and with other non-human forms of life. Standard schooling changed that [31]

The school implemented in these places disregards history, culture, territoriality, way of life, family and community organization, problems, role of populations in the co-management of protected areas, local opportunities and potential, life projects and continuity of the sociocultural configuration as traditional [32] [33]. Daily class attendance has replaced family and community experiences; organizational and social models based on urban contexts compete heavily with traditional wisdom and local reality, creating a conflict that remains unresolved [31].

Thus, in addition to being inadequate, the school does not provide opportunities for development based on the location and its contexts, becoming the main interior agent that negatively impacts the resilience of these populations.

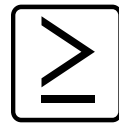
In addition to the current school's philosophical nonconformity with an education model that would be adequate to the given specificities, the implemented school infrastructure is precarious: the structures are insufficient or incomplete in relation to the proposed standard. There is usually no energy, internet, water supply, computers, adequate food, among others. There is no policy for training local teachers or specific career plans. There is no planning for connections between this public and external educational networks or systems (technical, technological or higher).

In summary, there has not been — and still seems not to be — state attention to the design and implementation of an education system suited to the contexts and specificities of traditional gatherer populations.

Despite this, the demand for a model of differentiated education exists at least since 1985, in the guidelines and discussions of the National Council of Gatherer Populations (CNS). It even gave rise to an innovative experience called *Projeto Seringueiro*, carried out by this social movement in Acre and later assimilated by the state and converted into standard formal education [34] [35].

In 2010, within the scope of the Secretariat for Strategic Affairs of the Presidency of the Republic, in partnership with the CNS, a proposal was produced for a new Education Policy in the Forest. One of the main features of this policy are its 10 principles, which we summarize as:

1. “Children need to know that they are part of life in the forest and in the waters”;
2. “Education must ensure to balance the interest of young people in remaining in the Resex and the option to compete in the job market”;
3. “The pillar of education at Resex is to improve life within the community”;
4. “Traditional knowledge is being lost and the school needs to preserve and teach what was previously learned in the family”;
5. “The people of the forest are connected and technology needs to be associated with education”;
6. “Education must teach the history of the Resex and organize knowledge based on everyday experience”;
7. “Resex teachers need a training and career plan”;
8. “The new policy must focus on the gatherer profession”;
9. The pedagogy of alternation is the adequate way of organizing teaching in these areas;



10. “Education will form future managers of the Amazon forest” [36].

Unfortunately, there was no continuity given to the proposal by the federal government and no specific educational system for extractive populations designed and modeled after these principles.

RECOMMENDATIONS

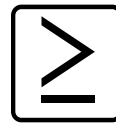
Recognizing that the institutionalization of an educational system for gatherer populations in the Brazilian Amazon can significantly increase the resilience of these social groups, with lasting effects in the medium and long term, acting strategically in the new generations, it is recommended that the Brazilian federal government, within the of the Ministry of Education (MEC) actively promote the design and implementation of a **policy and specific education system for traditional gatherer populations living in Protected Areas in Brazil**.

This policy and education system must be designed in a co-created way with social movements, with special attention to youth voices and life projects, recovering and continuing the history of actions of the Amazonian gatherer movement, such as the *Seringueiro* Project and the proposal of “Education Policy in the Forest”.

In this initiative, we suggest that the conception of the educational process is not linked to the school institutionality and its physical structure as a building, but be open to conceiving education and the organization of teaching in the context of the territory, in the family space and family production unit, in the dimension of community practices and sociability and in the process of territorialization. Thus, the conception of the organizational unit of local and regional education must seek not to be linked to pre-established conceptions of what a school should be; rather, it should inaugurate a new form for the representation of this institutionality.

the modeling of this education system should be based on a clear definition of the philosophical objective of the educational process and on a project for society in the Amazon forest and rivers — which considers the historical, social, cultural context, organization and family life. Elements include community, production practices, modes of territorialization, territorial governance, challenges, opportunities and local potential, and relationships with non-human existences. It should create a vision and future project of the subjects for local development (based on the ontology and epistemology particular to each specific social group).

The educational system in question must be accompanied by the structuring of a policy for training teachers from local communities. For this, we recommend the creation of a specific degree and organizational units of “Education in the Forest” linked to universities and public institutes in the Amazon. Along with this, there must be a secure source of funds and a policy of financial, logistical and organizational support for teacher training planned on demand for schools in gatherer territories. Public notices from the MEC and the National Council for Scientific and Technological Development (CNPq) are also recommended for the promotion of



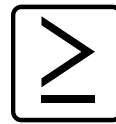
graduate studies and research in “Education in the Forest”, generating a new theoretical-practical-methodological field in Brazil.

Simultaneously with the medium-term structuring actions recommended above, we suggest that the federal government, within the scope of the MEC, implement a set of emergency plans for educational interventions for Amazonian gatherer, namely:

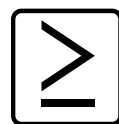
- 1) **An emergency plan for the training of local teachers** from a Degree in Education in the Forest, to be conceived.
- 2) A **short and medium-term training plan** on topics such as: improving production (agricultural, animal and forestry), food processing, fish farming, fishing management, IT, buildings, installation of water supply systems and irrigation, among others. It is recommended to carry it out in partnership with the network of Amazonian federal institutes and the National Council of Institutions of the Federal Network of Professional, Scientific and Technological Education (CONIF).
- 3) A **service training plan**, in topics such as: motorcycle mechanics, boat engine mechanics, male and female hairdressers, beauticians, design and production of clothing, design and production of wooden objects, design and crafts in biojewels, design and production of handbags and accessories with natural inputs, design of handicrafts in basketry, handcrafted products derived from latex, handling and processing of essential oils and saps, cosmetics and handcrafted perfumery, among others. It is recommended to carry it out in partnership with the S system.
- 4) An **emergency plan for access and permanence for gatherers to universities and public institutes in the Amazon**. It is recommended that it be carried out using a system of quotas and specific selection for these audiences, requiring sufficient financial resources for the seasonal logistics of going and returning between the institution and the communities, housing in the city, food and implementation of a project applied to the end of course in the community.
- 5) A **comprehensive budget for life projects of gatherer youths**, linked to the aforementioned training processes. It can be part of and the gateway to broader programs, such as the National Program for Strengthening Family Agriculture (PRONAF), or an institutional framework to foster and promote businesses for traditional Amazonian populations to be created.

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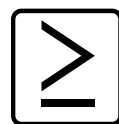
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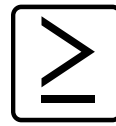
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ⁱ PhD student in Contemporary Studies at the University of Coimbra (UC), Portugal. Professor at the Federal Institute of Acre (IFAC), Brazil. Email: anselmo.silva@ifac.edu.br.

ⁱⁱ PhD student in Territory, Risk and Public Policy at the University of Coimbra (UC), Portugal. Email: floresta.cristina@gmail.com.

ⁱⁱⁱ The National System of Nature Conservation Units in Brazil (SNUC) establishes six categories of protected areas for the sustainable use of natural resources. In three of them, there is a prediction of the presence of traditional populations, the *Florestas* (National Forest, State or Municipal Forest), the *Reservas Extrativistas - Resex* (Gatherer Reserve) and the *Reservas de Desenvolvimento Sustentável - RDS* (Sustainable Development Reserve) [7].

^{iv} *Extrativistas* is a category of population traditional in Brazil whose main characteristic is the dependence of ecosystems for the economy on the sustainable management of natural resources [8]. In this text we use the term "gatherer" for its translation.

^v We did not translate the term extractivisms into the Portuguese version for this text. This term in Brazil we did not translate this term into the Portuguese version for this text. This term in Brazil, in portuguese, is associated with the historical and political construction of the rubber tapper movement in the Brazilian Amazon. A reference was forged in the term to represent a category of traditional population (*extrativistas*) who practice sustainable management of natural resources (*extrativismo*) and live in protected areas whose category was named *Reservas Extrativistas*.

^{vi} Inflection points in socioecological systems are reconfigurations tending to stabilize new patterns in these systems, including structural changes. They can occur, especially in the case of the Amazon, from profound changes in social systems [17].

^{vii} Resilience can be perceived here as the ability of social systems to resist disturbances and adapt to maintain the same structure, function and identity [22].