

Chapter 11



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Chapter 11: Economic drivers of the Amazon after the European colonization from the 19th century to the middle of the 20th century (the 1970s).

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Chapter 11

Economic drivers of the Amazon after the European colonization from the 19th century to the middle of the 20th century (the 1970s).

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ACRONYMS AND ABBREVIATIONS

CVG MINERVEN: Compañía General de Minería de Venezuela C.A.

GDP: Gross Domestic Product.

IUCN: International Union for Conservation of Nature.

NTFP: Non Timber Forest Products.

OPEC: Organization of the Petroleum Exporting Countries.

PDVSA: Petróleos de Venezuela S.A.

UNESCO: United Nations Educational, Scientific and Cultural Organization.

YPFB: Yacimientos Petroliferos Fiscales Bolivianos.

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1 KEY MESSAGES

- 2 • During the 19th and 20th centuries there were boom and bust cycles for various
3 natural products such as *Cinchona* and rubber. Processes such as the extraction of
4 gold continued, and the exploitation of oil initiated, both existing to this day. The
5 exploitation of some products prepared others' conditions, as in the change from
6 *Chichona* to rubber and from this to the Brazil nut.
- 7 • The extractivisms always occurred with the support of the States, in association with
8 national and foreign investors, taking advantage of indigenous labor and colonizers,
9 often in exploitative conditions. Besides, the ways to access the Amazon and extract
10 these products continued to be rivers as in previous centuries, but since the 20th
11 century new roads and highways have been built.

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1 ABSTRACT

2 The objective of this chapter is to identify the main economic processes that occurred in the
3 Brazilian, Andean, and Guyanese Amazon during the 19th and 20th centuries until the 1970s.
4 Specifically, the chapter describes the history of extractivism and the effects of geopolitical
5 reconfiguration in the Amazon after the processes of emancipation or decolonization. It
6 analyses the extractive history based on *quina* barks (species of the genus *Cinchona*,
7 Rubiaceae) and rubber (*Hevea brasiliensis*, Euphorbiaceae), as well as the characteristics and
8 practices developed by social actors related to the local and regional economy which arose
9 from these exploitations. It also includes a synthesis of the history of the emergence of the
10 extractive economy based on the exploitation of oil, minerals (mainly gold), including the
11 beginning of wildlife trafficking and the basis for the emergence of mechanized agriculture,
12 intensive livestock, and mega-infrastructure, among others. Finally, it identifies the main
13 lessons learned and key messages from these processes from the use of “historical
14 commodities” of the Amazon and their implications in contemporary patterns of the current
15 use of other resources in the Amazonian, such as the Brazil nut (*Bertholletia excelsa*,
16 Lecythidaceae) and others.

17 *Keywords:* History of extractivism, *Cinchona*, rubber, oil, natural gas, gold, NTPF.

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1 GRAPHICAL ABSTRACT

2 **1820.** Chemical analysis of quinine content in the *Cinchona* barks.

3 **1829.** Mines were declared as public property and opening of opportunities for citizens to
4 exploit them.

5 **1850-1895.** Gold was found in the Guayana Region, Venezuela, which was exploited and
6 destined the production of gold.

7 **1860.** First successful *Cinchona pubescens* seeds' smuggling, by Richard Spruce and Robert
8 Cross, coordinated by Kew Gardens

9 **1865.** First successful *Cinchona calisaya* seeds' smuggling, by Charles Ledger, sold to the
10 Dutch in Java.

11 **1870-1890.** Boom of foreign capital investments in extractive mining activities in the
12 Orinoquia and Guayana

13 **1890-1920.** Rubber (*Hevea brasiliensis*) boom (origin and consolidation of the barracks in
14 Peru and Bolivia) and commercial tonka bean (*Dipteryx odorata*) boom in Venezuela.

15 **1900s.** Decline of Andean extraction of *Cinchona* and Dutch monopoly on quinine
16 production

17 **1920-1940.** First rubber crisis, the reappearance of *Cinchona* and initial phase of Brazil nut
18 (*Bertholletia excelsa*) exploitation

19 **1926.** First oil wells in the Bolivian *Oriente*.

20 **1936.** Oil extraction in the Lower Orinoco basin, Venezuela.

21 **1939-1945.** Short boom of the extraction of *Cinchona* and rubber related with World War II.
22 Decline of the extractivism of these natural products due to the emergence of synthetic
23 substitutes

24 **1945.** Mining Law approved in Venezuela.

25 **1948.** First oil well in the Putumayo, Colombia.

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- 1 **1945-1970s.** Second rubber crisis (disintegration of the barracks during the post-World War
- 2 II period) and reappearance of the Brazil nut exploitation.
- 3 **1967.** First oil well in the Ecuadorian Amazon.
- 4

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1. INTRODUCTION

Over the last two centuries, the Amazon oil, minerals and biodiversity have been used intensively as a result of national and international economic interests. Public policies promoted by the countries have sought to ensure sovereignty and gradually, private and state investment, creating a complex configuration of socio-ecological systems (Norgaard 1981⁷, Homma 2003, Hecht 2011, Bottazzi et al. 2014, Pinho et al. 2015), even creating “parallel states” (Hecht and Cockburn 2010, Cuvil 2011⁷, Hecht 2011). In the 19th and 20th centuries, examples of “parallel states” were those derived from the extractivism of non-timber forest products such as *Chinchona* spp. or rubber (*Hevea brasiliensis* in Brazil, Bolivia, Colombia, Ecuador and Peru (Hvalkof 2000, Homma 2003, Hecht and Cockburn 2010). These processes had consequences on the current patterns of use and occupation (Hecht, 2011; Schmink, 2011), including the violation of the rights of Indigenous peoples and colonizers who were used as low-cost labor in the region. The so-called eco-harvest of the Brazil nut (*Bertholletia excelsa*, Lecythidaceae), which is currently one of the economic engines of the southwestern Amazon (Peru, Brazil and Bolivia), is a legacy of the rubber period, which in turn was a legacy of the Cinchona period (Stoian 2000, 2005, Duchelle et al. 2011⁷).

Since the early 1960s, the predominant perception among the national governments about their Amazon territories was that there were empty “unused” spaces, with formidable natural heritage reserves (minerals, oil, hydroelectric energy, wood, agriculture and plants for pharmaceutical, cosmetic and agrochemical uses, among others) and with their sovereignty at risk (Fearnside 1987, Hecht 2011, Clement et al., 2015). Several countries established policies and programs with the objective of occupying and accelerating the integration of the Amazon into national and regional economies (Fearnside 1987, Valentim and Vosti 2005). This was achieved mainly through the construction of new roads, and improvement of existing ones and investments in large hydroelectric plants, mainly in Brazil. Governments also provided tax incentives and subsidized credit for private investment in oil and mineral extraction, extensive agricultural and livestock projects (Valentim and Vosti 2005). The impetus for the occupation was enforced by policies that promoted large-scale initiatives linked to government and private settlements for the relocation of landless families from other parts of their countries (Valentim and Vosti 2005, Valentim 2015, Hecht and Cockburn 2011⁷, Fearnside 2016). In Brazil, these initiatives were complemented by a pilot

⁷ To be confirmed

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1 project for the implementation of an Industrial Free Zone in the city of Manaus, capital of the
2 state of Amazonas (Aloise and Macke 2017).

3 All of these policies and processes led to an acceleration of socioeconomic and
4 environmental changes from the early 1960s to the late 1970s. These changes were
5 characterized by rapid population growth in rural and urban areas, accompanied by the
6 acceleration of the deforestation and urbanization processes (Valentim and Vosti, 2005). As
7 the myth of the Amazon as an empty “unused” space was discredited, there was a sharp
8 increase in territorial conflicts between new settlers and traditional Indigenous peoples
9 (Valentim and Vosti 2005, Hecht and Cockburn 2011⁸). Towards the end of the 1970s, there
10 was a large number of conflicts of interest over the rights and uses of the land and its natural
11 resources, which went hand in hand with a growing global perception of the key and
12 fundamental role of the Amazon for global sustainability (Hecht, 2011; Schmink, 2011). This
13 was the vessel for the emergence of organized socio-economic movements that, in
14 association with the growth and effectiveness of national and international political actions,
15 continue to struggle to reshape existing social policies and new ecological systems towards
16 sustainable and inclusive development of the Amazon (Hecht 2011, Schmink, 2011).

17 This chapter synthesizes the main historical processes as economic drivers that shaped the
18 current landscape and the diversity of socio-ecological systems in the Amazon. It carefully
19 analyses what happened after European colonization, from the 19th century to the emergence
20 of national sovereignty projects between the 1950s and 1970s. The main natural resources
21 that were used in this period are described, including a synthesis of those resources that today
22 are part of the economic engines of the region.

23 **2. HISTORY OF THE EXTRACTIVE ECONOMY BASED ON QUINA**

24 “Quina” or “casarilla” are the most frequent names for the plants of the genus *Cinchona*, and
25 some of the genera *Remijia* and *Ladenbergia*, whose barks in forms of prepared powders
26 have medicinal properties including their power to prevent and treat malaria (Achan et al.
27 2012⁸) (Figure 11.1). *Cinchona* bark contains four main medicinal alkaloids: cinchonine,
28 cinchonidine, quinidine and quinine, the last being the most important. Each species has
29 different concentrations of alkaloids, which can vary even within the same species depending
30 on the locality, altitude, soil type, age of the tree and harvest time. There is also a lot of

⁸ To be confirmed

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1 hybridization between species (Garmendia 2005⁹, Maldonado et al. 2017). The genus
2 *Cinchona* is widely distributed in the tropical Andes, from the lowlands to above 3,000 m in
3 altitude (Figure 11.2). Only the *C. pubescens* species reaches the mountains of Panama and
4 Costa Rica. The sites with the greatest diversity and endemism are Southern Ecuador and
5 central Peru (Andersson 1998). The *quinas* have sometimes been called the "savior plants of
6 mankind". Over time they became important icons for various national imaginaries: in Peru it
7 was included in the national emblem since 1825, and in Ecuador it was declared the national
8 plant in 1936 (Acosta Solís 2019).



Figure 11.1. Glass pharmacy jar containing powdered quinine. *Source:* Unknown maker, Wellcome Collection. The jar is believed to be from the pharmacy of the Milosrdnych Bratri Monastery and Hospital Brno, in the Czech Republic. The painted label written in Latin indicates that this glass pharmacy jar contained powdered quinine. In:

<https://wellcomecollection.org/works/ycqazud9>

9

⁹ To be confirmed

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Figure 11.2 The Cinchona regions of South America, 19th century. *Source:* Clements R. Markham, *Peruvian bark: a popular account of the introduction of chinchona cultivation into British India, 1860-1880*. Wellcome Collection. In <https://wellcomecollection.org/works/hjgh4e7c>

1 Like many other historical and contemporaneous products, the history of the *quinas* connects
2 the Andes and the Amazon with the world at different times. This history is made up of
3 religious, commercial and scientific controversies. For example, debates have taken place for
4 centuries on whether or not Indigenous peoples knew about its medicinal properties (see for
5 example, Ruiz 1792 or Humboldt 1821); in this regard, there is increasing evidence that
6 knowledges were transmitted from natives to Jesuits (Ortiz Crespo 1994, Estrella 1995,
7 Crawford 2016). An erroneous history that has circulated widely, up until the present day,
8 refers to the fact that the Countess of Chinchón was cured of malaria with powders of
9 *Cinchona* bark and then she distributed it to the peoples of Lima. Today we know that story is
10 full of errors, beginning with the supposedly participation of the Countess (Haggis 1941).
11 However, it served the purpose of validating the medicine among the nobility and the people.
12 The first European explorer to describe these plants was the French academic Charles Marie
13 de La Condamine, who sent specimens to Linnaeus (de la Condamine [1738] 1986). The
14 Swedish botanist gave that Latin name to the plants, convinced of the legend of the Countess
15 of Chinchón. Shortly after, Joseph de Jussieu carried out a more detailed exploration, but his

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1 work was not widely known (Jussieu [1737] 1936). After them, more explorers hunted for
2 *quinas* in South America (WHMM 1930).

3 The connections of the *quinas* account for the appetite of several international markets, which
4 led first to intensive extractivism and then to the successful smuggling of seeds to Asia, after
5 several attempts by European monarchies and republics since the 18th century (Brockway
6 1979, Spruce [1860] 1908, 1996). The European process of colonization of the inner spaces
7 of Africa was fundamental in increasing the demand (Headrick 1981). *Cinchona* was a
8 decisive incentive for the opening of roads to and in the Amazon, later used for other
9 products such as rubber.

10 The *C. officinalis* species from Loja, in southern Ecuador, also called “fine cinchona”, was
11 the first to be extracted in the 17th century. Due to the growing demand, the *Cinchona* areas
12 of that region were rapidly destroyed, generating lucrative businesses and early warnings
13 about the destructive processes associated with the extraction of bark (Espejo [1792] 1993).
14 The 18th century witnessed boom and bust processes in Cuenca and Loja (Moya Torres
15 1994). In the eighteenth-century, demand was so high that the Spanish crown monopolized
16 the product for 38 years (Puig-Samper 1991, Estrella 1994, Crawford 2016) and sent two
17 great botanical expeditions to New Granada and Peru, one of whose main objectives was the
18 discovery of anti-malarial plants. One aim of that royal expeditions was to determine if Loja's
19 fine bark trees were present in other sites, or to find equally effective species (Nieto Olarte
20 2006, Caldas [1805] 1966). Those expeditions helped to increase the knowledge of *Cinchona*
21 to a large extent, but also contributed to the intensification the conflicts around the taxonomy,
22 distribution and quality of the different species (Fernández 2019). Even the Prussian
23 Alexander von Humboldt intervened in the matter, further confusing the issue and, as in other
24 matters, without giving explicit recognition to the sources of his knowledge (Cuvi, *in*
25 *press*¹⁰).

26 There was much controversy over the quality of the *quinas*, an issue associated with frequent
27 adulterations (Crawford 2007). That situation changed in 1820 when the alkaloid quinine was
28 first isolated by Pierre-Joseph Pelletier and Joseph B. Caventou, which led to improved
29 analysis. Then after it was possible to measure the quality of the different species, and to
30 open new sites for extraction in Ecuador, Peru and Colombia, where it helped to configure an

¹⁰ To be confirmed

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1 Andean-Amazonian space, generating profound transformations of the landscape (Figure
2 11.3). In that country, there were three periods of boom, of which the third, between 1877
3 and 1882, mainly in Santander and on the Amazon slope and foothills, allowed for the
4 improvement of the fragile links between the Amazon and the country and laid the
5 foundations for the subsequent rubber exploitation (Zárate Botía 2001, Palacio 2006).
6 Chemical analysis also led to the knowledge that one of the species with the highest quinine
7 content was *C. calisaya*, distributed between 200 and 3,300 meters of altitude, especially in
8 Bolivia towards the Amazon slope, intensively exploited from the beginning of the 19th
9 century (Steere 1943, Andersson 1998, Zárate Botía 2001, Maldonado et al. 2017). As in
10 Colombia, the use of this species laid the foundations for the subsequent exploitation of
11 rubber, by involving the native population in its exploitation, defining an economy strongly
12 based on free access and low-cost labor.



Figure 11.3. Gathering and drying of *Cinchona* bark in a Peruvian forest. *Source:* Wood engraving, by C. Leplante, c. 1867, after Faguet. Wellcome Collection.

<https://wellcomecollection.org/works/werf33s3>

13 In several enclaves, such as the Cuenca and Loja regions in Ecuador, and in Colombia, Peru
14 and Bolivia, there was a direct relationship between political power and “*cascañeros*” (bark
15 gatherers) (Moya Torres 1994, Zárate Botía 2001). The *quinás* were fundamental in opening
16 up mountain passages towards the Amazon, in addition to strengthening existing ones, and
17 motivating the migration of locals and foreigners to the Amazon. Extractive areas proliferated
18 throughout the Amazon. Among other things, it changed transportation routes, that from now
19 on were no longer through the Andes and ports such as Callao, Guayaquil or Cartagena, but

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1 also through the Amazon, via Iquitos or Manaus, boosting local economies. It triggered large-
2 scale spatial, social and economic changes, fostering a whole series of productive chains,
3 from the packaging of bark to the provision of food, meat, bananas, sugar cane, cocoa, coffee,
4 cotton, cassava, yam, oats, fruit trees, tobacco and pastures (Zárate Botía 2001). Bolivia even
5 decreed a monopoly on cinchona and created a Bank of Cinchona in 1840 (Pardo Valle
6 1947).

7 Among the main users of Cinchona bark were the expansionist European empires, which
8 needed it for their armies in Africa and Asia. They had been trying to smuggle these plants
9 since at least the 17th century, finally succeeding in 1860, when *C. pubescens* seeds were sent
10 from Ecuador to Sri Lanka and India (Spruce 1860/1996), and shortly after seeds of *C.*
11 *calisaya* from Bolivia to the Dutch colonies on the island of Java in 1865. The British used
12 the alkaloid-poor *C. pubescens* species to make totaquina, while the Dutch received seeds
13 from the powerful *C. calisaya*, which they genetically improved, increasing its quality and
14 creating a new species, *C. ledgeriana*, named in honor of smuggler Charles Ledger, who
15 illegally obtained the seeds from Manuel Incra Mamani, an indigenous man from Bolivia
16 (Gramiccia 1988).

17 Towards the end of the 19th century, South American production reached its peak, and
18 gradually began to stagnate, because to the fact that Dutch production in Java was
19 monopolized the market and British purchases declined. In the first half of the 20th century,
20 Java already accounted for 90-95% of the global production and market. Only small
21 shipments departed from South America, representing a marginal percentage of production,
22 sometimes bought out by members of the Kina Bureau to take them off the market (Pardo
23 Valle 1947). When it stopped being profitable, the quineros' investments found different
24 targets. In the Bolivian and Colombian cases, they became rubber barons (Stoian 2005). In
25 Colombia, they also directed their financial capital into coffee and navigation sectors (Zárate
26 Botía 2001).

27 During World War II there was a brief, although very intensive, renewed boom in the
28 extraction of Andean quinas (Hodge 1948, Cuvi 2011a¹¹). This led to the reopening or
29 rearrangement of routes from the mountains to the Amazon, also associated with other
30 renewed extractivist actions such as those involving rubber (Bangham 1945, Cuvi 2011b¹¹).

¹¹ To be confirmed

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1 An important case come from Tingo María, in Peru, where, among other things, a
2 colonization front associated with a scientific station was made. During that period, Colombia
3 was the largest supplier of bark, followed by Ecuador, Bolivia and Peru. The scale of the
4 Cinchona Program was unprecedented. In the 18th century, when the Spanish crown
5 exercised a 38-year monopoly over the production of *Cinchona*, 350,000 pounds of bark were
6 shipped to the Royal Apothecary (de Andrés Turrión 1989). In contrast, through the
7 Cinchona Program, between 1941 and 1947, the United States imported about 40 million
8 pounds of dried bark. This figure does not include bark processed in Latin America factories
9 (Cuvi 2011a¹²).

10 Quinine and other natural anti-malarial alkaloids obtained from *Cinchona* barks remain
11 important antimalarial drug almost 400 years after its efficacy was discovered, although in a
12 much less amount. Since the World War II, synthetic compounds such as chloroquine or
13 primaquine, among others, became widely used (Greenwood 1995). The same can be said for
14 synthetic quinine, used since 1944 (Woodward and Doering 1944). There were a few new
15 booms, for example during the Vietnam War, when synthetic resistant strains of malaria
16 appeared (Greenwood 1995), but the demand for the natural product declined considerably,
17 limiting its use to beverages such as tonic water, cosmetics or medicines to combat resistant
18 strains.

19 The *Cinchona* alkaloids were among the first Andean-Amazonian products to be integrated
20 into European therapeutics. These processes contributed to constructing imaginaries about the
21 potential riches of South America (see Chapter 9), whose products were gradually and
22 constantly incorporated into international markets. The boom-and-bust cycles illustrate how
23 the demand from these markets impacts not only the products themselves, but also the forests
24 that contain them, as well as local economic, social, communicational, political and
25 geopolitical dynamics. Today we can identify similar cases around *guayusa* and *ayahuasca*,
26 among other products. The case also illustrates the long duration of biopiracy, a process that
27 we still witness, for example around the bioprospecting of useful plants.

28 The decrease in pressure on the South American *quinares* since the 19th century, first due to
29 the development of plantations in Southeast Asia, then to the decrease in the demand for
30 natural bark, has changed the status of the *Cinchona* plants, which moved from being on the

¹² To be confirmed

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1 verge of extinction to not currently threatened. Only one of them, *C. mutisii*, is considered
2 “Endangered” by the IUCN Red List, and three others are Vulnerable. Today, the bigger
3 pressure comes from the continuous destruction of their habitats.

4 3. HISTORY OF THE EXTRACTIVE ECONOMY OF RUBBER

5 In the nineteenth century, European capitalism had already established a framework to search
6 for and transfer wild plants that were potentially useful as raw materials for industry and in
7 pharmacy. Although the natives of the Amazon Basin showed the use of rubber products to
8 arriving Europeans since the sixteenth century, it was not until the discovery of vulcanization
9 in 1839 that its industrial application multiplied and a boom in demand took place. Among
10 the many latex producing species around the world, those belonging to the genus *Hevea*,
11 especially *H. brasiliensis* (Euphorbiaceae) provided the highest yield of the highest quality
12 latex. The fast-growing rubber demand in the world market led to a boom in rubber
13 production in the Amazon.

14 Although rubber production ("the trees that produce gold", Zeitem 1991) involves a large
15 number of the countries that make up the Amazon, its history is linked to the lowlands of
16 Brazil, Peru and Bolivia (Figure 11.4). Towards 1880, the Amazon Basin was the only place
17 in the world producing wild rubber. Brazil supplied 60% and Peru 30% of global rubber
18 consumption (Haring 1986). In Peru, the economy based on the exploitation of rubber
19 coincides in part with the so-called period of the “Aristocratic Republic (1895-1919)”, which
20 was after the Pacific War (1879-1883), when the country lost territory and access to the
21 exploitation of its exportable renewable resources, guano and saltpeter to Chile (Contreras
22 and Zuloaga 2014¹³). The defeat was a strong blow to Peru’s extractivist model and its
23 economic position as the primary exporter of these materials, causing its collapse (Pennano
24 1988). Without the deposits of guano and saltpeter, the financial assets of Peru turned to other
25 economic activities, such as rubber exploitation in the Peruvian Amazon territory. This period
26 saw the global consolidation of capitalism, which implied the search for regions in the world
27 that could supply natural resources to major economic powers, as well as the establishment of
28 unequal commercial relationships between countries (Chirif 2012). Peru formed part of this
29 unequal economic model as a supply country. In the case of Bolivia, the use of rubber began
30 at the start of 1860. It was characterized by the fact that many families dedicated to quina-

¹³ To be confirmed

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1 already in decline - moved to this activity and promoted modes of production based on the
2 establishment of barracks that allowed them access and direct control over areas with rubber,
3 to consolidate the participation of indigenous populations as labor, and gave rise to unequal
4 employer-client relations (Stoian 2005). The rubber boom in Bolivia occurred between 1898
5 and 1919 and was characterized by high prices rather than volume, an incentive for the
6 involvement of private capital, mainly foreign, and a state that benefitted from the collection
7 of taxes without exercising any control over the rights of the forest (Barham and Coomes
8 1996, Stoian 2005). In Brazil, this cycle went from 1850 and crashed towards 1920
9 (Weinstein 1983, Dean 1987).

Figure 11.4. Areas of historical distribution of use of rubber in the Amazon during the end of 19th and 20th century. Map showing the geography of the natural distribution of rubber as well as the areas where it was strongly harvested. It is possible, maybe useful to add the areas where socio-environmental conflicts were, such as Putumayo in Peru, northern Brazil with the so-called "Battle of Rubber" or the "War of Acre" between Bolivia and Brazil.

Source: Richard Collier (1981), *Jaque al Barón. La Historia del Caucho en la Amazonía*, CAAAP, Lima, Peru.¹⁴

10 In 1896, the Peruvian merchant Julio Cesar Arana began to explore rubber plantations in the
11 Putumayo River valley, now territory of Colombia. In 1905, he had already acquired over
12 three million hectares within Colombian territory, using indigenous labor to extract rubber
13 (Figures 11.5 and 11.6). In twelve years of exploitation of native rubber, the indigenous
14 population of this region went from 30 thousand to less than eight thousand, generating
15 revenues of US \$ 75 million from exports of 4,000 ton of rubber (Otero 2009, Sena 2008). In
16 Brazil, the rubber export houses were mainly concentrated in the cities of Manaus (state of
17 Amazonas) and Belem (state of Pará), which were the main ports of the Amazon River
18 system. At its peak, rubber became one of the leading products in the Brazilian economy,
19 accounting for up to 40% of its exports, second only to coffee (Weinstein, 1983, Dean 1987,
20 Becker 1995). In 1876, Henry Alexander Wickham, working for the Royal Botanical Garden
21 of London, collected 70,000 rubber tree seeds in the Tapajós River Valley and took them to

¹⁴ To be confirmed

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1 England. The seedlings produced were later planted in British colonies in Malaysia, which
2 resulted in extensive high dry rubber yielding rubber plantations. Over a period of fifty years,
3 the British became the largest rubber producers in the world, with disastrous effects for the
4 Amazon economy.

Figure 11.5. Indigenous and an official next to a rubber tree. *Source:* Vilchez Vela, P. Rubber Age: Portrait of Horror. New Land Edition, Iquitos, Peru, 2012¹⁵.

5

Figure 11.6. Weighing rubber in a Putumayo station. *Source:* G. Sidney, The Lords of the Devils Paradise. London, 1913.¹⁶

6 In Peru, the rubber economy was based in the city of Iquitos, a center that collected rubber
7 from the rubber-producing areas. Accessing Iquitos via Lima, the Peruvian capital, was
8 difficult. For this reason, this economic center was naturally more efficiently connected with
9 the world's economic circuits through the Amazon River, and not so with the Peruvian
10 capital. This connection increased after 1853 when an agreement was reached with Brazil for
11 the navigation, circulation and trade of Peruvian ships on the Amazon River (Pennano 1988).
12 By this date, Charles Goodyear had discovered the rubber vulcanization process in 1839, with
13 the subsequent increase in international demand, meaning Brazil became the first and most
14 important producer of this product. The city of Iquitos, Peru, achieved its rubber economic
15 boom after Manaus (Chirif 2012). Export records show that the export of rubber grew
16 exponentially between both 1862 and 1870 and 1884 and 1910, although the following year,
17 1911, there was a sudden export decline due to the drop in international market prices (Garcia
18 1982, Ullan 2004).

¹⁵ To be confirmed

¹⁶ To be confirmed

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1 In Peru, rubber was exploited in the Putumayo basin (now Colombian territory), and in the
2 Madre de Dios region, where intensive searches for new areas with rubber-producing trees
3 took place. In Putumayo and Madre de Dios, this activity disrupted the lives of local
4 Amazonian populations who were captured and subjected to slavery and consequent
5 massacres (“Putumayo massacres”) in order to extract rubber and meet its growing
6 international demand (Garcia 1982, Casement 2014). Towards 1870, as demand grew, the
7 harvesting of rubber spread to new areas and led to the rise of Iquitos and Manaus as large
8 rubber centers. As Iquitos became an important economic hub, commercial relations were
9 established with its Brazilian counterparts, as well as with England and the United States. At
10 the same time, in Madre de Dios new routes were sought for the extraction and trade of
11 rubber (Ullan 2004). As such, the extractivism based economy was consolidated in the
12 Peruvian Amazon. The ancestral knowledge on the management of rubber forests was used
13 (Pennano 1988) and those who had that knowledge were enslaved.

14 The Amazon was integrated into the global economic order supplying rubber to distant
15 economic centers, establishing trade relations between countries (Chirif 2012). In the case of
16 Bolivia, the rubber economy was concentrated in the north of the Amazon (Yata, Mamore,
17 Itenez, Orthon, Tahumanu, and Madre de Dios rivers, mainly). Its decisive and key
18 participant was the so-called "Casa Suarez" - Nicolas Suarez and his brothers - that based its
19 success on its control of the vertical supply chain (of meat and other foodstuffs) for the
20 barracks, along with a labor system based on debt-peonage (in Spanish “*habilito*”, in
21 Portuguese “*aviamento*”), which became widespread throughout the region and which
22 persists today in the case of the Brazil nut (*B. excelsa*). On the other hand, Casa Suarez bet on
23 the control of the transport route (eg. Cachuela Esperanza, Beni) and then on the control and
24 administration of the territory, specifically, the barracks (Weinstein 1983, Stoian 2000, 2005).

25 In both Peru and Bolivia, before intensive rubber exploitation was established, local
26 populations went deep into the Amazon forests to extract latex using native techniques. It was
27 then transformed and transported to the small shipping ports for sale (Pennano 1988, Stoian
28 2000, 2005). In the case of Peru, specifically Putumayo, native manual labor was used for
29 this extraction, while in Madre de Dios both Andean migrants and the local indigenous
30 population participated in the process (Figure 11.7) (Garcia 1982, Pennano 1988). Around
31 1890, with the increase in this activity, the Regatón figure appeared, which later became the
32 “*aviador*”, thus monopolizing the local rubber trade (Pennano 1988). As the *aviador* knew

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1 the needs of the rubber collectors, he granted them credit on account of future collection, but
2 adding interest to the loan. The *aviador* easily found the backing of a banker to trade the
3 rubber while over time, the local producer could not repay the loan and was left in debt-
4 peonage, at the expense of the *aviador*. In both countries, the first rubber colonies were made
5 up of a boss, the rubber tappers and the peons (Garcia 1982, Stoian 2005). The boss was the
6 owner, who paid a fixed salary to the rubber tappers, while the peons, mostly indigenous,
7 received a piece rate payment, condemning them to permanent debt-peonage and no power to
8 leave the rubber areas. The rubber economy was then based on a local chain economic
9 system, where the rubber tapper depended on commercial companies for credit, he in turn
10 employed workers to take care of the land, where he engaged and, in some cases, indigenous
11 were semi-enslaved for the direct extractive work of rubber under the debt system mentioned
12 above (Stanfield 1998¹⁷, Stoian 2005 and others).

Figure 11.7. Foremen from Barbados who watched over the Huitotos indigenous in the exploitation of rubber in Putumayo. *Source:* G. Sidney, *The Lords of the Devils Paradise*. London, 1913.¹⁸

13 The rubber seeds were also taken from the Americas, creating large plantations in other
14 colonies, which were equipped with roads, railways, cheaper labor and better possibilities of
15 reaching international markets. The opposite happened in South America; except for the
16 isolated trials by Harvey Firestone and Henry Ford in Brazil or Roberto Crawford (Pichis
17 River) in Peru (San Roman 1994). On the Amazon and Napo rivers, rubber estates were
18 created from relatively small legal grants of land, which became joint ventures that
19 commercialized rubber and agricultural products (Becker 1995, Weinstein 1983). On the
20 border of Brazil, Peru and Colombia, powerful rubber exploitation lineages were established
21 and came into constant conflict with one another while a border dispute between Peru and
22 Bolivia in Madre de Dios, was permanently fueled by the expansion of rubber production.
23 Returning to the commercial *boom* developed in Iquitos (Peru), Cachuela Esperanza (Bolivia)
24 and Acre (Brazil), its success was based on a regional commercial monopoly, companies or

¹⁷ To be confirmed

¹⁸ To be confirmed

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1 powerful families with investment capacity, access to credit along with channels and
2 incentives to export (Weinstein 1983).

3 During the 20th century, World War II interrupted the supply of cultivated rubber from
4 Southeast Asia to the Allied Forces and increased the demand of rubber production from
5 collectors who extracted latex from native rubber trees scattered throughout the Amazon
6 rainforests. In response to this demand, the Brazilian government organized the “Battle for
7 Rubber” to increase rubber production in the Amazon. More than 30,000 “rubber soldiers”
8 were recruited, mainly from the northeast region of Brazil, and sent to work in the Amazon’s
9 rubber plantations. With the end of World War II, most of the financial support from
10 international governments for these projects was eliminated and the region's economy faced a
11 decline of almost two decades that affected not only Brazil but also Peru and Bolivia
12 (Weinstein 1983, Dean 1987, Pennano 1988, Stoian 2000, 2005, and others). The extractivist
13 economy based on the exploitation of rubber completed the integration of the Amazon into
14 the world economy; however, it depended heavily upon the drop in cinchona activity,
15 participation of foreign capital, a system of barracks that was gradually consolidated and
16 remained “intact” for decades. It was also later deeply affected by the reorganization of
17 access to forest resources and the redistribution of land that resulted from agrarian reform
18 processes, especially in Peru Bolivia and Brazil.

19 **4. OTHER "COMMODITIES" FROM THE AMAZON: HARVEST OF WILDLIFE** 20 **AND NON-TIMBER PRODUCTS**

21 Since pre-Hispanic times, the flora and fauna of the Amazon Region has been the object of
22 consumption and of trade and exchange with other areas of the American continent, under the
23 control of different Amerindian peoples and with a management of biodiversity conservation
24 (Chernela 1985, Grenand 1993¹⁹, López-Zent 1998, Zent 1998¹⁶). However, it is since the
25 19th century with the global industrialization process and the imposition of the extractive
26 economic model, that the balance has shifted to have a negative impact on ecosystems and
27 local populations. An enormous amount of wildlife from the Amazon region has been
28 extracted to the United States and several European and Asian countries to meet the
29 commercial demand for leather, skins and feathers, among other products. This has caused
30 extinction and threatened the existence of several indigenous species. The eight Amazonian

¹⁹ To be confirmed

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1 countries have made lists of threatened species of flora and fauna in the region, which include
2 more than 12,000 native species (Sinovas et al. 2017). In particular, timber and non-timber
3 plants, including cedars, mahogany, palm trees, lianas, vines, orchids, etc., as well as small
4 and large animals such as reptiles, mammals, fish, frogs, etc. All these species of wildlife are
5 sought after for industrial (pharmaceutical, food, cosmetic, textile, fashion, furniture),
6 medicinal, and ornamental purposes, as well as for the pet market.

7 Although national governments have enacted laws and legal measures have been taken to
8 reduce this pressure on native biodiversity, such as the creation of forest reserves or protected
9 areas, the regulation of the hunting of certain species and the breeding of plants and animals
10 in nurseries for commercialization, the lucrative uncontrolled and illegal extraction of
11 wildlife continues to exist (Mayor Aparicio et al. 2007, Mancera-Rodríguez and Reyes-
12 García 2008, Freitas and Vásquez 2018²⁰). During the 16th and 17th centuries, some animal
13 species were traded, such as the manatee (*Trichechus inunguis*), for its meat, skin and oil and
14 the macaw or parrot (*Ara macao*) for its feathers or exotic flavor. Between the 18th and 19th
15 centuries, the Amazon and Orinoco turtles were almost exterminated by the enormous
16 collection of their eggs to make oils, just as the Orinoco caiman hunt began. From the middle
17 of the 19th century to the beginning of the 20th century, animals such as otters, hawksbills,
18 eagles and boas were caught for export of their skins, antlers, and shells. Live birds were also
19 caught for their plumage and as pets; birds, shrimp, snails, shell and nacre lime were
20 dissected; alligator, puma and jaguar hides were stored; insects, oysters, ducks, pearls, water
21 and land turtles (morrocoy) were caught and their shells collected (Mancera-Rodríguez and
22 Reyes-García, 2008, Sinovas et al. 2017). Due to the decrease of the international price of
23 rubber, a forest animal hides, and skins trade developed during the 1920s in Bolivia, and the
24 "Casa Suárez" in Cachuela Esperanza became an important shipping point (Letellier 1964). In
25 the 1970s, the main demand for wild fauna skins for the fashion catwalks increased. The
26 same happened with butterflies, tarantulas, colorful frogs, lizards, snakes, ornamental birds
27 and fish such as paiche or pirarucú, among others, to be used as pets, for biomedical and
28 ethological research, and for advertising aimed at tourists (Sinovas et al. 2017).

29 Also, there was a high demand for timber species for exportation such as red cedar (*Cedrela*
30 *odorata*) and mahogany (*Swietenia macrophylla*), primarily to the USA and Mexico. In
31 Venezuela, due to the overexploitation of these timber species, the national government

²⁰ To be confirmed

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1 mandated the creation of forest reserves during the 1950s-1960s, but the legal logging that
2 was permitted always removed valuable timber species above the legal size and left the
3 remnant damaged (León 2017²¹). Also, due to pressure from private companies, many
4 forested areas of these reserves were deactivated. The demand in the country for these timber
5 species increased sharply from 1946 to 1960s, and to meet the demand other lower quality
6 species such as *Anacardium excelsum* (“mijao”) and *Tabebuia rosea* (“apamate”) were felled.
7 In 1970, the system of temporary legal grants of time lots for exploitation in the forest
8 reserves began, but these were used unscrupulously and illegally by the logging companies,
9 without any control or nurseries to promote the reproduction of timber trees (Kammesheidt et
10 al. 2002, León 2017¹⁸). An example to highlight is the Imataca Forest Reserve, which extends
11 through the states of Delta Amacuro and Bolívar, where the ancestral territories of several
12 indigenous peoples are located, and which was declared a World Heritage Site by the United
13 Nations Educational, Scientific and Cultural Organization (UNESCO). Today, the Mining
14 Arc has destroyed an important part of the area of the Imataca Reserve, where the legal and
15 illegal exploitation of various minerals and intense deforestation take place.

16 Furthermore, non-timber plants of great importance for the biodiversity of tropical forests,
17 but of great commercial appeal for various industries and for use as raw materials, are palm
18 trees such as moriche palm (COL), aguaje palm (PER) or palma real (BOL) (*Mauritia*
19 *flexuosa*), mamure (*Heteropsis spruceana*), chiquichique (*Leopoldinia piasava*) (Oliveros
20 2005¹⁸, Macía et al. 2011¹⁸, and others). Additionally, tonka bean trees (*Dipteryx odorata*
21 and *D. punctata*, Fabaceae), have been removed from the forests with great commercial
22 impact since the 19th century, thanks to their aromatic fruit used mainly in the perfume
23 industry (Torrealba 2011¹⁸). There are different species of tonka bean tree on the continent
24 which are found in Brazil, Peru, Bolivia, Ecuador, Colombia, Trinidad, Venezuela and the
25 Guyanas (Torrealba 2011¹⁸, Figure 11.8). In Venezuela, for example, wild tonka bean trees
26 (“sarrapia”) are located in the Amazon, Bolívar and Delta Amacuro States, but the highest
27 concentration of trees or “sarrapiales” is found in Bolívar State, specifically in the Sucre and
28 Cedeño municipalities, in the territory that goes from the northern Amazonas state, on the
29 Suapure and Parguaza rivers to the Bajo Caura. During the rubber era (1875-1920), in this
30 region of Venezuela, the commercial tonka bean boom occurred (Scaramelli and Tarble,
31 2005a, 2005b²², Perozo Díaz 2006¹⁹). Its commercialization process played an important role

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²² To be confirmed

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1 in the economic and cultural dynamics of various indigenous peoples (Mapoyo, Panare,
2 Piaroa and Jiwi) and some sectors of the Middle Orinoco peasants. Its use was followed by
3 migratory waves of workers from different parts of Venezuela in the period 1890-1965, with
4 a great demand during the consolidation of the extractive economy in Guyana and the
5 institutionalization of debt-peonage (Perozo Díaz 2006¹⁹, Torrealba 2011¹⁹, Rodríguez et al.
6 2014¹⁹). Its production is still in force on a smaller scale. Its seeds have always been highly
7 valued by Europe and the United States throughout its differing cycles of production and
8 have been widely used in the manufacture of perfumes, in the tobacco industry, in the
9 pharmaceutical industry and in food production. Furthermore, evidence of both the oldest use
10 of cocoa has been found in the southeast of present-day Ecuador, and that the upper Amazon
11 was the center of domestication and origin of this plant (Zarrillo et al. 2018). However, in
12 both colonial and early post-colonial times, the coast had the largest number of plantations,
13 which had their peak in production in the late 19th and early 20th centuries, and then
14 collapsed due to pests (McCook 2002). To this day, the Amazonian territories represent only
15 a marginal proportion of national cocoa production.

16 The period of intense extraction of cinchona that occurred during the 19th century and part of
17 the 20th, was followed by a period of intense extraction of rubber, which was accompanied at
18 the beginning of the last century by the harvest of the Brazil nut (Figures 11.8), an economic
19 activity that ended up replacing rubber after its definitive collapse. The rubber period left
20 behind an Amazonian territory characterized by the appearance and dilution of the "barracks"
21 and the formation of new rural settlements (Stoian 2000, 2005). The Pará region in Brazil is
22 largely covered by the Tocantins basin where Brazil nut harvesting began in the middle of the
23 19th century (Clement et al. 2015, Levis et al. 2017¹⁹). There are records that mention the
24 export of Brazil nut to Europe as early as the seventeenth century and although the harvest
25 was relatively intense in Brazil after the collapse of the rubber industry, the lower operating
26 and labor costs ended up favoring the growth of activity in the Madre de Dios region (Peru)
27 and in Pando and Riberalta (Bolivia), consolidating their position as the main Brazil nut
28 exporting regions worldwide in the present day (Clay 1994²³, 1997). In both regions, the
29 emergence and consolidation of the extractivist economy based on Brazil nuts benefited from
30 the socioeconomic context (agro-extractivism based on the collection of raw materials from

²³ To de confirmed

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1 the forest) and knowledge and use of the forest characterized by the legacy of rubber
2 production (Stoian 2000, 2005).

3 It is important to highlight the Pará region to which the name of the Brazil nut alludes, since
4 other species of contemporary economic importance historically come from this region, such
5 as the açai palm (*Euterpe oleracea*, Arecaceae), a name that comes from the indigenous word
6 Iaçá that written backwards is açai, whose fruits were important elements in the diet of the
7 indigenous peoples of the central Amazon. The palm hearts of several species of açai palm
8 were exploited intensively during the 1940s in Brazil's south and southeast regions (*E. edulis*
9 and *E. oleraceae*), even affecting other species during the 1960s and 1970s (*E. precatoria*)
10 and, in the case of Bolivia, even up to the 1990s (Stoian 2004). Its use was also a
11 consequence of the collapse of the rubber industry (Stoian 2004, 2005). Market contraction,
12 as well as differences in cutting cycles and intensities, ever greater distances between supply
13 areas and processing plants and the detection of botulism caused the activity to slowly
14 diminish, giving way to other species managed in cultured systems, such as, *Bactris gasipaes*.
15 The intense use of palm hearts, which implied the felling and death of the palm tree, probably
16 affected the populations of these species, especially those of *E. precatoria* (Johnson 1996,
17 Stoian 2004). However, evaluations on this topic are scarce. On the other hand, in recent
18 decades supply, production and distribution and export chains have been consolidated for the
19 pulp or derivatives of açai fruits (*E. oleracea* and *E. precatoria*), especially in Brazil. Such
20 processes are still being strengthened in other countries such as Colombia and Bolivia.

FIGURE (MAPS a-b)²⁴

Figure 11.8 a) Areas of historical distribution of use of tonka bean (*Dipteryx odorata*, Fabaceae) between the 18th and 19th centuries. b) Areas of historical distribution of use of Brazil nut (*Bertholletia excelsa*, Lecythidaceae), moriche/aguaje/palma real (*Mauritia flexuosa*, Arecaceae) and açai palm hearts (*Euterpe precatoria*, Arecaceae) during the 20th century before 1970s.

21 The economy based on cinchona and rubber and, in the recent past, on the tonka bean and
22 açai palm heart and, today, the Brazil nut, reveal that the extractivist economy is part of the

²⁴ To be inserted

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1 history, occupation and re-occupation of the Amazon. During the 19th and 20th centuries,
2 such economic activities resulted from national security policies that promoted colonization
3 of and migration to the Amazon, promoted by republics in the process of stabilization,
4 especially Brazil, Ecuador, Venezuela and Colombia. These occupation processes were
5 decisive in initiating and consolidating the geography and geopolitics of large-scale
6 exploitation as is the case of rubber. Added to this were the agrarian reform processes that
7 took place from the middle of the last century, which defined new structures and
8 configuration of land ownership, such as the concept of *latifundios* (large estates) in the
9 Bolivia lowlands that ended up favoring the existence of extensive private estates for
10 mechanized agriculture and intensive cattle raising, leaving extractive activities to peasant
11 and indigenous communities. On the other hand, dozens of promising NTFP species have
12 been identified, many of them multi-purpose palm species part of the pre-Columbian history
13 of the Amazon (Homma 1992, Clement et al. 2015). All of these species face the huge
14 challenge of becoming a viable alternative to the deforestation of the Amazon Forest and, in
15 the case of Amazonian fruit species, facing the paradigm about their domestication and
16 commercialization through agroforestry systems.

17 **5. HISTORICAL GOLD MINING**

18 The rumors about the immense natural richness of the Amazon began with the same process
19 of European conquest (Simón 1882, Rivero 1883, Whitehead 1988). Various explorations and
20 productions have confirmed the existence of metallic and non-metallic mineral deposits: iron,
21 gold, nickel, silver, coltan, thorium, clay, sand, limestone, bauxite, diamond, quartz, jade,
22 titanium, dolomite, phosphate, granite, plaster, zinc, copper, among others (Martiz 2019,
23 Tinoco 2000). The most influential and impactful mining has been, without a doubt, that of
24 gold, Figure 11.9). Many current populations owe their existence to the fact that they were
25 enclaves of the exploitation of this resource. Legal and illegal gold mining coexist in the
26 Amazon and the legislation relating to this area has undergone significant modification over
27 the years. The Europeans reported that there were gold mines that the Amerindians used in
28 regional and interregional exchange, in various communities of the Orinoco and Amazonas
29 (Whitehead 1990, 1991). In the 16th century, the colonial system established that mines were
30 the property of the crown, and in 1783, the Mining Ordinances of New Spain, expanded this
31 to include precious stones, non-metallic minerals, and coal (Fernández 2001, Cartay 1988).

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Figure 11.9. Mining work in the colonial period, 16th-17th centuries. *Source:* Engraving by Theodor de Bry. http://4.bp.blogspot.com/-gUQRdK7Q2YI/UsQX_Y2ndNI/AAAAAABVoE/cowanRXimWM/s1600/AMERICA0028.jpg²⁵

1 In the case of Venezuela, in 1829, Simón Bolívar decreed that the mines were the property of
2 the Republic and gave citizens the opportunity to exploit them under certain conditions set by
3 the Federal Executive. In 1854, José Gregorio Monagas, then Governor of the Guayana
4 region, enacted the first Mining Code of Venezuela, while his brother, José Tadeo Monagas,
5 was president of the Republic (Martiz 2019). The most significant exploitation of minerals in
6 the area occurred in the period 1850-1890. The first discoveries of gold in the area of El
7 Callao, led to applications for the first licences, the registration of mines and the installation
8 of factories for the production of gold bullion (Baptista 1997, Paülo and Ángel 2006). This
9 period was also characterized by the boom in the country of foreign capital investments in
10 extractive mining activities (gold, iron and oil), in forest resources (balata, rubber, etc.) and
11 transportation (railways and trams). In the case of Guyana, the leading companies and
12 factories for the processing of gold were created, such as Compañía Minera El Callao (1870),
13 Compañía Austin (Orinoco Exploring and Mining), South America Mining. Co, Compañía
14 Minera de Nacupay, Chile, Alianza de Cicapra, El Porvenir, Nueva Hansa, Potosí, Buen
15 Retiro, San Salvador, La Concordia, among others (Torres 2001).

16 During the period 1866-1895, the deposits with the highest-grade ores known in Venezuela
17 were extracted (Torres, 2001) and crushing mills with pylons were installed in the mines
18 belonging to Nacupay, El Callao, Panamá, Mocupia and Potosí. Gold Field of Venezuela
19 LTD (1898-1946), an English company, bought part of the companies operating in the area
20 and worked with the old mills of the Potosí company. Most of its gold extraction was directed
21 to exportation since Venezuela did not have enough processing plants to produce industrial
22 parts. In 1945, the Mining Law was approved in Venezuela, in which mineral deposits were
23 declared to be of public utility. However, institutional criteria in its application promoted
24 corruption and other acts outside the law. In 1977, Decree 2039 was approved, eliminating

²⁵ To be confirmed

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1 the right to acquire a legal grant of land through the use of a simple mining request (area
2 delimited by UTM coordinates) before the authorities, along with free exploration and
3 exploitation (Chacín 1998, Martiz 2019) increasing the accountability of the process.

4 In 1970, the Compañía General de Minería de Venezuela C.A. (CVG MINERVEN), was in
5 charge of investments for modernizing the mines of Guayana, whose primary gold deposits in
6 Bolívar state are located in Tumeremo, El Callao, El Dorado and El Manteco, in the Cuyuní
7 river basin and the regions drained by the Yuruarí, Botanamo, Caroni, Venamo and the Caura
8 rivers (Egaña 1979, Herrero and Fernández 2000, Martiz 2019). Since the 1970s, these
9 mining developments, have had a large impact on rivers, jungles and savannas, as well as on
10 the original indigenous populations of the region, such as, Pemón, Yekuana, Sanemá,
11 Lokono, and Warao, among others, as well as Afro-descendant towns located in the Caura
12 basin, which originate from ancient “*cumbes*” (escaped slave hideout towns) due to the mass
13 migration of miners from other areas of the country and other neighboring countries.
14 Additionally, in the period 1970-1980, other gold deposits were found in Venezuela in the
15 Ventuarí, Alto Orinoco, Atabapo, Guainía, Casiquiare and Negro rivers, among others, in the
16 Amazonas state, as well as in Colombia in the mountains of Nakén (Guainía), in Panapaná
17 (Cuiarí) and the hills of Taraira, in the Vaupés (González Bermúdez 1996).

18 As happened in several areas of the Amazon, many young indigenous people of different
19 ethnic groups moved to work in the legal and illegal gold mines, abandoning their jobs as
20 teachers and nurses. This activity was only moderately profitable for them, or not profitable
21 at all, due to the high prices of the merchandise and the excessive work, under the supervision
22 of the foremen in charge of the productivity of the mines (González Bermúdez 1996). Some
23 indigenous people began to work in extended families with alluvial gold, isolated and
24 separate from the mines controlled by the Creoles, but the proliferation of violence, the
25 arrival of merchants, prostitution, alcohol, etc., generated high conflict situations and
26 confrontation. The significant immigration of non-indigenous miners and their work system
27 caused a destructive impact on the natural environment, on communities, indigenous
28 territories and their economies, leading to murders, drug trafficking, and theft, as well as
29 forms of modern slavery of mining labor.

30 The destructive effect of legal and illegal or informal activity, of small and large mining,
31 especially the chemical agents used in the processing of gold (mercury, cyanide) is well-
32 known. In Venezuela, the instruments used in traditional non-indigenous mining were the

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1 shovel, pick, machete and wooden tray. Extractivist companies and national governments
2 have taken little interest in studying the system and methodology of exploitation of gold by
3 indigenous peoples, who knew how to conserve natural systems. In ancient times, they
4 exploited gold and considered it to be rays of sunlight (Whitehead 1990, 1991). They knew
5 about goldsmithing and gold alloys, with silver and copper, they made carvings of idols and
6 geometric, anthropomorphic and zoomorphic figures, as well as making thin sheets or sheets
7 of gold for commercial transactions and local, regional exchange or on a large scale. For
8 many indigenous Carib and Arawak peoples today, the extraction of alluvial gold has no
9 ritual restrictions. The exploitation of gold in open-pit mines or excavation requires rituals to
10 obtain authorization from supernatural beings and ancestors, as tokens of respect and love for
11 Mother Earth.

Figure 11.10. Amerindian breastplate made of gold exhibited in the Vatican Museum.

Source:http://www.museivaticani.va/content/dam/museivaticani/immagini/collezioni/musei/museo_profano/01_05_Pettorale_oro_rame_precolombiano.jpg/_jcr_content/renditions/cq5dam.web.1280.1280.jpeg²⁶

12 Legal mining has coexisted both in the Amazon, with legislation that has undergone
13 modifications over the years, like illegal gold mining. Both with substantial impacts on the
14 geographies and situations of indigenous, Afro-descendant, and peasant populations, among
15 others (Whitehead 1990, Vidal 1993²⁷, Tinoco 2000, Arvelo-Jiménez 2014). Europeans
16 reported seeing many gold garments and jewelry that adorned members of the local elite and
17 other indigenous individuals, and it has been documented that there were gold mines that
18 were exploited for regional and interregional exchange, in various communities of the
19 Orinoco and Amazon. The original peoples of the Amazon already practiced artisanal forms
20 of mining, without causing destructive changes in the environment. The ancestors of the
21 Amazonian Amerindians had knowledge of goldsmithing and alloys of gold, silver and
22 copper; they made carvings of idols and geometric, anthropomorphic or zoomorphic figures,
23 as well as they made thin sheets of gold for commercial transactions and local or large-scale

²⁶ To be confirmed

²⁷ To be confirmed

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1 exchange (Whitehead 1990, 1991). For many of today's Carib and Arawak peoples, the
2 extraction of alluvial gold has no ritual restrictions; but open-pit mining or excavation, if it is
3 restricted and requires rituals, based on love and preservation of life. These limitations to
4 certain forms of mining are political actions to respect and protect the Amazon, which have
5 been ignored by economic efforts that are only interested in the extraction of raw materials,
6 dehumanizing local populations and destroying the Amazon.

7 **6. HISTORICAL OIL AND GAS EXPLOITATION**

8 Oil is one of the commodities that influenced the Amazon economies during the 20th century.
9 It was essential for the consolidation of previous processes, such as those associated with the
10 extraction of quina, rubber and other products. In Latin America, few commodities have led
11 to the strong feelings of economic nationalism that arose in response to oil. The political
12 debate has been dominated by critics and promoters of foreign multinationals' investment and
13 participation, with oil policies fluctuating between open-door arrangements to nationalization
14 or expropriation of foreign-owned assets (Bucheli 2010).

15 Oil exploration in the Amazon dates back to the 19th century. However, in the Bolivian
16 Lowlands (*Oriente*), it only started in the 1920s (Klein 1964), in the Venezuelan *Orinoquía*,
17 exploitation has taken place since 1936, in the Colombian Amazon since the 1940s, in
18 Ecuadorian *Oriente* since the 1960s, and in Peru since the 1980s. Brazil has been a major
19 consumer but a minor producer. These processes were marked by the intervention of
20 international companies, sometimes with the participation of domestic ones, always in
21 association with national elites. The degree of openness or national control has varied.

22 In the Bolivian *Oriente*, various explorations and attempts were made, first with national
23 companies, then international ones (Klein 1964). After several unsuccessful attempts, in 1926
24 Standard Oil already had eleven production fields in the *Oriente* and some others in various
25 parts of that country. However, it had permanent conflicts with the State, related to non-
26 compliance, clandestine installations and other issues. In the 1930s, the outcome of the Chaco
27 War, as in the later Ecuador-Peru conflict, was related to conflicting interests between
28 Standard Oil and Shell. In 1936, Bolivia created the company Yacimientos Petrolíferos
29 Fiscales Bolivianos (YPFB), which increased the conflicts by confiscating everything from
30 Standard Oil, who requested intervention from the US government without much success
31 (Klein 1964, Klein and Peres-Cajías 2014). Regarding natural gas, it occurs in the same fields

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1 as oil, but only became economically important when the main foreign markets opened up:
2 “Indeed, while the first records of natural gas production date back to 1952, it was not until
3 1972, with the start of exports to Argentina, that production reached significant levels” (Klein
4 and Peres-Cajías 2014). Since the 1970s, oil and gas have become fundamental engines for
5 Bolivian economy.

6 In Venezuela, oil was used by the native peoples of the country, who employed it as
7 medicine, for lighting houses, and caulking canoes (Fundación Polar 2010, 614). In 1800,
8 Humboldt recorded the location of several fields in the region known as the Orinoco Belt Oil
9 Fields (Humboldt 1826, Fundación Polar 2010, 614-615). The modern oil period began in
10 1875, when the national company Compañía Nacional Minera Petrólia del Táchira was
11 founded (González Rincones 1956). However, oil extraction in the Lower Orinoco basin
12 began in 1936, with Standard Oil and the drilling of the La Canoa-1 Well, in the southern
13 areas of Guárico, Anzoátegui, Monagas and Delta Amacuro (Fundación Polar 2010, 614-
14 615). In 1943, a Hydrocarbon Law was enacted, specifying the duration of licenses, taxes,
15 and controls on foreign companies, which forced them to refine part of their production
16 inside the country (Malavé Mata 1962). During the expansion of the Venezuelan oil industry
17 since World War IIe la Plaza 1980 (Quintero 1972), new types of licenses for export were
18 created, as were “national reserves”, the royalties from which resulted in an increase in
19 percentage of GDP from 15% in 1914, to 50% in the 1960s. The nationalization of oil
20 production followed in 1976. Petróleos de Venezuela S.A. (PDVSA) was created, and that
21 country became a founding member of Organization of the Petroleum Exporting Countries
22 (OPEC) generating high national profits.

23 As in the other Amazonian countries, the oil boom has had negative impacts on Indigenous
24 peoples as the case Kariñas. Although they possess colonial titles for lands and received
25 royalties from oil companies, they have had to migrate to other areas in the south of their
26 territory due to environmental deterioration, which has impoverished their economy and
27 impaired their health (Jiménez and Perozo 1994, Whitehead 1994, Arvelo-Jiménez 2014). In
28 the 1960s, the closure of the Caño Mánamo, the main tributary of the Orinoco Delta, by the
29 oil industry, caused flooding and an ecological disaster in wetlands, forests and savannas,
30 which destroyed the environmental, cultural, social and economic balance of the Warao
31 Indigenous up until the present day (Heinen 1992).

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1 In Colombia, the first exploitation of oil took place on the coast, then in the Orinoquia, and
2 finally in the Amazon. Putumayo's oil history dates back to 1937, with the Saxon Petroleum
3 company. Texaco was in charge of the revitalization of this activity and in 1948 drilled the
4 first well, José María-1, in the jurisdiction of Mocoa (today municipality of Puerto Guzmán).
5 In 1955 the percentage of royalties that oil companies had to pay were reduced as a stimulus
6 to explore the southern Amazon region, which led to Texaco obtaining a license for the
7 exploration of 16,000 km² for 30 years in 1959, the most extensive given in Colombia until
8 then. Texaco moved its work from the area near the Caquetá River to the border with
9 Ecuador, where in 1963 the Orito 1 Well was drilled, becoming the epicenter of oil activity
10 which was completed in 1971 (Avellaneda Cusarúa 2005).

11 Oil activity in Putumayo signaled the possibility of consolidating the country as an oil
12 producer and articulating those territories to the nation. Oil activity made it possible to
13 stimulate a new form of colonization, and the transformation of the landscape in a more
14 significant way than is generally expected or attributed to peasant colonization, because the
15 opening of roads led to a "sowing of people". New municipalities such as Orito, San Miguel,
16 Valle del Guamuez and Puerto Caicedo were created for the purpose of managing some
17 royalties. There were investments in road infrastructure to connect extraction sites. Problems
18 with land titling and ownership continue to cause conflict between residents and companies
19 (Avellaneda Cusarúa 2005).

20 Initial oil exploration in Ecuador took place in 1921. Geologists from the Leonard
21 Exploration Co., a company that obtained a 25,000 km² license for 50 years (Wasson and
22 Sinclair 1927), that were ultimately unsuccessful due to a lack of funding (Gordillo 2003,
23 Rivadeneira 2004²⁸). After that, Shell carried out explorations from 1938 (Tschopp 1953²³);
24 after they obtained a ten-million-hectare license in 1937, they opened roads from the central
25 Andes, built an airport and caused a significant impact on local Indigenous peoples. They did
26 not find sufficiently lucrative deposits in terms of crude quality, and the exploitation had
27 logistical difficulties such as its remote nature. After the 1941 war between Ecuador and
28 Peru, which various people associated with the interests of competing oil companies, the
29 former lost a large part of its territory, including the licensed area, so Shell retired in 1948
30 (Rivadeneira 2004²³).

²⁸ To be confirmed

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1 After Shell left Ecuador, the President Galo Plaza stated that “the *Oriente* is a myth”, adding
2 that Ecuador was not designed to be an oil country, but an agricultural one (Rivadeneira
3 2004²³). However, in 1968, the Texaco-Gulf Consortium, which in 1964 had obtained a
4 license for 1,400,000 hectares for 58 years (Ramón, Pérez and Jarrín 2019), began drilling
5 high-quality fields in the northeastern zone, starting with the Lago Agrio 1 Well in 1967
6 (Figure 11.11). These explorations were successful, and the country began exporting crude
7 oil in 1972. In part, this was made possible by the already mentioned explorations carried out
8 on the Colombian side of Putumayo in 1963. The corporation built roads and an oil pipeline
9 that crossed the Andes to the coast. It operated for almost 20 years with very little oversight,
10 causing enormous pollution. The company acted as a parallel state in the territory. Other
11 companies also explored diverse areas in the 1960s and 1970s. The *Oriente* ceased to be a
12 myth and the oil rush and its multiple chains attracted thousands of migrants, some as part of
13 the agrarian reform and colonization of 1973. These processes were widely criticized by
14 sectors of the population, including Jaime Galarza Zavala (1972), imprisoned by the ruling
15 Military Junta for protesting. He alluded to the Seven Dinosaurs (Standard Oil of New Jersey,
16 Shell, Mobil, Gulf, Texaco, BP, and Standard Oil of California) which behaved as they
17 pleased in the countries.

Figure 11.11 The first oil well drilled in Ecuadorean Amazon, 1967. Source²⁹

18 7. THE START OF INTENSIVE CATTLE RANCHING IN THE AMAZON

19 Livestock, along with road construction and governmental induced settlement programs, have
20 been the main drivers of the massive deforestation process since the 1960s (Fearnside, 1987;
21 Valentim and Vosti, 2005). Cattle were introduced in São Paulo, Brazil from Cape Verde
22 (Africa) in 1534 (Homma 2003). In the mid-17th century, Portuguese settlers introduced
23 cattle to the Brazilian Amazon. Initially, the cattle were raised on grasslands established after
24 the deforestation of areas around the city of Belem, capital of the state of Pará. For the next
25 three centuries, until the 1960s, the island of Marajó, in Pará, was the main cattle ranching
26 center in the Brazilian Amazon. Livestock farming was also carried out along the middle and

²⁹ To be inserted

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1 lower sections of the Amazon River, mainly in extensive grazing systems on native pastures
2 in higher portions of temporarily flooded areas (Barata 1915³⁰, Dias-Filho 2019²⁵). During
3 this period, most of the major urban cities in the Amazon had to rely on imported meat,
4 sometimes from other parts of the country or from foreign countries to meet their demand.
5 Due to the lack of roads, in many circumstances, meat was transported by air, leading to
6 scarcity and a high-cost product, which was accessible only to the highest income segments
7 of the population (Dias-Filho 2019²⁵, Dias-Filho and Lopes 2020).

8 Across Latin America, livestock expansion since the mid-19th century has largely been a
9 story of the transformation of forests into cultivated pastures (Van Ausdal 2009). This
10 environmental transformation has become more relevant since the early 1960s, when national
11 governments implemented policies to integrate the Amazon portion with the rest of their
12 territories. In Brazil, these policies included the construction and improvement of roads,
13 subsidies for agriculture, and impressive resettlement programs for landless rural families
14 (Hecht 1981²⁵, Valentim and Vosti 2005, Dias-Filho 2019²⁵). Extensive ranching systems
15 also became an important strategy for land grabbers and speculators to convert forests into
16 cultivated pastures and claim unregulated public lands (Hecht 1981²⁵, Fearnside 1987), a
17 process that continues to be an important driver of deforestation in the Amazon today (Stabile
18 et al. 2020). By 1975, the cattle herd in the Brazilian Amazon had already reached seven
19 million heads on 20 million hectares of pasture. The resulting livestock load of 0.35 animals
20 per hectare was an indicator of a very extensive production system with low productivity
21 (Valentim and Andrade 2009²⁵).

22 This land development strategy was based almost entirely on limited use of technology, in
23 particular forage germplasm and pasture management options brought by farmers who
24 migrated from other regions with different environmental conditions (Dias-Filho 2019²⁵). The
25 conversion of the diversified forest ecosystem into extensive areas with homogeneous
26 grasslands established with exotic African grasses in tropical conditions with high
27 temperatures and humidity resulted in cultivated grassland ecosystems with low resilience, a
28 condition that favored the proliferation of pests and diseases (Valentim and Moreira 2001). In
29 addition, farmers adopted poor management practices, such as repeated burning in an attempt
30 to control the regeneration of native herbaceous and wood species, as well as the invasion of
31 exotic plant species (Serrão et al., 1979). Fire was also used inappropriately to try to control

³⁰ To be confirmed

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1 the high numbers of pests, such as spittlebug (*Deois* sp. and *Zulia* sp.), which caused rapid
2 and severe degradation of pastures. Repeated burning favored nitrogen volatilization, nutrient
3 leaching in ashes, and erosion of exposed soil, degrading grasslands three to five years after
4 their establishment (Valentim 1989).

5 Even under these conditions, Margulis (2003) reported that beef cattle farming in the
6 Brazilian Amazon, even with prices 15% to 20% lower than in São Paulo, had a 113% higher
7 profitability. This was the result of substantially lower land and labor prices in the Amazon.
8 Despite being profitable, livestock farming in the Amazon during the 1960s faced several
9 problems such as rapid and extensive degradation of pastures, lack of technical and
10 management expertise among farmers, and insufficient and inadequate technical assistance
11 services (Valentim 1989, Valentim and Andrade 2005).

12 However, reclaiming degraded pastures was difficult and extremely expensive due to a
13 shortage of tractors, plows and harrows and the high cost of limescale and fertilizers. As a
14 result, in order to provide an adequate forage supply to a geometrically growing cattle herd,
15 farmers accelerated deforestation to expand the area of pastures (Serrão et al. 1979). This was
16 facilitated by the legal framework that still prevailed in the 1970s requiring Brazilian farmers
17 to deforest and burn their pastures as proof of “productive land” in order to receive a property
18 ownership title from the government agency (Fearnside 1987, Valentim and Andrade 2005).
19 Furthermore, the legal framework still provided economic incentives for deforestation
20 (Fearnside 1987), as deforested lands paid lower taxes while forest lands (considered
21 unproductive lands) paid higher taxes. National and international concerns about rising rates
22 of deforestation in the late 1970s led to increasing pressure on governments to change
23 policies that provided incentives for ranching and agriculture in the Amazon biographical
24 biome (Hecht 1981³¹, Valentim and Vosti 2005).

25 **8. ORIGINS OF LARGE ROADS AND HYDROELECTRIC PLANTS**

26 The end of World War II resulted in the gradual reduction of policies aimed at ensuring an
27 adequate and constant supply of strategic natural resources from the Amazon (McCann
28 1995). With some exceptions, from then on economic development policies were dominated
29 by the provision of financial aid and the implementation of deliberate trade-protectionist
30 support to national and multinational industrial groups in import substitution and state-led

³¹ To be confirmed

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1 industrialization frameworks (Brando 2012). Some of the key requirements of this
2 industrialization project were the improvement of the transport infrastructure network and the
3 regular supply of low-cost energy.

4 About 100 hydroelectric dams were built in the 1950s, 103 in the 1960s and 151 in the 1970s
5 and 1980s (Von Sperling 2012). However, the construction of dams on the Amazonian rivers
6 has provoked clashes between developers, government officials, indigenous populations and
7 environmentalists (Von Sperling 2012). The Amazon basin, about 60% of which is in Brazil,
8 is the focus of a massive program of hydroelectric dam construction. If successful, these
9 plans could eventually turn almost all of the Amazon tributaries into a chain of water
10 reservoirs for hydroelectric production (Fearnside 2015). Rich in rivers, Brazil has always
11 considered hydroelectric energy as a way of fulfilling its ambition of being a great world
12 power (Moran 2016). Brazil has used hydroelectric power since the late 19th century, but the
13 1960s and 1970s set the stage for increased investment in the construction of large plants.
14 Some of the largest Brazilian dams in operation are located in the Amazon and were planned
15 or initiated during this period. This is the case of Belo Monte (11,181 MW), located on the
16 Xingu River, and Tucuruí (8,370 MW), located on the Tocantins River, both important
17 tributaries of the Amazon River (Fearnside 1999, 2006).

18 Road construction has also been a key method for national governments to ensure
19 sovereignty and the integration of portions of their Amazonian territories in their country's
20 economy. Brazil began implementing an impressive policy of highway construction from the
21 early 1950s, which accelerated after the 1964 military coup. Several of these highways, such
22 as the Trans-Amazonica (BR-230), BR-163 and BR-319, are still in the process of
23 improvement and paving raising many concerns about their environmental and
24 socioeconomic trade-offs (Valentim and Vosti 2005, Laurance et al. 2009, Moran 2016). This
25 is particularly relevant as the density of roads in one county is associated with increased
26 human migration and deforestation in that county and similar side effects in neighboring
27 counties (Pfaff 1999³²).

28 The construction of new roads in the Amazon also has important implications for previously
29 isolated rural communities or indigenous extractive communities affected by their
30 construction (Riyel-Powel et al. 2018²⁷). By the late 1970s, evaluations and concerns about

³² To be confirmed

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1 past, present, and future socioeconomic and environmental impacts of policies that promoted
2 the construction of roads and hydroelectric dams in the Amazon basin were already on the
3 rise, both in civil society in the Amazon countries and in the international community. At the
4 time, there was a growing debate among researchers and policy makers about the challenges
5 and possible strategies for mitigating them in order to promote sustainable and inclusive
6 development in the Amazon basin. Various economic processes were intensified throughout
7 the Amazon starting in the 1970s. For example, oil extraction, deforestation and
8 hydroelectricity. This was accompanied, sometimes motivated by, the strengthening of land
9 access routes and the consolidation of or creation of cities. Those processes continue to this
10 day. The opening of land routes has consolidated issues such as deforestation for timber and
11 the opening of the agricultural frontier.

12 9. CONCLUSIONS

13 ❖ Most of the economic cycles of the Amazon between the 19th and 20th centuries were
14 motivated by the demand for raw materials from external markets, located in
15 industrialized nations of the global North. They were part of geopolitical and
16 geographical scenarios in the processes of emergence and consolidation of the
17 republics. They had different degrees of participation by the States, the emergence of
18 powerful elites, and the perception of Indigenous peoples and rural communities as
19 low-cost or even free labor ("dehumanization" of the Amazon). These extractive
20 processes continue in part to this day, when products such as beef cattle, oil, or soy,
21 among others, are produced especially for export from Amazonian countries.

22 ❖ The Amazon has witnessed cycles of rise (*boom*) and fall (*bust*) in the exploitation of
23 raw materials, which shaped diverse social, economic and spatial structures,
24 sometimes to the detriment of previous territorial arrangements. Products such as
25 *Cinchona*, rubber and others led to the opening of waterways, roads, cities,
26 settlements and collection and distribution centers, as well as population movements.
27 Those economic booms associated with commodities attracted migrants who
28 gradually took over territories, almost always to the detriment of ancestral
29 populations.

30 ❖ There are two great continuities within the extractivist economy from the 19th century
31 to 1970: 1) a system neocolonial or postcolonial derived from the extraction of raw

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1 materials, with enslaved or recruited cheap labor, and export of the final products, and
2 2) the management of lowland forests and ancient tropical savannas maintained by
3 Indigenous, Afro and some peasant peoples. Without identifying, revaluing and
4 adopting the important contributions of indigenous knowledge and practices to the
5 management of the Amazon, the region will continue to be an heir of the colonial
6 system, which today requires the irreversible destruction of the forests and other
7 ecosystems of the Amazon.

8 ❖ The Amazon has been seen as a reservoir of raw materials as rubber and chinchona of
9 strategic global value, particularly in times of crisis. In the 1950's national
10 governments started to promote the occupation and integration of the Amazon
11 identified as empty spaces with their sovereignty at risk, through policies focusing on
12 road construction, exploitation of minerals such as gold, oil and iron, hydroelectricity
13 projects, resettlement of poor landless populations, and the promotion of deforestation
14 and subsidized agriculture and cattle ranching projects.

15 **10. RECOMMENDATIONS**

- 16 1. Looking to the future, it will be key to learn from thousands of years of successful
17 experiences of indigenous groups in sustainably managing, shaping and guarding
18 natural resources. How to develop economic models that avoid asymmetric
19 exploitation practices, such as, debt-peonage is perhaps the big challenge.
- 20 2. Various Andean Amazonian products have generated enclave economies throughout
21 the centuries, with boom-and-bust processes. Economic activities must be carried out
22 in sustainability frameworks over time, guaranteeing the Amazonian communities'
23 long-term well-being.

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3

4 **12. CORE GLOSSARY**

5 **Barracks:** Exploitation areas controlled by an employer.

6 **Debt-peonage** (in Spanish “habilito”, in Portuguese “aviamento”): "Hitching" system for
7 rubber and/or Brazil nut collectors based on the advance of money kind or supplies for a
8 determined production.

9 **Quina bark gatherer** (in Spanish “cascarillero”): Name given to the collectors of the bark of
10 quina (Chinchona).

11 **Rubber tapper:** Name given to the collectors of the rubber.

13. BOXES

Box 11.1 Summary of the territorial expropriation and reappropriation of the Amazon.

11.1 - The process of territorial expropriation of the original Amazonian peoples and the modern reappropriation of the Amazon dates from 1493-1494. The Bull of Alexander VI and the Treaty of Tordesillas drew an initial South American division between the Castilian and Portuguese Crowns, involving what we now call Amazonia. This dividing line granted only a small part of the Amazon to the Portuguese crown whose dominions would hypothetically extend towards the east, expanding towards Africa. Three centuries later, the situation was completely reversed, with the Portuguese possessions having expanded towards the west to the Fort of Tabatinga in the second half of the 18th century, the current dividing line between Colombia and Brazil, and even Acre was owned by Brazil at the beginning of the 20th century. Obviously, territorial expropriation-reappropriation through the drawing of lines on imprecise maps of lands which were not clearly mapped is symbolic, as is the fact of naming the territory, starting by naming the Amazonas river. The reconnaissance trips of Francisco de Orellana, from Quito in 1540 and Pedro Teixeira, a century later, in the opposite direction, from Belem do Pará to Quito, reflects the slow process of material appropriation of the Amazon.

11.2 - Other mechanisms of material appropriation should be highlighted: Enslavement of indigenous peoples, bringing them downstream to the Portuguese plantations, the foundation of towns on the banks of the Amazon, particularly in the name of the Spanish Crown as in the case of the Jesuit missionary, Samuel Fritz at the start of the eighteenth century, and the establishment of expansion forts, as in the case of Tabatinga, on the border with present-day Colombia, accompanied symbolic appropriation through treaties. Spain and Portugal made a diplomatic and cartographic effort in the second half of the 18th century to set out more precise borders, borders inherited in the 19th century by the newly founded nation states.

11.3 - The Hispanic-American nation states of the 19th century were governed by the principle of *Uti Possidetis Iuris*, unlike Brazil which preferred *Uti Possidetis de Facto* since it was more successful in material expansion and was not interested in

recognizing the Treaty of Tordesillas. However, by 1851, Brazilian and Peruvian diplomats had negotiated the Apaporis-Tabatinga line to divide the Amazon between the two countries, but ultimately, Colombia claimed part of the Brazilian Amazon. It thereby formed what is known as the Amazon Trapezium, the final result of negotiations between Peru, Colombia and Brazil that ended up excluding Ecuadorian aspirations. The diplomatic push resulted from the rediscovery of, and subsequent worldwide demand for rubber. The imperial expropriation-reappropriation process became a national one. The appropriation of natural resources during the 19th century came about through bonanzas that attracted rugged private entrepreneurs, and cinchona and rubber workers. The appropriation of the Amazonian populations, and their subsequent insertion into the nation state, was entrusted by the State to missionaries. The symbolic appropriation served as the basis for the material appropriation-expropriation.

11.4 - By the second decade of the 20th century a handful of cities existed in the midst of the Amazon. However, due to the fall in rubber prices this territory began to return to its loose connection with the world and with the nation states. The situation in the Amazon began to change again in the interwar period, due to the need of North American businessmen, particularly Henry Ford, to stockpile rubber, facing potential monopolies such as the British one in Malaysia. In this effort, the government of Getulio Vargas played a key role in the 1930s and 40s, and the famous slogan of "a land without people and a people without land ", which led to a large movement of rural northeastern populations towards the interior of the Brazilian Amazon.

11.5 - Displacement of peasant populations also occurred in the post-war period in different Andean-Amazon countries. In the case of Colombia, for example, this displacement was also an escape valve for the political violence concentrated in Andean areas and as a mechanism that national elites used to avoid carrying out agrarian reform in the Andean region, which implied pushing dispossessed peasant populations to contest territories belonging to the original inhabitants of the Amazon.

11.6 - By in the late 1950s, the era of development had permeated into the Amazon. The case of Brazil saw the most formidable effort by a Nation State to materially appropriate territory through the creation of a national capital, Brasilia, close to the Amazon, and the development of highways, the strengthening of the capital cities of federal states, incentives for livestock, and the transformation of a city like Manaus into a formidable industrial zone.

11.7 - In the Andean-Amazon countries, this state action was less forceful, which does not mean that it was not extremely important. Having already mentioned the efforts of peasant colonization supported by the State, one cannot lose sight of the hydrocarbon stakes, for example, in Ecuador and the Colombian Putumayo, clearly established since the 1960s.

11.8 - The legal basis for this expropriation-reappropriation underwent important changes in the process. Since the Republics and the entrenchment of Napoleonic law in Latin America, the idea of private property as an absolute right became the cornerstone of legal systems. Border territories became wastelands, owned by the nation, which were then awarded to private owners. The absolute right to private property also allowed for the exploitation of nature, particularly cinchona and rubber, as well as wild fauna. At the end of the 1950s, in some Andean-Amazonian countries, parts of the Amazon became protected areas under law. The Amazonian border, in some cases, was protected and “wastelands” were no longer given to private owners.

11.9 - In Colombia, through the Second Law of 1959, the Amazon became a protected area. This law employed conservationist discourse of the forest as a natural resource of the nation and announced the possible creation of national parks. Little more than a decade later, a wave of national park creation began, accompanied by the declaration of indigenous reservations. The material appropriation continued from the development discourse, through oil, livestock and peasant colonization, was accompanied by a conservation discourse that invigorated the protected areas, promoted the ability of original populations to engage in the process of appropriation within indigenous reserves, and generated a framework for a new appropriation of the Amazon that led to competition of private appropriation

in terms of development, public appropriation through National Parks and social appropriation in terms of Amazonian native peoples. The panorama was further complicated when the cultivation of coca plants took root in these remote lands.

1.10 - The recent extractivist wave at the turn of the 21st century faces different forms of ownership of the soil, subsoil and forest products. These have moved from being exclusively forestry, since new proto-goods of the environmental era have been created: those derived from biodiversity, ecosystem services and carbon credits, the new economic goods of the current Anthropocene era.

Box 11.2 - Slavery processes during the emergence and consolidation of the republics, 19th and 20th centuries.

2.1 - The process of slavery and servility has had a strong impact on Amazonian communities since the beginning of the colonial system. Various forms of forced labor were institutionalized in the European colonies and later in the emancipated republics of the 19th and 20th centuries. Slavery involves the transformation of a person or groups of individuals into the goods and property of another person, as a particular form of production relations. Human trafficking involves the prostitution of women and children and different practices of physical, psychological, sexual, economic violence to force forced labor; many slaves were trapped by debt.

2.2 - In the Amazon, the slavery of the Amerindian peoples occurred in the midst of the socio-political relations between two civilizing blocs, whose actors and protagonists confronted each other in episodes of war, cultural resistance, commercial interactions, coexistence, among others. On the one hand, there were the socioeconomic production system and the exchange of people, knowledge, rituals, goods and services, in the midst of conflicts, wars and political pacts between Amazonian Amerindian societies. On the other hand, there was the colonial extractivist system and economy, with its legal-political base, within which the indigenous people, individually and collectively, were transformed into very lucrative merchandise for trade and as enslaved labor in large companies. This

situation of enslaved labor lasted until the 19th century and has continued in the marginal or peripheral areas of the nation states until the present day.

2.3 - Indigenous slavery began in the Insular Caribbean, and from there it expanded in 1498 to the coasts and other areas of Tierra Firme. Columbus's expedition in the Lower Orinoco was followed by many raids by slaveholders and pirates during the 16th-18th centuries. It is estimated that for the period between 1493 and 1552, the slave trade trapped between 250,000 and 500,000 people in the region between the Caribbean and Tierra Firme, and the figure rose to 2 to 5 million victims throughout South America and the Caribbean, but these figures are conservative because there were many other slaves that do not appear in the colonial records. In the colonial system, markets for the sale and exchange of indigenous and African slaves were located in the Amazon and were associated with certain forms of economic production (plantations, extraction of minerals and other goods). In Euro-Amerindian relations, control over people, above that of economic resources, became a tool for political domination until the end of the 19th century, both European soldiers and indigenous warriors organized into militias for human hunting.

2.4 - Although in indigenous societies there were forms of servility and hierarchical social structures, these servants became part of families by affinity, their work and productivity were part of the domestic units of production and consumption. The impact of the participation of the Amerindians in the colonial process (17th and 18th centuries) generated drastic changes in inter-ethnic relations: indigenous groups organized in ethnic militias attacked communities to capture enslaved labor which was in high demand within networks and exchange centers between indigenous people and Europeans from different colonial powers, reflected by the high prices paid. Along with slavery, indigenous people also worked in forced labor on farms and in mission towns. During the 18th century, there were campaigns of enslavement and wars of extermination directed towards powerful indigenous groups, such as the Manao and Baré de Río Negro and the Kariña and Caverre del Orinoco.

2.5 - The indigenous socioeconomic system was based, and still is based, on domestic units of production, on kinship and reciprocity relationships, between communities and local groups that interact within regional interdependence systems, with complex horizontal but differentiated inter-ethnic relations, and kinship expanded to business partners. This integration through trade, deferred and long-distance exchange of goods and services, knowledge, rituals, matrimonial alliances, political pacts, did not mean loss of local political autonomy, nor of cultural or linguistic diversity, nor the absence of conflicts, incursions and wars between different ethnic groups.

2.6 - In their relations with the Amerindians, the colonial powers imposed their vision, values and laws on slavery and servility, which reflected their long history built in the Old World, of interactions from and between the Mediterranean and other “marginal” areas of the Europe, and with other continents (Asia, Africa). Slavery due to violence or due to the debt system (debt peonage) was used for more than two hundred years in the Amazon Region, and was related to the production, collection, extraction of raw materials and goods in rubber plantations and mines, among other types of extractive economy.

2.7 - Although slavery was abolished in the nation states during the 19th century, it did not disappear in the Amazon or in the peripheral regions of Latin American countries. During the exploitation of rubber (1892 - 1920's, 1940 -1945), there were periods of intense capture and trafficking of indigenous people, as well as unequal labor relations under the debt system. A large number of indigenous people were trapped in the networks of the rubber regime, which caused significant demographic reductions, serious alterations in their settlement patterns, and strong destabilization of their economies and political autonomies. This era of rubber was replaced by the re-founding of Catholic missions (1910's) and the subsequent entry of evangelical missions, which eventually opened the doors to new explorations for natural resources and future invasions of indigenous territories, which were declared to be uncultivated or depopulated lands.

2.8 - Between the years 1960-1970's, various nationalist policies were implemented to consolidate the presence of nation states, develop marginal regions and

repopulate their border areas, with new exploitations of forest and mining products. In Venezuela, by the end of the 1960s, development plans and programs for the Southern Region were implemented, known as the “Conquest of the South”. This included investment of national and foreign private capital, and the implementation of public policies of a geopolitical, economic and environmental nature within the framework of new frontiers of the extractives economy and the incorporation of local populations into the national economy. These policies resulted in high levels of immigration from other areas of the country to local cities and invasion of indigenous territories by land grabbers, miners, etc., as well as the incorporation of indigenous people as salaried public officials (transporters, nurses, workers), and as labor in the extraction of raw materials (fibers, resins, hides, etc.) under the debt system of unscrupulous merchants.

2.9 - These developmental policies were followed in the mid-1970s with new public development programs (intensive agriculture, cattle ranching, exploitation of natural resources, credit, creation of peasant and indigenous companies) and an increase in mining. Large national, foreign and transnational companies promoted the illegal invasions of miners for the extraction of various metallic and non-metallic minerals. All of which led to further losses of indigenous territories, disorganization of their traditional economies, and forced labor for many indigenous people.

2.10 - In Venezuela, the exploration of resources occurred in the midst of a crisis in oil prices (1980's), which prompted greater exploration for oil and raw materials in the south of the Orinoco region. With mining, especially in those areas with little control and surveillance by the state or with the participation of regional and national officials, more national and foreign immigration, forced labor systems, prostitution, land grabbing, environmental destruction, disorganization of local economies are only a part of the long list of problems that indigenous organizations have had to face and resist in the late twentieth and early twenty-first century.