

**INSTITUTE OF APPLIED RESEARCH IN SUSTAINABLE ECONOMIC  
DEVELOPMENT – IPADE**

**EMPIRICAL KNOWLEDGE IN MINERAL, FORESTRY, AND AGRICULTURE  
EXPLORATION IN THE AMAZON**

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The economic exploitation of the Amazon, having as support the empirical knowledge, either by extraction, is the agricultural sector, has existed for centuries, and even today is present. Contributed to this type of exploitation, the lack of scientific and technological knowledge, either by the availability of technologies, either by not adopting, of the few available by the producer; the rich biodiversity; the mineral potential; the demand for Amazonian products; the size of the territory to be explored. These conditions of production does not enter the variable sustainability, but only the use of the resource with economic goal.

The scientific knowledge looking plants of economic importance for deployment in the botanical gardens in Europe, to create new economic options and also to the knowledge of the geography of this region. Several were to foreign expeditions that explored the Amazon with these objectives, since the Brazilian colony until the 20th century.

Under these conditions, if the production was not sought to change extraction, to a system of cultivation, historic and relevant example is the exploitation of rubber, when the Amazon lost its hegemonic position in the market for the plantations in Southeast Asia. Even without this competition the extractive production would not productivity to meet a growing demand imposed by the market, the trend was the exhaustion of natural resources. Agricultural production in the fall of productivity, by successive use of the same area, leads the producer to explore a new area starting the circle of deforestation.

In the colonial period, when the Amazonian products began to be exploited, played an important role, both in the disruption of the limits of the Treaty of Tordesillas, extinguished in 1750, geopolitical aspect which increased the Brazilian territory, but also, in the extractive economy who settled in the region. The expansion of the Brazilian territory, in the Amazon, told with the decisive journey of captain Pedro Teixeira (1540-1641), who from 1637 to 1639, climbed the Amazonas and Solimões rivers to Quito, Ecuador, with the goal of ensuring ownership of the Napo river to the Portuguese Crown, among others. The Pará-Maranhão highway (BR 316), which connects the Pará and Maranhão in the Northeast, takes the name of Pedro Teixeira, and has a statue of Portuguese explorer pointing to the Amazon, installed in a forest that surrounds the highway, in the municipality of Santa Luzia do Paruá (MA).

The mineral exploration, pioneer in economic activity in the Amazon, date from 1602, when the Dutch have adentrado at the estuary of the Amazon river, more precisely in the Maracá river, today territory of Amapá, and there discovered gold, initiating the prospecting in this region. Documents dating from 1623 show the presence of English in Cajari river with the objective to dominate and colonize the region that today is the municipality of Mazagão (AP), where they were ores in its subsoil. Even in the 17th century, the occupation of the region of Calçoene (AP), by adventurers French, Dutch and English, who sought in addition to other riches, especially gold, which they believed there exist in large quantity. (1) The Amazon has an extensive and diversified mineral province, whose exponent is Carajás, in the Southeast of Pará, where installed the Carajás Project, in the decade of 1980, resulting in the Carajás railroad, connecting to mine iron ore, in Parauapebas (PA), the port of Itaqui in São Luís (MA).

The extractive economy of the forest had as main products the "drugs of the interior", rubber and wood. Drugs of the interior were different kinds of spices such as plants, roots, seeds, fruits, medicinal herbs, etc., represented with greater emphasis by cocoa, cloves, guarana, urucum, poiaia and vanilla. They dominated the economic exploitation of this region at the beginning of the colonial period.

Until the early 18th century, the cocoa offered no more than a primitive indigestible of the inhabitants of the Amazon, and that evil has penetrated or not in the food habits of the colonizer. However, the chocolate, at principle, the secret of the Spanish conquerors of Mexico, who met him with the Ameridian people Maya, became known and appreciated not only in Spain, but throughout Europe, and there settled

chocolate factories in Spain, in France, Germany and England. Creating the market for cocoa.

At the beginning of the decade of 1730, cocoa had become the main export product of the Amazon, a position which would continue to occupy for more than a century. Between 1730 and 1744, this product accounted for 90.6% of total exports recorded in Belém; however, between 1745 and 1753, this percentage dropped to 61%, even so, their participation remained significant.

It played an important role in the process of colonization of the Amazon during the 18th century, and also providing a good proportion of the income of the Portuguese Crown in this region. The cocoa promoted the first economic cycle of the Amazon. Its weight on the regional economy stretched up on the occasion of the Independence of Brazil, when it was displaced by plantations in Bahia, offering a better product quality and quantity.

The Bahia enters the scene of cocoa production from 1746 when seeds of fruit were taken of the Pará by Frederico Warneaux for the farmer Antônio Dias Ribeiro, in the Cubículo farm, on the banks of the Pardo river, in the municipality of Canavieiras (BA). In 1752 were performed the first cocoa plantations in Ilhéus (BA). (2)

Object of curiosity at the beginning of your knowledge by Europeans, rubber soon would be a product of broad perspectives in international trade, the demand grew incessantly in the 19th century and with even greater impetus in the 20th century. Its importance as a raw material for industry is due to three events.

The first was the discovery of the vulcanization process, in 1839, by Charles Goodyear, which consists in adding sulfur to rubber in a temperature of 140<sup>o</sup>/150<sup>o</sup>C during certain hours, making the properties of rubber unchanged. The second factor was the invention of the tire for bike performed by John Boyd Dunlop, in 1888. These findings stimulated the nascent automobile industry. The third was to contribute to technical change occurred in the transportation sector with the introduction of the steamship, in 1853. As a result of these factors was the increase in the demand for rubber, reflecting in the Amazon with a strong incentive to extractive production. (3)

This industry, which was consolidated during the Second Industrial Revolution (1850-1950), provided the necessary elements for the growth of the rubber economy. This is because, the articulation of international capital counting with areas of production of the raw material and labor abundant create conditions so that the rubber plantations could produce on the scale that met the industrial demand for rubber. The

Amazon which extractive production of rubber could not accompany this cycle, to lose competitiveness with the production of crops of South-East Asia, from 1912, stayed out of this Market. But, in the hegemonic period of production in the Amazon (1870 to 1910), the economy of rubber made the economic boom in this region, which marked the period with the title of *Belle Époque*, for the cities Belém and Manaus. In the cycle, which extends from 1898 to 1910, the participation of rubber, on the agenda of Brazilian exports, to put in second place, just behind the coffee. In 1898 the ratio was 21% for the rubber and 55% for coffee; in 1910 was 40% and 41%, respectively. In 1920 the export of rubber fell to 3%. (4)

This euphoria, in 1908, the extractive production of rubber from the Amazon region accounted for 94.4% of the total worldwide. On that occasion, the *glamour* of the regional economy coupled with the monopoly for the production of rubber, which caused the amazonian leaders, who explored this native raw material, for not believing in the planting of rubber trees, in Asia, proclamation:

*We don't need to worry with the rubber plantations that have emerged in Asia. The weather conditions, special of the Amazonian Valley, our system of beneficitation of our product, which is currently being applied with success to both regions rubber trees, some of which are still unexplored and, finally, the numerous needs of modern industry, allows us to make a little case of what others are doing in the same sector. Indeed, if we do not consider a must accompany the scientific findings related with the rubber from India, we could perfectly completely ignore the foreign plantations". (5)*

In 1913, the production of rubber from South-East Asia reached the production of the amazon valley. The official, the rebate, Rio Branco (AC), on 12.10.1913, in the article "*The awakening of a nightmare*," the writer José Alves Maia, stated:

*"All those who live and work in the great Amazon are suffering the agonizing pressure of a cruel nightmare... The most striking feature of the crisis of our rubber is without a doubt that relates with the tremendous competition of plantations in the East. Abundantíssima, threatening to overwhelm the markets, produced at low cost, the rubber of the East takes the place of the product that was almost exclusively from our region."*

In 1918, the production of rubber from the Amazon fell to 10.9% of the total world-wide. (6) The reality, and also the dream of the extractive economy of rubber lead the main towns in the region, Belém and Manaus, a *status* of European cities

finish. And more, the region entered into an economic stagnation that would only begin if you change in the decade of 1940.

The timber extraction also had strength in the Amazon. In Amapá, in the decades from 1960 to 1990, this activity has reached 32.4% increase in its participation in the economy of Amapá. This performance was based on the exploitation of native species *virola* (*Virola surinamensis*). With the depletion of natural stocks, logging companies have been disabled. (7) In Pará, the end of the decade of 1970 up to half of the decade of 1990, the municipality of Paragominas was considered the largest timber pole in Latin America. In a similar situation to the Amapá, the timber economy suffered the same result with the depletion of native species. (8)

In extensive farming system of extractive production, but with empirical technology, confronted again with the fall in profitability, cite as an example that occurred in Paragominas (PA), but extended to the entire Amazon. This municipality is a pioneer in the deployment of pasture planted on firm ground in the Brazilian Amazon, motivated by the opening of the Rodovia Belém-Brasília, in 1960. The felling of the forest followed by biomass burning promotes the momentary fertility of the soil; with the sowing of grass seed, a lush pasture. However, after nearly ten years of grazing occurs the decline of the fertility of the soil, and with this, the fall of the pasture productivity by decreasing the ability to support animal, compromising the effectiveness of this system of production. (9)

The examples mentioned here, happened in these 400 years of the history of the Amazon, with growth and decline, with the cocoa, rubber, timber and extensive cattle, may well show the inability to establish an economy of scale, sustained, with profitability and sustainable, capable of promoting regional development, to the base of the extraction, and the empirical knowledge in the productive chains of agriculture and forestry sector.

#### NOTE

1 IEPA. 2010, p.21, apud FERREIRA, 1990; LOPES (1998).

2 ALDEN, 1974, p. 32, 44. SOUSA et al. 1998, p. 33. HOMMA, 2003, p.33, 37,38.

3 SANTOS, 1980, p. 53. HOMMA, 2003, p. 48.

4 SANTOS, 1980, p. 290.

5 PARÁ, 1908. HOMMA, 2003, p. 76.

6 GOOD YEAR MAGAZINE, 1989. HOMMA, 2003, p. 79.

7 PORTO, 2003.

8 *In locu* observation by the author of this paper.

9 *Ibdem* nota 8.

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