

7. Population in Amazônia Legal 1970–2022

7.1. Regional population growth of urban and rural population

The population in Amazônia Legal quadrupled since the 1970s. In 1970, this region had a population of 7.13 million, i.e., 7.7% of Brazil's total population. In 2020, Amazonia was already inhabited by 28.1 million people (IBGE, estimate), equivalent to 13.3% of the Brazilian total (Table 12).³²⁶ This means that one in eight Brazilians lives in Amazonia. About 3.3% of the Amazonian population is Indigenous.

The regional population has developed very differently over time and in terms of its regional impact. In the 1970s and 1980s, there was a very strong immigration to the states of Rondônia, Mato Grosso and along the Transamazônica in Pará. In Rondônia, this was linked to the Polonoroeste programme, which brought with it high migration flows of peasant settlers, especially from southern Brazil, within the framework of state controlled agrarian colonisation.³²⁷ This also applied to the settlement along the central part of the newly opened Transamazônica. In Mato Grosso, increased immigration took place until the early 1990s on the basis of private-sector development by medium-sized and large holdings, especially of south Brazilians farmers.

Today, the most populous states of Amazonia are Pará (30.8% of the population of Amazônia Legal), Maranhão (21.0%), Amazonas (15.0%) and Mato Grosso (12.5%). The population density of 5.6 inhabitants per km² for the entire region is still low due to the enormous area of the states (Table 13). In Maranhão, due to traditional dense rural settlement in the eastern part of the state density is higher with 22.6 inhabitants per km². Of course, the overall population density says relatively little, especially since the concentration of the population takes place in the few urban centres of Amazonia.

Data on the share of the urban population is only available up to 2010 (IBGE 2011a; 2012).³²⁸ With almost 80%, the urban population has a very high share – Amazonia was called an “urbanised forest” (Becker 1995).³²⁹ The share of the urban population

326 According to the 2022 Census (IBGE 2023), the population of Amazônia Legal is 27.8 million.

327 Cf. chapter I.2 and Tables 6 and 7.

328 Originally, the census, being carried out decennially, was supposed to take place in mid-2020. However, due to the COVID-19 pandemic, the Brazilian Institute of Geography and Statistics (IBGE) changed the date to 2021. In early 2021, the budget of the Census was cut to only 12% of the original value, so that the Census was moved again. Brazil's Supreme Court decided that the government had to perform the Census in 2022.

329 cf. chapter II.3.3.

will continue to increase to the present day. Maranhão is an exception with an urban population of only 63.1%.

Table 12. *Population in Amazônia Legal, 1970–2020*

Federal states	1970	1980	1991	2000	2010	2020
Acre (AC)	215 299	301 276	417 718	557 526	733 559	894 470
Amapá (AP)	114 230	175 258	289 397	477 032	669 526	861 773
Amazonas (AM)	955 203	1 430 528	2 103 243	2 812 557	3 483 985	4 207 714
Maranhão (MA)	2 401 586	3 254 305	4 088 272	4 730 016	5 475 829	5 914 375
Mato Grosso (MT)	598 849	1 138 918	2 027 231	2 504 353	3 035 122	3 526 220
Pará (PA)	2 166 998	3 403 498	4 950 060	6 192 307	7 581 051	8 690 745
Rondônia (RO)	111 064	491 025	1 132 692	1 379 787	1 562 409	1 796 460
Roraima (RR)	40 885	79 121	217 583	324 397	450 479	631 181
Tocantins (TO)	521 139	739 049	919 863	1 157 098	1 383 445	1 590 248
Amazônia Legal (AL)	7 125 253	11 012 978	16 146 059	20 135 073	24 375 405	28 113 186
Brazil	93 134 846	119 011 052	146 825 475	169 799 170	190 755 799	211 755 692

Source: IBGE, Censos Demográficos 1970–2010 (2020: IBGE estimations).

Table 13. *Amazônia Legal in 2020: Area and population data*

Federal states	Area (in 1000 km ²)	Population in 2020 (in 1000 inhabitants)	Population density (people/km ²)	Urban population in 2010 (in %)
Acre	164.1	894.5	5.5	72.6
Amapá	142.5	861.8	6.1	89.8
Amazonas	1559.2	4207.7	2.7	79.1
Maranhão	261.9	5,914.4	22.6	63.1
Mato Grosso	903.2	3526.2	3.9	81.8
Pará	1245.8	8690.7	7.0	68.5
Rondônia	237.8	1796.5	7.6	73.6
Roraima	224.3	631.2	2.8	76.6
Tocantins	277.7	1590.2	5.7	78.8
Amazônia Legal	5016.5	28 113.2	5.6	79.5
Brazil	8510.3	211 755.7	24.9	86.8

Source: IBGE: Censo Demográfico 2010; 2020: IBGE: estimations. Accessed in IMAZON (2021, Table 2), and own calculations.

In recent decades, the large urban centres,³³⁰ i.e., above all the capitals³³¹ of the Amazonian states, have experienced strong immigration. The traditional centres of Manaus (2019: metropolitan area: 2.68 million) and Belém (m. a.: 2.51) stand out as dominating cities. São Luís (m. a.: 1.63) has experienced a strong population influx, mainly due to the Grande Carajás Programme as terminus of the iron ore railway, as major export port and as an industrial location, especially of an important alumina refinery and an aluminium smelter. Cuiabá has also exceeded the one million mark with its metropolitan area.³³²

In most states of Amazonia, the capitals exert a particular pull effect due to the potential labour market. In all major cities of Amazonia, a strong social fragmentation has developed, with “gated communities” for the local elites and no-go areas in marginal neighbourhoods with omnipresent social segregation. Even in the sparsely populated states such as Roraima, Amapá and Acre, the growth of the urban population of the main cities Boa Vista, Macapá and Rio Branco continues unabated, especially since there is a lack of other larger urban centres as an alternative. Along the main federal roads, in Pará (BR-010, BR-230), Mato Grosso (BR-163, BR-364), Rondônia (BR-364) and Maranhão (BR-010, BR-230, BR-226) there is a network of functionally relatively well equipped middle-sized and small towns.³³³ In Tocantins (BR-010), the capital Palmas, which was only founded in 1990 in the *cerrado* region, has developed rapidly (1990: 24 200 inhabitants; 2021: 313 300) (Table 14).

Table 14. Population increase in the capitals** of the states of Amazônia Legal, 1970–2021

State capital	1970/80 in %	1980/91 in %	1991/2000 in %	2000/10 in %	2010/21 in %	Population 2021* in 1000 inhab.
Rio Branco (AC)	41.2	64.1	28.5	32.9	24.8	419.5
Macapá (AP)	60.2	27.5	57.5	40.8	31,1	522.4
Manaus (AM)	104.5	57.3	38.9	28.4	25.2	2255.9
São Luís (MA)	70.1	51.0	24.9	16.9	10.0	1115.9
Cuiabá (MT)	112.2	82.8	20.3	14.1	13.2	623.6
Belém (PA)	47.8	31.1	2.8	8.9	8.1	1506.4
Porto Velho (RO)	55.6	107.2	16.8	28.1	28.0	548.9
Boa Vista (RR)	87.9	105.2	40.2	42.1	53.6	436.6
Palmas (TO)	-	637.9	464.9	66.6	37.2	313.3
*) Estimation IBGE, 2022						
**) Municipalities						

Source: IBGE: Censos Demográficos 1970–2010 (2021: IBGE estimation). Own calculation of population increase, based on data IBGE.

330 Cf. chapters I.4.2 and I.4.4.; II.3.3. and II.4.1., 4.2.

331 Data based on municipalities in Table 14.

332 Metropolitan region Vale do Rio Cuiabá with Cuiabá and Várzea Grande. Metropolitan areas: IBGE estimate in 2019.

333 Cf. chapters II.3.3 and II.4.2 referring to Mato Grosso and Pará and Fig. 26.

In addition to the four cities with over a million inhabitants (Cuiabá: m.a. 1.04 million), there are another 17 cities in *Amazônia Legal* with over 100 000 inhabitants (IBGE 2023).

Since immigration to the main cities and the larger urban centres exceeds the capacity of the urban labour market, large marginal neighbourhoods have emerged in the cities with an urban population characterised by high levels of vulnerability. Problems, such as land speculation, invasions and illegally developing quarters with violent social conflicts characterise the urban climate.

The strong population growth in *Amazônia Legal* means that unchecked urban expansion is exerting increasing pressure on the environment in the surrounding area to supply the cities with goods of daily needs and their functional equipment. Not only the nearby urban surroundings are needed, but the differentiated infrastructural equipment in the transport, industry, trade, and energy sector requires additional use of space. In view of the climatic conditions, the construction of paved roads is the basis for undisturbed transport connections; on the other hand, the region is naturally open to uncontrolled immigration.

Urban development exacerbates the latent conflicts of interest between economic growth with success at all costs and sustainable development with protection of the environment and the region's natural resources. Today, the functional elites of Amazonian cities compare their facilities with the modern functional facilities of cities in other parts of the country, given the information possibilities in social media, and strictly reject disadvantages due to their regional location.

Governors of the states of *Amazônia Legal* and mayors of emerging municipalities are committed to economic progress. Local NGOs, with the support of national and foreign environmental organisations, are highly critical or even hostile to many development projects in Amazonia that are carried out without feedback with the majority of the affected local or regional population, without regard to neighbouring Indigenous groups or ecological conditions. These groups exercise the activity to be carried out by state authorities of – at least indirect – control of private economic activities.

However, it is becoming increasingly clear that the urban and rural winners of economic development in *Amazônia Legal* reject restrictions for environmental reasons and also the zero-deforestation strategy or are very critical of it. Environmental protection in Amazonia was at least officially announced by the governments of the 1990s and 2000s, although not always adequately implemented. The Bolsonaro government supported the demands of Amazonia's economic elites in every way, scaled back state control measures to a large extent and thus significantly expanded the room for manoeuvre of the leading economic actors.

The rural population is concentrated mainly in the regions of state-controlled agricultural colonisation in *Rondonia*, along the *Transamazônica* in *Pará* and in some areas with land allocations from INCRA, often without adequate transport connections. Parts of the rural population living along small riverbanks, the riverine population, have often been forgotten in support measures. In the agribusiness areas of *Mato Grosso*, a permanent migration of farmers to the nearby, often functionally well-equipped towns can be observed. Due to the high mechanisation of field work, relatively few farm workers are employed, and the mobility of landowners allows com-

muting from the family's urban residence to the fields, especially during sowing and harvest times.

Although one cannot yet speak of an emptying of the rural area, even in the agricultural colonisation areas with relatively large plots, there is a migration of peasants to small central settlements. This was already observed in the 1970s with the *agrovilas* near Altamira. The agricultural activity is carried out during the week on the countryside but the local settlers spend the weekend in small central places where families with schoolchildren live.

In cattle farms, the absentee-ownership is very common. The young generation of ranch landowners frequently has a non-agricultural urban occupation, often outside Amazonia in the family's regions of origin, e.g., as a lawyer, doctor, broker or trader in agricultural machinery, vehicles or agricultural goods. The cattle grazing areas are very sparsely populated, as very little labour is needed on the ranches.³³⁴ The mobile, non-Indigenous and non-agricultural rural population is composed of *garimpeiros*, loggers and transport workers, among others.

7.2. Indigenous population in territories or urban areas and today's situation of Indigenous peoples

The Indigenous peoples of Brazil belong to four large ethnic trunks: Aruak, Karib, Macro-Jê and Tupi. In Brazil, the Indigenous population was first recorded in the 1991 census.³³⁵ In the 2010 census, new questions were asked for the first time, e.g., on self-declared Indigenous peoples, including ethnicity, and on languages spoken.³³⁶ The general data of the 2010 Census recorded 817 963 people (0.44% of the Brazilian population) who declared themselves Indigenous in Brazil,³³⁷ distributed among 305 ethnic groups. An inventory of the Socio-environmental Institute (ISA) indicates that 252 Indigenous peoples live in Brazil, 48 of them have their habitat across borders with members of the tribe living in neighbouring countries.³³⁸ 274 languages were spoken, with 37.4% of Indigenous people over the age of five speaking an Indigenous language

334 On average, only one worker is required as direct working force for a pasture of about 230 ha; cf. chapter I.1.2.1.

335 According to Santos *et al.* (2019, n.p.) "the 1991 Census was the first to include the category Indigenous as a response option to the question 'What is your colour or race?'. Prior to that, the national Census, conducted since 1872, instructed enumerators to include the Indigenous population in a category of colour that represented some degree of 'miscegenation,' such as 'pardo' (brown), 'caboclo' or 'mestiça'."

336 Since the beginning of the 2000s, possibilities for improving Census information systems had been discussed at various conferences on population studies and specific seminars on Indigenous demography. In 2008, the IBGE created a working group to discuss the methodology of the 2010 Census regarding Indigenous peoples (Azevedo 2011).

337 According to IBGE (2011b): In all, 896 900 Indigenous people were registered. However, 78 900 people who lived in Indigenous lands declared themselves of another colour or race (mainly "brown", 67.5%), but considered themselves "Indigenous" according to aspects such as traditions. In 2010, 63.8% were living in rural areas, most of them in Indigenous territories.

338 Inventory of the Socioenvironmental Institute (ISA) in 2011; cf. Ricardo and Ricardo (2011).

at home while 76.9% speak Portuguese.³³⁹ 502 783 (61.5%) lived in rural areas, presumably in Indigenous territories, 315 180 (38.5%) lived in urban areas.

In 2010, the Indigenous population in Amazônia Legal³⁴⁰ was 383 683 people (IBGE 2011b). On August 8, 2023, the first data of the Census 2022 for the Indigenous population of Brazil were published (IBGE 2023).³⁴¹ In 2022, 1 693 535 Indigenous people lived in Brazil, representing 0.83% of the total population. 36.7% of the Indigenous population are living in Indigenous lands. The new figure of the Indigenous population in Brazil, increased by 89% since the 2010 Census (896 900), is mainly a consequence of methodological changes effected to improve the survey of this population. According to the Minister of Indigenous Peoples Sonia Guajajara, “more Indigenous people felt comfortable identifying themselves as thus” (Cabral and Gomes 2023, n. p.).³⁴²

In 2022, 867 900 Indigenous people lived in Amazônia Legal, i.e., 51.3% of the total Indigenous population of Brazil. In Amazônia Legal, the proportion of Indigenous persons living in Indigenous territories is 46.5%, exceeding the national average (36.7%). With 490 900 people (= 56.6% of Amazônia Legal), the state of Amazonas has the biggest Indigenous population, 97 300 (= 11.2%) are living in Roraima. In Roraima, 15.3% of the residents of this state are Indigenous people. Manaus is the municipality with the highest number of Indigenous people (71 700), followed by São Gabriel da Cachoeira (AM, 48 300). In some municipalities of the state of Amazonas, the percentage of Indigenous population in the total population is higher than 90% (Uiramutã: 96.6%; Santa Isabel do Rio Negro: 96.2%; São Gabriel da Cachoeira: 93,2%) (IBGE 2023).

According to data from ISA, the main Indigenous tribes in Amazônia Legal in terms of the number of inhabitants are:³⁴³

Ticuna: from the Ticuna linguistic family; they are considered the largest Indigenous group living in the region with about 46 000 people, especially on the banks of the Solimões river.

Macuxi: from the Karib linguistic family; the Macuxis are largely found in the state of Roraima. About 30 000 Indigenous people live in isolated villages and small dwellings.

Yanomami: from the Yanomami linguistic family; this group comprises about 27 000 people in the states of Amazonas and Roraima. The Yanomami land is the biggest Indigenous area with 9.5 million ha.

339 The Census revealed that 17.5% of the Indigenous people do not speak Portuguese (IWGIA 2022).

340 Cf. chapters I.3.2; I.4.5.2; II.2.4.4 in this volume.

341 In the Census 2022, the self-declaration method was used to determine Indigenous identity.

342 The 2022 Census was carried out with an extremely large amount of personnel and labour, with the participation of Indigenous persons, using their specific local knowledge. All possible means of transport were used to get to all the hard-to-reach areas with Indigenous population. In 2022, the question “do you see yourself as an Indigenous person?” was additionally asked in the Census even out of officially delimited Indigenous territories. 15.3% of the population in Indigenous lands who answered that question affirmatively did it because of this item (Boadle 2023).

343 https://pib.socioambiental.org/en/Table_of_Indigenous_Peoples (accessed December 30, 2022); Ricardo and Ricardo (2011); IBGE (2011b). Data according to the Census of 2010 and IBGE (2023). Outside the Amazon region live the Guarani (85 000 people; Tupi-Guarani linguistic family) and the Caingangue (45 000 people; Macro-Jê). Updated data of the Indigenous tribes will be provided by the 2022 Census, the detailed evaluation of which is to take place before the end of 2023.

Guajajara: from the trunk of the Tupi-Guarani family; the 27 000 existing Guajaras live in the state of Maranhão.

Terena: from the Aruak linguistic family; there are about 26 000 people of this ethnic group in Brazilian territory. They live in the states of Mato Grosso and outside the Amazon region in Mato Grosso do Sul and São Paulo.

Xavante: from the Macro-Jê linguistic family; the Xavante have a population of 18 000, who are concentrated in Indigenous reservations in the state of Mato Grosso.

With a population increase of about 1.1%/year³⁴⁴ the total number of Indigenous people in Amazônia Legal today is 868 000, which is 3.3% of the total population of this area.³⁴⁵ Indigenous neighbourhoods are common in large cities such as Manaus. Data from the 2010 Census show that a large number (43.1%) of the Indigenous population living in urban areas consider themselves descendants of Indigenous peoples, without referring to specific Indigenous groups (Santos *et al.* 2019).

To this day, there are still a number of isolated Indigenous groups that have no contact with the neo-Brazilian population in the region. These are Indigenous groups that have avoided, or even violently rejected, contact with the outside world.³⁴⁶ 115 records of Indigenous peoples living in isolation are mentioned, 28 of which were confirmed, another 87 remain under investigation. The reference “confirmed” by FUNAI refers to the records whose information was confirmed through overflights, which identified the territories occupied by these peoples. The FUNAI listing is the main source of information for recording the presence of isolated Indigenous peoples. However, ISA has also carried out permanent monitoring of the records of isolated Indigenous peoples for decades (Ricardo and Ricardo 2011).

For a long time, there has been an intensive scientific discussion about the number of inhabitants of Amazonia in pre-Columbian times. The Amazon has been occupied by Indigenous people for over 12 000 years. The Spanish conquistador Francisco de Orellana, who – starting in Ecuador – sailed the Amazon river to the mouth in the Atlantic Ocean on his expedition in 1542, reported large settlements with numerous inhabitants, female warriors (“Amazons”) and large richly painted ceramic vessels. Since later expeditions of the Portuguese colonial power made no similar observations, Orellana’s descriptions were not believed.

While initial anthropological and archaeological research came to a relatively low number of inhabitants of about 2 million (Meggers and Evans 1957; Meggers 1971), modern research methods estimate pre-Columbian populations of Amazonia to have been 5 to 6 or even up to 10 million.³⁴⁷ In view of the generally low soil fertility of Amazonian

344 Fertility rates of Indigenous women were substantially higher than the rate observed for the Brazilian population in general (2010–2022: 0.5%/a). However, there are significantly higher infant mortality rates for the Indigenous population (27.3 per thousand according to the 2010 Census) when compared to the figures for the Brazilian population overall (15.9 per thousand, in 2010) (Santos *et al.* 2019).

345 First results of the Demographic Census of 2022 (IBGE, 2023).

346 FUNAI used to conduct “first contact” expeditions to find these tribes. Nowadays, the strategy is to localise these uncontacted tribes with infrequent flyovers, checking to see if they have moved locations or if non-Indigenous people like loggers or *garimpeiros* are threatening these groups or are illegally invading their lands (Azevedo 2011).

347 Denevan (1966; 2014), among others.

terra firme soils, such a large population can only be explained by the sophisticated use of anthropogenic dark earth (ADE, *terra preta*)³⁴⁸ soils for an agriculture highly adapted to the Amazonian climatic conditions without over-exploitation of natural resources. It is estimated that between 0.1–10 % of the Amazon Basin can be attributed to the *terra preta* areas (Butler 2005).

Thanks to the findings through numerous cross-disciplinary studies with the aid of satellite imagery and Lidar laser scanner technology over the last two decades,³⁴⁹ it became clear that the early Indigenous history of the region was characterised by complex societies and cultural as well as agro-biological diversity. The new technological skills made it possible to “eliminate” forest vegetation and to see through the canopy revealing ancient civilisations up to now hidden beneath the trees. Over 6500 archaeological sites have been identified in Brazilian Amazonia with earth work constructions, geoglyphs, ditches, ceramic artifacts, vessels, and urns with zoomorphic and anthropomorphic ornaments.³⁵⁰ Platform burial mounds, geometric designs and channels are found and mapped in settings that mostly lack stone structures which are today covered by dense forest vegetation in many areas of Amazonia, e.g., in Acre, the Tapajós river, the Xingu Basin and Amapá (Lombardo *et al.* 2018; Pivetta 2018; Neves *et al.* 2021).

Settlements were constructed of wood, clay, bone, and other materials that deteriorate rapidly in the humid tropical climate of the rain forest (Butler 2005). There were either small semi-permanent settlements or clusters of large permanent villages of over 50 ha, such as in the upper Rio Xingu region. At the end of the 19th century, some Kayapó villages had up to several thousand inhabitants (Posey 1985a; 2000). The pre-Columbian Indigenous societies developed technologies such as the production and use of *terra preta*, raised fields, and agroforestry, which optimised development and the expansion of food production systems. Practises of plant cultivation transformed the Amazon region as one of the independent centres of plant domestication (Neves *et al.* 2021, 31).

The collapse of these Indigenous societies immediately after the arrival of the Europeans is almost inconceivable in this catastrophic form. The Amerindian population in the Amazon region decreased by 90 to 95 % within the first one hundred years of European contact. This enormous population decrease resulted in the abandonment of cultivated areas and the overgrowth of those areas by natural vegetation (Denevan 2014). The main reason for this situation was disease, especially smallpox as the first

348 Anthropogenic Dark Earths (ADEs) are black to brown, organic-rich fertile soils with higher pH and nutrient content (P, N, Ca, Mg) that are maintained even under the intense lixiviation of the Amazonian conditions. ADEs are found in many archaeological sites in the Amazon region, dating from ca. 2500 years BP onwards (Neves *et al.* 2021, 17). This mineral-rich soil was purposely created by the pre-Columbian people through processes involving decomposition of domestic refuse products and charcoal as an essential ingredient of *terra preta*. Today, local inhabitants – e.g., on the Belterra plateau between the Tapajós and the Curuá-Una rivers – recognise the value of *terra preta*. The earth is excavated and sold as potting soil known for its extraordinary productivity. People use it in gardening for years with only minimal additional fertilisation.

349 Lehmann *et al.* (2003); Hecht (2003); Woods *et al.* (2009); Golińska (2014); Lombardo *et al.* (2018); Pivetta (2018), Neves *et al.* (2021), among many other publications.

350 The Marajoara culture with sophisticated large pottery, elaborately painted, flourished on Marajó island at the mouth of the Amazon river. It was the first evidence that a complex society existed with large settlements and major earthworks as mound building. It can only be briefly pointed out here to other cultures in Amazonia, e.g., the Palikur culture in Amapá and the Tefé culture in the middle Amazon river (Solimões).

introduced epidemic and subsequent outbreaks of infectious and devastating diseases such as typhoid, flu, measles, and sexually transmitted diseases against which the Indigenous population had no defensive power at all. In addition, there was the hunt and the enslavement which contributed to further eradication of Indigenous people.

The surviving parts of the Indigenous population were expelled from their fertile and sustainably farmed habitats near the rivers and fled to the remote middle and upper reaches of the tributaries of the Amazon river. As a result of this forced flight, the larger tribes were split into smaller groups who now had to look for new areas for their essential shifting cultivation system. The smaller groups were much more vulnerable to attacks by neo-Brazilian invasions which increasingly restricted the necessary habitat. Prejudice, contempt, neglect, and disadvantage by Brazilian governments at the federal and state levels have also contributed to marginalisation. As mentioned before,³⁵¹ the Indigenous population dropped from about one million in 1900 to less than 200 000 in 1957 and 87 tribes disappeared (Ribeiro 1957). To date, the Indigenous population has recovered somewhat from this low point.

There is a predominance of groups containing a few hundred individuals, given that 22.7% were composed of less than 100 people; 29.2% between 100 and 499; 27.9% between 500 and 999; and only 20.1% over 1000. While almost all people in Indigenous lands referred to a specific Indigenous ethnic group, outside the Indigenous territories the proportion was 61.4% (Santos *et al.* 2019). The largest ethnic group is the Ticuna (46 100 people) accounting for 5.3% of the Indigenous population in Amazônia Legal (IBGE 2011b; 2023). Only six territories have more than 10 000 Indigenous people, 107 have between more than 1000 and 10 000. The Indigenous territory with the largest Indigenous population is the Yanomami area, in Amazonas and Roraima, with 27 000 Indigenous people in an area of 9.5 million ha (Cabral and Gomes 2023).

In 2010, 61.1% of the population in Indigenous territories spoke Portuguese, 28.8% did not and 10.1% made no declaration. 57.3% spoke an Indigenous language, 32.7% did not. Outside the Indigenous territories only 3.5% did not speak Portuguese and 12.7% used an Indigenous language.³⁵²

In the Federal Constitution of 1988, a new perspective to the native population had been laid down by law: the issue of original rights to land, a right due to all native peoples.³⁵³ The process of demarcating Indigenous territories was finally established in 1996. Demarcating an Indigenous territory is to guarantee the Indigenous right to the land. It must establish the real extent of Indigenous possession, ensuring the protection of the demarcated limits and preventing occupation by third parties. The largest Indigenous territories which play a very important role in protecting the tropical rain forests are located in Amazonia. 30% of the transition forests (*cerradão*) and 21% of the rain forest areas are within their borders (Capobianco 2001). The establishment of these areas for Indigenous protection to consider the demands of the Indigenous population on their ancestral habitat, at least approximately, is one of the most complicated and domestically extremely explosive tasks to this day (Kasburg and Gramkow 1999; Gramkow 2002).

351 Cf. chapter 1.3.2.

352 IBGE (2011b): people over the age of 5 years. Detailed data of the 2022 Census are not yet available on these points.

353 Cf. chapter 1.6.1.

The complicated and long-term process of registration of Indigenous territories takes place in five different phases:³⁵⁴

1. Identification and delimitation: During this process, an ethno-historical, sociological, legal, cartographic, environmental study is carried out, as well as a land survey coordinated by an anthropologist of recognised qualification. When finalised and approved by FUNAI, the report – which includes the land to be demarcated – is published in official media, such as the *Diário Oficial*.
Up to 90 days after the publication of the report, any interested party may present their reasons, accompanied by relevant evidence, to FUNAI, in order to claim compensation or demonstrate existing defects in the report. FUNAI must evaluate all the arguments and submit the procedure to the Minister of Justice within 60 days.
2. Declaration of the boundaries: The Minister will declare the limits of the area and determine physical demarcation or disapprove the identification.
3. Demarcation: When the boundaries have been declared, FUNAI promotes their physical demarcation.³⁵⁵ Since the PPG7 Programme, demarcation often has been carried out with the active participation of the Indigenous people involved. This has strengthened their control over their territories and capacity building of Indigenous organisations (Kohlhepp 2001b, 374). INCRA has to proceed with the resettlement of eventual non-Indigenous occupants.
4. Approval: The demarcation procedure must be submitted to the president of the Republic for homologation.
5. Registration: The demarcated and homologated territory will be registered in the regional real estate office and in the Union Heritage Secretariate (SPU).

Table 15. Recognition stage of Indigenous territories (ITs) in Amazônia Legal

Status	No. of ITs	Area (in 1000 ha)
Identification still waiting	49 (11.6 %)	1083.7 (0.9 %)
Identified	11 (2.6 %)	1662.5 (1.4 %)
Declared	32 (7.5 %)	6982.5 (6.1 %)
Registered/ Approved	332 (78.3 %)	105 615.7 (91.6 %)
Total	424 (100.0 %)	115 344.4 (100.0%)

Source: https://pib.socioambiental.org/pt/TIs_no_Brasil_hoje (accessed December 28, 2022).

Of the 726 Indigenous territories in Brazil (117.4 million ha = 13.8 % of the area of Brazil) 424 with an area of 115.3 million ha are localised in Amazônia Legal,³⁵⁶ representing 22.3 % of the area of the Amazonian region and 98.3 % of the extension of all Indigenous territories in Brazil.

354 <http://www.funai.gov.br/>; IWGIA (2020); <https://pib.socioambiental.org/pt> (accessed December 29, 2022).

355 Physical demarcation by FUNAI is done by clearing a strip through the forest, placing markers along the entire perimeter and signs warning non-Indigenous people not to enter (cf. Rabben 2010).

356 Cf. Figs. 8, 9 and especially Fig. 23 in this volume.

78 % of the Indigenous territories (ITs) are officially approved and registered, with more than 91 % of the IT area (Table 15). However, unfortunately this does not mean that all the problems of the Indigenous population are fixed, as could be analysed in the previous chapters in this volume.³⁵⁷ Invasions by mining companies, *garimpeiros*, land grabbers, large hydroelectric projects, loggers, timber companies, cattle-ranchers, road construction and other infrastructural promotion projects frequently had a fatal impact on the security and existence of Indigenous territories.

To quote but one example, in 2009, the case of the Indigenous territory Raposa Serra do Sol in Roraima,³⁵⁸ an area of 17 400 km² where 26 000 Indigenous people of 17 tribes live in 164 villages (*aldeias*), aroused in particular the national and international public. Even after the approval of the Indigenous territory there were raids and burning down of Indigenous settlements. They were fought by rice farmers whose *fazendas* were established in the immediate vicinity and sometimes even in the middle of the reservation area. The resettlement of the more than 500 non-Indigenous inhabitants of Raposa Serra do Sol should have been completed by mid-2006.

Table 16. Indigenous territories by state in Amazônia Legal (on 22.10.2014)

State	Indigenous land (in 1000 ha)	% of state area
Acre	2459.8	14.9
Amapá	1191.3	8.1
Amazonas	45 232.2	28.5
Maranhão*)	2285.3	8.6
Mato Grosso	15 022.8	16.6
Pará	28 687.4	22.9
Rondônia	5022.8	21.1
Roraima	10 370.7	46.2
Tocantins	2597.6	9.3
Total	112 869.9	22.3

*) area calculated by SIG/ISA

Source: https://pib.socioambiental.org/pt/TIs_no_Brasil_hoje (accessed December 28, 2022).

In Brazil, there is an ongoing discussion about the size of the Indigenous territories in Amazônia Legal. Landowners with farms of any size complain that large areas of land

357 Cf. chapters I.3.2; I.4.5.2; II.2.4.4.

358 *Brasil indígena* (FUNAI) 3, no. 1: n. p. March/April 2006. The final judgment of the rumoured case by the supreme court in March 2009 was the most emblematic case referring to the collective Indigenous territorial rights inscribed in the Federal Constitution of 1988. It “mobilized the Indigenous and indigenist movements and relied on the federal executive power in favour of Indigenous rights directly including President Lula da Silva. It was almost a year of tension until the final decision of the supreme court reaffirmed the demarcation of the land in continuous area and determined the removal of non-Indian occupants” (Ricardo and Ricardo 2011, n. p.).

are reserved for relatively few Indigenous people who – in the opinion of the neo-Brazilian population – also do not cultivate the land intensively. This is an often-heard accusation that makes it clear that this part of the non-Indigenous population does not understand or neither accepts shifting cultivation and space-consuming hunting and collectors' needs of the Indigenous people nor traditional sustainable land use with forest protection. Indigenous tribes play a crucial role in conserving biodiversity and their territories are the most important barriers to Amazon deforestation.

Taking the federal states of Amazonia as an example of decision-making in regional planning and development, there exist many levels of conflicts regarding land issues. The main conflict between federal versus state governments concerns public land (*terra devoluta*). Amazonian states claim these lands to be transferred to the regional government. The share of land by Indigenous territories in the state area is more than 20% in some states of Amazonia (Amazonas, Pará, Rondônia). In Roraima however, a federal territory until 1988, the present-day state government only has a jurisdiction over 48% of its own state's area, Indigenous lands under FUNAI tutelage representing 46% (Table 16; cf. Kohlhepp 2001b, 392, Fig. 7). The registration of Indigenous territories by the federal government is therefore often seen by the state governments as a negative influence on the economic development opportunities of the respective Amazonian state. In the case of Roraima, the governor did not accept the federal decision and constantly protested against this situation.³⁵⁹ Exaggerated proposals by foreign NGOs to establish an Indigenous nation in this northernmost region of Brazil were rather counterproductive to solve the problem.

The Brazilian governments in office since 1985 have approved Indigenous territories in very different ways and intensities:

Table 17. *Approved Indigenous Territories*^{*)}

President	No.	Extension (in km ²)
Jair Bolsonaro (2019–2022)	0	0
Michel Temer (5/2016–9/2018)	1	192.2
Dilma Rousseff (2011–4/2016)	20	32 661.8
Luis I. Lula da Silva (2003–2010)	65	186 791.7
Fernando H. Cardoso (1995–2002)	99	403 519.9
Itamar Franco (10/1992–1994)	10	54 997.8
Fernando Collor (3/1990–9/1992)	74	257 950.0
José Sarney (4/1985–3/1990)	21	94 528.1
*) The numbers and extension areas cannot be summed up, as many Indigenous territories approved during a government were redefined and approved again.		

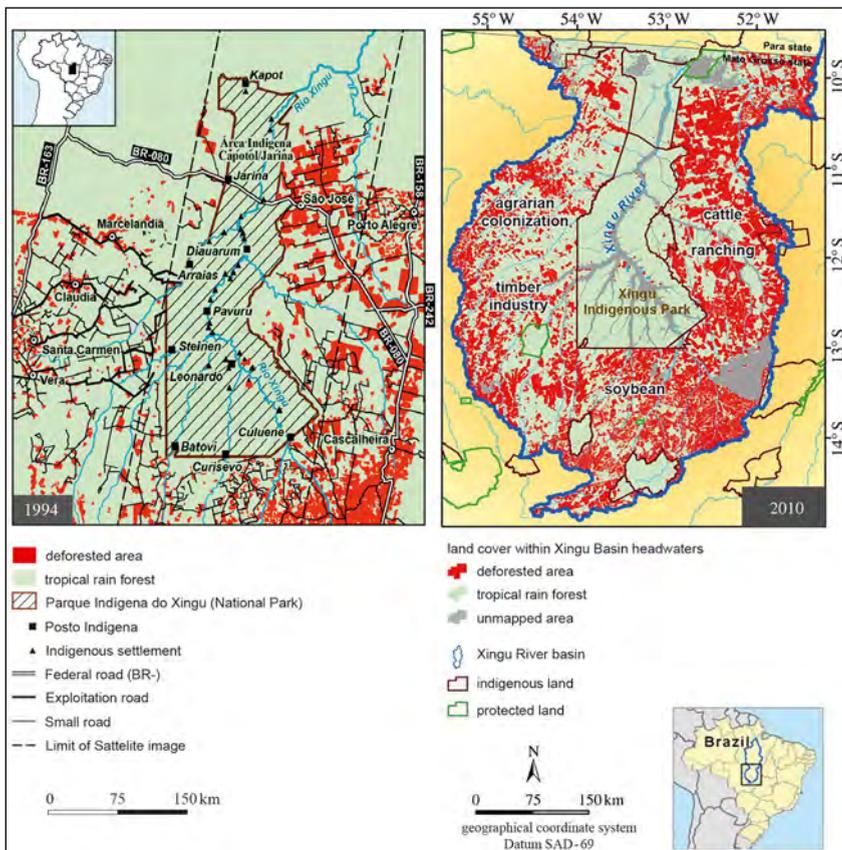
Source: https://pib.socioambiental.org/pt/Situaçao_juridica_da_STs_no_Brasil_hoje (accessed December 28, 2022).

359 Cf. the case of Raposa Serra do Sol. At the same time, the expulsion of the gold prospectors after serious conflicts with the Indigenous population in the Yanomami territory was interpreted as an economic weakening of the gold trade and thus the economic power in the capital Boa Vista where some of the officials were significantly involved in the profits.

The governments of the Presidents Collor, Cardoso and Lula da Silva approved a major number of Indigenous territories. During the two terms of office of President Cardoso, nearly 100 Indigenous lands with more than 400 000 km² were designated as Indigenous territories in Amazônia Legal. After 2010, the number of approvals decreased very quickly, under the government of President Bolsonaro no area was approved.

Even with legal recognition, the de facto safeguarding of Indigenous territories and their resources due to regional conflicts of interest and invasions by neo-Brazilian actors is often jeopardised by the lack of state presence on the ground and the administrative weakness of FUNAI. Symbolic barriers cannot protect Indigenous territories from invasions and violent conflicts which occurred in many subregions of Amazônia Legal.³⁶⁰ The example of the Xingu Indigenous park³⁶¹ shows that even the best protected Indigenous territories are suffering more and more from the pressure of the advancing pioneer fronts.

Figure 37. Deforestation in the Xingu River Basin 1994–2010 and the Xingu Indigenous Park



Source: Deforestation in map 1994: cf. Kohlhepp (2001b, Fig. 9); deforestation in map 2010: Durigan *et al.* (2013, Fig. 1).

360 Cf. chapter I.3.2.2.

361 Details of the history and the problems of establishment of the Xingu Indigenous Park see chapter I.3.2.1.

A comparison of deforestation in the Xingu river basin between 1994 and 2010, for example, shows that deforestation has increased dramatically in this relatively short period. From the Cuiabá-Santarém highway (BR-163), agricultural settlement spread from the west along secondary roads in small and medium-sized farms; further south, the timber industry penetrated the adjacent forest areas with expanding clearings. East of the Xingu Indigenous Park, cattle ranches play the most important role in deforestation. From the south, soybean cultivation in large farms, driven by high world market prices, penetrated from the *campos cerrados* into the *cerradão* and the tropical rain forests of the Xingu basin and led to an extensive clearing until the borders of the Park (Fig. 37). Intensive deforestation at the headwaters of the Xingu river and its tributaries are threatening the hydrological conditions and the water quantity and quality downstream. Violent protests of the Indigenous people – about 5000 Indigenous people of 16 ethnicities are living in the Xingu Park – oppose the construction of dams and hydroelectric power stations in the region.

The self-confidence of the Indigenous population (Pasca 2002; Kohlhepp 2007b) that now exists was demonstrated with the occupation of a construction site of a small hydroelectric power plant at the Culuene river, the main headstream of the Xingu river, 120 km upstream of the Park border, by some hundred members of the Indigenous groups of the Xingu Indigenous Park and the neighbouring Xavante. The reason for the protest action was the feared negative impact of the dam on the river's water supply and fish population.

On the other hand, the Indigenous people claimed for public action and the Y Ikatu Xingu campaign was launched in 2004. Objectives of the campaign aimed to reverse deforestation and degradation, to create a new model of development “that respects the environment and socio-cultural diversity of local populations” and as main demand a forest restoration initiative (Durigan *et al.* 2013; ISA 2004; 2012).

Not all the Indigenous territories are as much in the public gaze as the Xingu Indigenous Park. In many of these territories, formally approved and registered, the continuous border violations for illegal exploitation of natural resources and the attacks by force of arms are often little known. This was the case, for example, with the violent spatial and resource use conflicts with external social actors in Mato Grosso (Paresi and Nambikwara) and Amapá (Waiapi).

An example is the Indigenous territory Sararé, approved in 1985 with 1150 Nambikwara living in the tropical rain forests of northwestern Mato Grosso on an area of 67420 ha in 2001. They lived from hunting, fishing, gathering as well as shifting cultivation and horticulture-like land use. In the 1990s, about 8000 *garimpeiros* invaded the reservation. Their mining operations and the use of mercury in washing out the gold led to pollution and poisoning of the waters. In addition to the environmental damage, the social degradation through prostitution, contagious diseases and lack of future prospects was also catastrophic. The additional intrusion of loggers in the mahogany-rich forests led to the collapse of a traditional resource use (Pasca 2004, Fig. 30; Kohlhepp 2007b, Fig. 5).

The authorities of Mato Grosso only reacted when the World Bank cancelled a loan for the regional development programme Prodeagro after massive protests by national and international NGOs. The hesitation becomes understandable when one considers the involvement of regional political leaders in the timber and gold trading scene. Indigenous groups involved in illegal activities are often played off against each

other and corrupted by gifts of profit. The perpetrators have rarely been convicted by the courts.

Given the conflicts over the use of space and resources due to the expansion of modern infrastructure, land grabbing, agribusiness, mining, *garimpeiro* activities, logging, agricultural colonisation, squatters, drug trafficking, biopiracy and environmental degradation, the vulnerability of Indigenous societies in Amazonia remains highly problematic today.

Vulnerability of Indigenous societies (Pasca 2004, 334) is still one of the fundamental problems:

- Socio-cultural vulnerability manifested itself in a cultural shock and alienation, loss of community elements and neglect of traditional knowledge;
- Economic vulnerability is evident in the change in traditional economic methods, the dominance of the market economy over common property and monetisation;
- Physical vulnerability was caused by direct violence, stress by persistent threats, transmitted infectious diseases, lack of nutrition, malnutrition, alcoholism, and suicide.

Generally speaking, Indigenous people are still the losers in regional policy for Amazonia. In recent decades, they have lost the natural base of their habitat due to the extensive destruction of rain forests and are trapped in a network of numerous conflicts of interest. From an ethical point of view, the destruction of Indigenous habitat and its resources for the benefit of ecologically and socially as well as economically questionable development projects in the long term must not be regulated by compensation payments or royalties as well as profit sharing, as has been done (Kohlhepp 2007b).

Due to the extraordinary ethnic diversity, the organisation of Indigenous people's representation and political articulation is very often carried out on a local basis (village, riparians, tribal community), rarer at regional level (e.g., Union of Indigenous Nations of Acre). In 1992, the COIAB, responsible for Amazonia, had developed into the CAPOIB (Conselho de Articulação dos Povos e Organizações Indígenas do Brasil), supported by CIMI (Conselho Indigenista Missionário), an organ of the Brazilian Catholic Bishops' Conference. However, very often there were protests by small Indigenous tribal groups who themselves wanted to solve their problems or even wanted to receive shares in possible royalties. Even within the Indigenous communities, opinions differ greatly about the advantages and disadvantages of contacts and cooperation with neo-Brazilian partners.

The integrative power of tribal affiliation is often no longer present in the traditional way. Conflicts between tribal elders and the younger Indigenous population often concern the nature of contacts and integration into the neo-Brazilian population. The younger tribal members are open to integration into the "modern" society and frequently are strongly interested in economic participation as well as in environmental protection of their local habitat.

It is impressive that in the face of this situation, which still exists among many Indigenous peoples, numerous Indigenous NGOs have been founded since the 1990s. With the background of the Constitution of 1988, bilateral and multilateral development cooperation and international environmental organisations have provided considerable financial resources. The mobilisation of Indigenous organisations and the

support of civil society actors as well as their increasing networking with institutions of development cooperation are successes even if there is a risk of new dependencies. Political and territorial strategies have been developed through the increasing pressure of Indigenous NGOs on the government, through participation in the demarcation and guarding of Indigenous territories,³⁶² through the support of national and international NGOs and through the International Convention for the Protection of Indigenous Societies. Unfortunately, sometimes self-defence was only possible by armed resistance.

In Brazil, the government has transferred more and more tasks to the civil society sector. The Indigenous NGOs have purposefully taken over tasks that the state no longer carried out directly. The outsourcing of projects to secure the economic independence of Indigenous societies to the level of transnational NGOs or multilateral development cooperation is seen with controversy in Brazil (Pasca 2004; Kohlhepp 2007b).

Today, many Indigenous peoples know how to articulate themselves in defence of their rights. Some Indigenous peoples and conservation organisations in Brazilian Amazonia have formed alliances. In the meantime, a number of alliances have emerged, of which only a few examples can be mentioned here.

The Kayapó Indigenous territories of Pará and Mato Grosso and the Xingu Indigenous Park form a kind of barrier against deforestation and prove that the presence and the participation of Indigenous peoples in protection activities have stopped the extermination of tropical rain forest ecosystems.

After decades of violent conflicts with ranchers and *garimpeiros* to protect their territory, “the Kayapó have drawn on their social institutions and collective organisation to forge their own forms of resistance and accommodation to Brazilian society” (Schwartzman and Zimmerman 2005, n. p.) They tried to become familiar with Brazilian administrative and economic institutions and started to organise associations to get support for the needs of the community. Conservation International of Brazil (CI-Brasil) is a non-profit organisation, created in 1990, which contributes to the creation, execution or monitoring and implementation of new policies related to the environment and development. CI-Brasil started its cooperation with a single Kayapó community, A’Ukre, in 1992 and provided technical, administrative, and financial support for the two main Kayapó NGOs.³⁶³ The original objective was giving the Indigenous community an economic alternative to selling mahogany. The Kayapó who had not lost their traditional ecological knowledge (Posey 1982; 1985a; 1985b) and had younger leaders as intercultural mediators, have been politically most successful and were the strongest defenders of Indigenous rights in Brazilian Amazonia Legal. The collective organisation of Kayapó communities remained strong (Schwartzman and Zimmerman 2005).

362 The involvement of Indigenous actors in the demarcation and surveillance of the borders of their territories was promoted during the PPC7 programme already in the 1990s. In 2014, the Mundurucu did the physical part of demarcation, cutting a border around their territory through the tropical forest. However, they did not get legal rights to the land.

363 Associação Floresta Protegida (AFP) in Pará and Instituto Raoní (IR) of Mato Grosso (cf. Pasca 2004).

The Instituto SocioAmbiental (ISA) is a non-governmental organisation, working since 1994 with Indigenous, *quilombo*³⁶⁴ and extractivist communities to develop solutions that protect their territories and the environmental conditions, their culture and traditional knowledge, strengthen their social and political profile, and develop sustainable agriculture. Since 2001, ISA is a civil society organisation of public interest. ISA works with experienced multidisciplinary experts in Indigenous rights and environmental issues, carries out research projects and problem analyses with partner organisations and has also distinguished itself by developing programmatic drafts essential for environmental legislation. They have teams and permanent offices in São Paulo, the Federal District and in four Amazonian states, where they have long-term commitments with partners in the Rio Xingu and Rio Negro regions. Additionally, they instituted a bilingual education programme.

In the 1990s, ISA started a project in the Xingu Indigenous Park and helped the Xingu peoples organise the Xingu Lands Indigenous Association (ATIX), in an effort to achieve greater political and economic autonomy. The ISA-ATIX partnership had developed into an important example of frontier governance (Nepstad *et al.* 2002). Together, they organised territorial monitoring and control, patrolling borders, and maintaining the demarcation of park boundaries which the Xinguanos had defended for many years against neighbouring ranchers (Schwartzman and Zimmerman 2005).

Since the restoration and protection of riparian forest was a very important issue of common interest (ISA 2004; 2012), ISA organised a meeting of ranchers, soybean farmers, peasants, environmentalists, and Indigenous peoples in Canarana, Mato Grosso, in 2004. The positive result was an “unprecedented agreement” of the participants in favour of seeking subsidised official credit for landowners to restore and protect riparian forest in the Xingu headwaters. “The innovative negotiation brokered by ISA and ATIX with regional and national agribusiness promised to achieve a precedent-setting, regional-level resource management process” (Schwartzman and Zimmerman 2005, n. p.).

The Xingu programme acted in partnership with associations and communities of the Xingu Indigenous Park and the Indigenous lands of the Panará in the construction of long-term conservationist and Indigenous alliances and participatory mechanisms of management of its territory through environmental and territorial management plans, valuing the socio-environmental ecosystem services of the Xingu peoples and their organisations (ISA 2013).

Amazon Watch is another non-profit organization founded in 1996 to protect the rain forest and advance the rights of Indigenous peoples in the Amazon Basin. Associations with Indigenous and environmental organisations in campaigns for human rights are supported for preservation of the Amazonian biodiversity and ecosystems. In the meantime, further cooperations with Indigenous associations have been established in Amazonia.

In the last decades, members of the Indigenous society have taken advantage of opportunities for an urban education and work in professions such as civil servants,

364 *Quilombo* is a settlement of Afro-Brazilians, who escaped from slave plantations until abolition of slavery in 1888. They also settled in some regions of Amazonia. In 2003, President Lula da Silva passed a decree recognising *quilombo* communities, descendants of Afro-Brazilian slaves, and their claims to the land they inhabited and the titling and demarcation of their land.

environmental activists, heads of NGOs, city councillors, as lawyers and even in political elective functions as deputies and senators. In his courageous struggle for the rights of Indigenous peoples, the Xavante chief Mário Juruna who had his first contact with non-amerindian people in 1958, was the first Indigenous person to gain a seat in the Brazilian Parliament in 1982. Recently, five Indigenous people were appointed as deputies. The current situation of Indigenous success in political functions is discussed in chapter IV.2.