TERRITORIAL SETTLEMENT, REGIONAL DEVELOPMENT AND ENVIRONMENTAL PROBLEMS IN THE BRAZILIAN MIDWEST

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Contents

Summary

The Midwest region occupies the core of Central Brazil. It is formed by the States of Mato Grosso do Sul, Mato Grosso and Goiás. At 1 599 062 km^2, it comprises 18% of the national territory, and hosts 7.52% of the population, amounting to 12,767,042 inhabitants. The regional economy is based on its agricultural potential and on a more recent wave of industrialization. Since the 1950s, there emerged a new model of territorial settlement and land use, including the construction of the nation’s new capital, Brasília. The region also started to become the “national breadbasket”.

The Midwest is the domain of the “cerrados” (a Brazilian variety of the savannas). The great diversity of plant and animal species characteristic of the “cerrados” is threatened by the introduction of a technological package that did not take into consideration its rich biodiversity, overtaken by agriculture, cities and mining. The Midwest is geopolitcally important, because it has resources that are becoming increasingly scarce, such as agricultural soils and water. However, the “cerrado” biome has been considered by many to be expendable, in the name of saving Amazonian rain forests from destruction. Its regional integration, based on directives that do not consider its characteristics is occurring at the cost of its integrity as an ecosystem. As a

consequence, the Brazilian "cerrados" are considered, on a world-wide scale, to be among the 25 most critical areas and one of the two Brazilian "hotspots'.

1. Central Brazil: the Midwest Region

Central Brazil encompasses a vast area of the country's interior, characterized by high plains and plateaus. The Midwest region occupies the core position in Central Brazil. It is the country's only non-coastal macro-region. It is formed by the states of Mato Grosso do Sul (MS), Mato Grosso (MT) and Goiás (GO), of the Distrito Federal (DF), Brazil's Federal District. The present border of the region results from the partitioning (in 1977) of the former state of Mato Grosso into two federated units (Mato Grosso and Mato Grosso do Sul), and from consequent changes in state boundaries. The size of the region was actually reduced, on account of two other factors: the exclusion of the state of Rondônia, in 1981, and the division of Goiás, in 1988, leading to the creation of the state of Tocantins. Both Rondônia and Tocantins were officially included in Brazil's North macro-region. Figure 1 displays a map containing Brazil's current political-administrative profile, highlighting the states that form the Midwest macro-region.

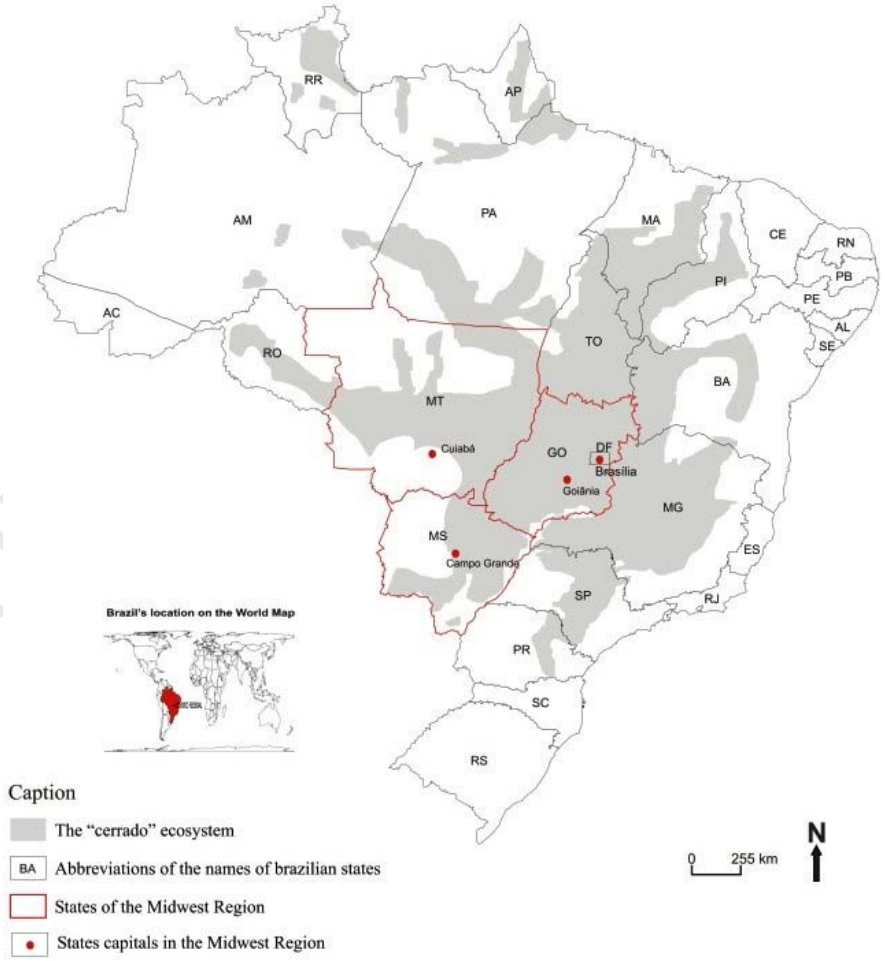

Figure 1. Spatial distribution of the "cerrado" ecosystem among Brazilian States

Geographically, the Midwest, corresponds to about 18% (1 599 062 km^2) of the Brazilian national territory. It is a frontier region that is highly important to biodiversity, and the stage for swift processes of social, economic and political change. According to Brazil's latest official census, in 2000, the region held 7.52% of the national population, corresponding to 12 767 042 people. The thrust of the regional economy, which is consolidating itself as a hub of modern agro-industrial activities, is based on three components—grain, meat and dairy products. There is also a more recent industrial sector, represented by mining, industrial transformation, and mining of non-metallic minerals, besides other industries, particularly food and textile products. Despite being mostly dedicated to agriculture, since the 1980s the region's urban population has surpassed its rural population, a fact that stems from the very processes that shaped its territorial occupation.

Starting in the second half of the twentieth century, the political and economic importance of the Brazilian Midwest increased. It hosted the Federal District and the new national capital, Brasília, becoming at about the same time a sort of "national breadbasket", as the result of massive state action that induced a new model of use and occupation of the territory. To make this new development project possible, governmental initiatives, such as the construction of large dams on the Grande, Paranaíba and Tocantins rivers, and the building of new roads, were devised to support the grand transformations of this region.

2. The "cerrado" ecosystem

In terms of its natural vegetation, the Midwest is the reign of the "cerrado" floral formations, extensive savannas resulting from a combination of (1) a tropical, hot and sub-humid climate (Aw), (2) mostly level surfaces and sedimentary plateaus, (3) generous availability of water, and (4) low natural fertility of the soils. The Midwest also encompasses the Pantanal ecosystem, in its Western section, and Southern extensions of the Amazon tropical forest. The region is also the major water dispersion center for the South American continent. Three major basins—the Plate, São Francisco and Amazon—interconnect at a location called "Águas Emendadas" ("Connected Waters"), inside the Federal District

The dominant hot, tropical and sub-humid climate produces rainfall figures that vary from 750 to 2000 mm per year, on average. There are two quite distinct seasons. The first, from May to September, has little or no rainfall (corresponding to winter). Average yearly temperatures range from 20 to 22 ºC. The second is the rainy season, characterized by strong rains and thunderstorms, from October to April. Average yearly temperatures range from 24 to 26 ºC (corresponding to summer). At higher elevations, temperatures fall remarkably in the dry season, and frosts are common. In the dry season, the relative atmospheric humidity drops to very low levels, between 38 and 40%, and even lower when temperatures run high. In the rainy season, the relative atmospheric humidity reaches 95 to 97%.

In the extensive domain covered by "cerrados", we find the predominance of formations with mostly level surfaces and of a significant set of sedimentary high plains divided into compartments and distributed in different height levels. A large part of the region

ranges between 300 and 600 meters asl. Only 5.5% of the region rises above 900 meters. The highest altitude, 1,676 meters asl, is found in the Chapada dos Veadeiros formation, in the state of Goiás. High plains and plateaus are separated from each other by the valleys of the rivers that run to the Amazon, São Francisco and Plate basins, causing the depressions called Araguaia-Tocantins, Alto e Médio (High and Medium) São Francisco river basin and Alto (High) Paraguai river basin.

In the Midwest region, surface and sub-surface waters have a strong concentration of iron and oxygen, but they are highly fit for drinking. Because of the two quite distinct rainfall seasons, river flows fluctuate sharply. However, no temporary rivers occur, because the extensive sedimentary surfaces absorb the abundant water that falls in the rainy season and, during the drier months, they release the absorbed water at a leisurely pace to the headwaters of rivers and brooks.

Soils of the "cerrado" region are ancient, deep and acid, and they display low levels of fertility. They have a high content of iron and aluminum and high degrees of weathering and leaching. They are very vulnerable to erosion. They originate from different types of bedrock, such as quartz, quartzite, granite, sandstone, and slate. Bedrock such as basalt, gneiss and limestone generate soils that are more fertile. After the dry season, the first rains fall on dry and hardened soils, and much surface run-off erosion occurs immediately after heavier rains, increasing the soil's susceptibility to erosive processes.

The natural vegetation of the Midwest region is formed by a large mosaic of natural landscapes. "Cerrados", the Brazilian variety of savannas, are the predominant formation. However, the "cerrado" biome expands well beyond the region, occupying an area of about 1 890 278 km^2. It is the second largest Brazilian floral formation, covering about one quarter of the national territory. This biome has been deeply modified by anthropogenic action. Figure 1 shows the borders of the area originally covered by the natural vegetation of the "cerrados". It covers almost all of the country's tropical sections in which there is a pronounced dry season. We can see that the formation occurred or occurs in 14 states: Mato Grosso, Mato Grosso do Sul, Pará, Goiás, Tocantins, Minas Gerais, Rondônia, Piauí, Bahia, Roraima, Amazônia, São Paulo, Amapá e Maranhão.

In a narrow sense, "cerrado" is a name that designates a specific type of sparse vegetation—trees that have irregular branching and tops, with low strata and trees that display twisted trunks covered by thick barks, frequently protected by a layer of cork. These "cerrados" generally grow on poor and non-productive soils. In a more encompassing sense, "cerrado" includes the open floral formations of Central Brazil, from the "campo limpo" ("clean field") to the "cerradão" ("tree cerrado").

As the "cerrado" covers such a vast area, it is not possible to argue a one-to-one relationship of the vegetation with a type of climate. However, in its core area the "cerrado" prospers with the alternating rainy and dry seasons, which give it the traits of a climax vegetation. Variations in capacity to retain water, depth of the water table, fertility, aluminum content, effective depth of the soils, and human interventions—all these factors give rise to several physiognomic variations in the "cerrado". The "cerrados" thus range from predominantly shrubby and herbaceous formations to others

more densely covered by larger trees. Focusing on the size and density of the trees, there are three physiognomic types of "cerrados": (1) in the "campos cerrados", in which we can distinguish the aforementioned "campos limpos", (clean field) with a predominant ground layer vegetation, that is discontinuous and does not grow over one meter in height; there are no trees or shrubs with thick trunks; and also distinguish the "campos sujos" ("dirty fields"), with sparsely distributed trees and shrubs with thick trunks, which grow well above the layer of grasses; the shrubs and semi-shrubs with thin trunks become dry in the rainless season; (2) the "cerrados em sentido restrito" ("narrow sense 'cerrados'") have a wide variety of forms, in which the trees cover up to 60% of the terrain, with fairly high treetops, sometimes reaching 7 meters in height, including trees that are even taller (but these trees never cover more than 30% of the terrain); finally, we have (3) the "cerradão" (tree cerrado") formations, with canopies that rise above 7 meters covering more than 30% of the terrain; they vary from open to sub-forest, presenting a more densely vegetated inferior layer. Figure 2 shows a schematic drawing of the structures of these many variations of "cerrado" physiognomy.

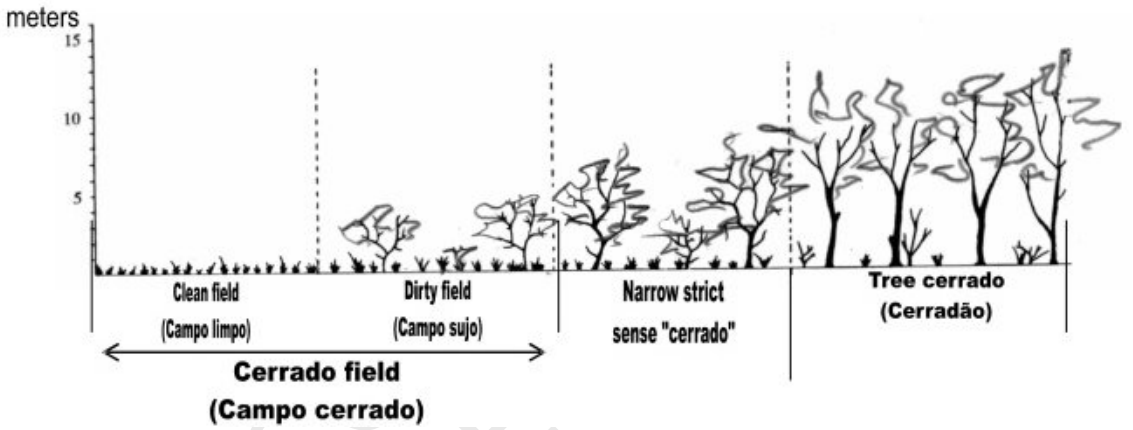

Figure 2. Gradients of the major savanna physionomies of Brazil's Midwest Region.

In the dry season, herbal and shrub species lose their leaves. Most grasses dry up, but they survive on slopes, on which the water table reaches the surface more easily, generating wet fields. Only a few trees lose their leaves, because their extremely long roots can reach the deepest water tables. Because of its central geographical position, the grand "cerrado" biome has interfaces with the Amazon and Atlantic forests, with the "Caatinga" and the "Pantanal", receiving much influence from these ecosystems, a process that includes exchanges of important genetic materials. Besides this, in the midst of the "cerrado" we find other floral formations, associated with erratic variations in soil fertility, depth and humidity. Among them we have: evergreen mesophytic forests located on interfluves; gallery and slope forests; dry forests located on calcareous outcrops; "campos rupestres" (outcrop vegetation) located at high altitudes; and in terrains with shallow soils; wetlands, with local names such as "veredas", "brejos" and "campos de murunduns", "buritizais" (burity palms, *Mauritia vinifera* / *M. Orbinya*). There are still other formations associated with caves, water falls and lakes.

The biomes of the Midwest region are very important for the conservation of biodiversity, both in Brazil and in the world. Greater attention has been given in this

respect to the equatorial Amazonian forests, and this has caused the "cerrado" biome to be under-rated, mainly because of the mistaken impression that it is a biologically poor biome. Much to the contrary, it is one of the richest areas of the planet in terms of biodiversity, and it has deservedly been included among the 25 most critical areas of the world in terms of threatened biodiversity, and is one of the two Brazilian biodiversity "hotspots" (the other being the Atlantic Forest), due to both its biological richness and the degree of anthropogenic pressures that it has undergone. Indeed, spatially distinct interests that lead to conflicting forms of intervention in the biome demand soil and water management, and biota management in general, a set of delicate and complex procedures that are far from the current reality of the region.

The genetic diversity of the "cerrado" biome is large, associated with large numbers of genera and species. Its flora is considered the richest of all the world's savannas. 774 species of trees and shrubs have been identified, and the total number of vascular plants surpasses 6000 species. There are estimates of up to 10 000 vascular species belonging to the biome, a figure that surpasses that of most of the planet's forests. Pollination and seed dispersion processes reveal a delicate balance of plant-animal relations—a balance which is being disrupted. "Cerrado" species are highly dependant on animal pollinators, and many species have exclusive pollinators. This means that when the pollinator disappears, the possibilities of these plant species to produce fruit and seed are shut down. The predominance of seed dispersing animals is another factor that points to the importance of the conservation of natural communities, leading to the minimum recommended area of 10 000 hectares for "cerrado" conservation units. However, anthropogenic interventions have limited the conservation of natural "cerrado" communities. Only 1.5% of the entire Brazilian "cerrado" biome is protected by conservation units, and this jeopardizes the reproduction of many species.

Among the trees that are characteristic of the "cerrado" biome, some of the most relevant are *Curatella americana, Qualea grandiflora,* Q*ualea parviflora, Kielmereyra coriacea,* and *Aspidosperma tomentosum*. Among ground layers, the most common are *Tristachya chrysitryx* and *Aristida pallens.* Also, there are many plants that are useful to humans, as food (*Caryocar brasiliense*, *Syagrus oleracea, Cryptocaria* sp, *Vanilla* sp, *Croton adenodontus* and *Escobedia grandiflora*) and medicine (*Lychonophora encoides, Anemopaegma arvense, Centrosema bracteosum, Dimorphanda mollis* and *Renealmia exaltata*).

"Cerrado" faunal resources also deserve attention, due to the large number of species. It should be noted, however, that there is a low incidence of endemism, particularly in the case of mammals, most of which can be found also in neighboring biomes. Field studies have found endemism figures such as 16% for birds, and from 21 to 23% for reptiles and mammals. Gallery and interfluve forests host species from the Amazon and Atlantic forest biomes, because they play the role of corridors for the establishment of species less adapted to the more rigorous conditions of the open "cerrado" landscapes.

Even after federal legislation considered it illegal to hunt Brazilian faunal species, mid-sized mammals continue to be part of the diet of local populations. This, coupled with amateur hunting, predatory hunting (for pelts and skins), lack of adequate management and conversion of natural landscapes for agricultural cultivation, has contributed to the

reduction of the fauna of Central Brazil. Among the endemic species of mammals, there are the hoary fox ("raposa", *Dusicyon vetulus*), the one-striped opossum ("gambá", *Monodelphis unistriata*) and the dekeyser's nectar bat ("morceguinho do cerrado, *Lonchophylia dekeyseri*). Among rodents, endemism is more common; some of the most remarkable species are the spiny rats ("rato de espinho", *Carterodon sulcidens*) and the arboreal rice rat ("rato arboreal", *Oecomys cleberi*).

This grand treasure of biological species, only partially known and studied, is threatened by the advance of the agricultural frontier, by swift urbanization and by mining ventures.

3. Brief history of the occupation of the "cerrado" region

"Cerrados" have been occupied by humans since at least 10 000 years ago, when groups of hunters, fishers and collectors of fruit and mussels traveled through the region. In the last millennium, some populations had already become sedentary and agriculture contributed to their more diversified diet and to their higher degree of nutritional stability. Lythic and ceramic remains are very abundant, as are stone tools and paintings on cave walls and rocks.

When they arrived at the Central Plateau, Portuguese colonizers found indigenes from the Jê or Tapuia group, divided into several nations, such as the Caiapós, Goiazes, Carajás, Xacriabás and Crixás. However, indigenes from the coastal Tupi groups (Aricobé, Tupinambá and Temiminó) had migrated to the area, running away from the Portuguese. The groups that were adapted to the "cerrado" biome developed a complete taxonomy for the several ecological zones. Among the Caiapós, some relevant categories to describe the landscape were: *kapôt kein* - "open field", "cerrados", with few trees; *kapôt punu* - "closed field", with caatinga; *kapôt nô kà* – transition zones between "cerrados" and forests.

In the transition from the sixteenth to the seventeenth century, overland expeditions (called "bandeiras") departing from São Paulo, commanded by men such as Domingos Luís Grou, Antônio de Macedo, João Pereira de Souza Botafogo, Domingos Rodrigues and Afonso Sardinha, started to traverse the region. Although they were searching for mineral riches, the major economic and political results were the capture and enslavement of indigenes and the crossing of the Tordesilhas meridian, leading the Portuguese deeper to the West, into the current territories of Goiás, Mato Grosso and Mato Grosso do Sul. However, as the Jesuit missions located further to the South showed themselves to be more productive in terms of the numbers of captured indigenes, new expeditions to the Midwest were undertaken only in the late seventeenth century, under the command of Luís Castanho de Almeida. The current lands of Mato Grosso and Mato Grosso do Sul were more regularly explored after 1682, and the lands of Goiás were crossed in that same year by the "bandeira" commanded by Bartolomeu Bueno da Silva, the first "Anhangüera". His son, who had the same name, discovered gold in 1725, in the vicinity of the city of Goiás, besides exploring the perimeter of Brazil's Federal District.

The Midwest could not compete, however, with Minas Gerais, in terms of the

abundance of gold mines and diamond beds. The Midwest's mineral riches therefore attracted much smaller groups and less skilled people than those of Minas Gerais. Its mining sites were basically alluvial. Short-lived, they demanded scant applications of fixed capital and were widely dispersed throughout Goiás and Mato Grosso. Thus, settlement was predominantly urban, but the many population centers were spread out and poorly articulated among themselves. The first towns, located around alluvial gold mining sites along rivers, sprouted in the eighteenth century. The most important of them were Goiás, previously called Vila Boa, Corumbá de Goiás, Dianópolis, Luziânia, Pirenópolis, Pires do Rio and Rio Verde, in current Goiás; and Cuiabá, previously called Vila Real do Senhor Bom Jesus do Cuiabá, Diamantino, Nossa Senhora do Livramento and Poconé, in current Mato Grosso.

Mining and the cities to which it gave origin were supported by extensive cattle ranching and subsistence agriculture. At the end of the eighteenth century, as mining declined, these support activities became the major ones. They demanded little labor and had a weak impulse, leading to a very sparse occupation and to relations of production that remained unchanged for long periods. These circumstances also caused the establishment of a native rural population involved in economic activities adapted to the natural environment.

4. The opening of the agricultural frontier

For a long time "cerrados" were not considered as a potential resource. Colonizers thought them to be unproductive. However, since the 1970s, with the closing of the frontier for traditional agriculture in the country's South and Southeast regions, this view has changed remarkably. The "cerrado" biome became an agricultural frontier, to be opened to the influxes of internal and foreign migration and to the most modern standards of intensive capital and technology, as well as a local unfolding of economic globalization processes.

Traditionally, the level "cerrado" areas located on the top of plateaus had soils of mediocre fertility. They were thus occupied by large, extensive cattle farms. Regional agriculture was restricted to the areas with pockets of tropical forests, in which there were more fertile soils. Some crops were used to open tropical forest areas to agriculture, rice being the most important one. It was grown mainly in small properties run by squatters or sharecroppers, many times inside the perimeters of large cattle farms.

The extensive demographic voids and the large expanses of land with little commercial value, ready to be occupied, made the Midwest the great Brazilian agricultural frontier of the twentieth century, especially after the 1930s. Occupation of the frontier put much acreage into tillage, increased the population, transformed rural areas and accelerated urbanization. It brought new impulse to older settlements and created quite a few more of them, inserting in the region a new division of labor in the context of the national territory. There was a major transition from cattle raising to the production of grain for export.

Two moments of the expansion of the agricultural frontier in Central Brazil deserve

special attention: the pioneer front and the large commercial farming. The pioneer front was characterized by the influx of poor migrants who opened up virgin or virtually empty areas. They preferred areas covered by forest vegetation and created small family-sized agricultural units. They thus intensified production, developing commerce and services. Rural areas became more populated and the cities grew as support hubs for the expansion of agriculture. Urban centers multiplied, because of their importance in the transportation of food crops and in the supply of goods to farmers. The production scale was small, though. The waves of in-migrants also included businessman and service providers. Population growth became explosive. The commercial value of lands increased, large properties were sub-divided, and older squatters were displaced.

The pioneer movement, as it opened up new areas, expanded the country's productive agricultural lands, alleviating tensions in more densely populated or depleted areas. It diverted migratory currents to the frontier, in which the same social relations—such as those of the traditional peasantry—of the settled sections of the country were reproduced. The pioneer movement to Brazil's Midwest was induced by the State, which after the 1930s promoted and financed colonization, as part of an initiative that the federal government called "March towards the West".

The "March towards the West" had its heyday in the 1940s, when the federal government created two agricultural colonies: the "Colônia Agrícola Nacional de Goiás" (CANG, Goiás National Agricultural Colony), in Goiás, and the "Colônia Agrícola Nacional de Dourados" (Dourados National Agricultural Colony), in Mato Grosso do Sul. These projects were based on extensive and fertile stretches of land covered by interfluve tropical forests, on soils that had been neglected by traditional cattle raising. The colonization process was fueled by the need to produce more food at low prices to sustain the growth of the cities of Rio de Janeiro and São Paulo. The explicit objective was to redirect population surpluses from settled areas, in order to occupy the national territory. Stimulated by this governmental project, private colonization efforts sprung up in the region, allotting available agricultural lands. The Midwest was able to attract migratory currents coming from the Northeast and the population surpluses generated predominantly by the pioneer coffee frontier in São Paulo and Paraná.

Poor migrants received plots from the government and small producers bought plots from private developers. Both were engaged in raising food crops, selling their output on the market and supplying local populations. The pioneer front brought along small-scale production based on the family unit. During the 1940s, the population growth in the pioneer fronts of Goiás reached 75%. The urban population of the state almost doubled and the rural population grew by 71%. The region became the most important in the South of the states of Goiás and Mato Grosso in terms of the production of rice, coffee, beans and corn.

Governmental investments created roads and cities such as Dourados (Mato Grosso do Sul) and Ceres (Goiás). As part of this process, the Goiás state capital was transferred from the city of Goiás to the planned city of Goiânia. Many other smaller cities sprouted in the vicinity of agricultural colonies, created by private enterprise, receiving migrants that sought land and those who were more attracted by commercial activities derived

from population movements and real estate deals.

This pioneer front was different from previous pioneer movements, in other regions, such as the Rio de Janeiro, São Paulo and Paraná coffee frontiers, not only because of governmental planning, but also because it created a policultural farming enterprise that sold its product in the internal market. It also demanded much less capital investments than the huge coffee farms of the Southeast.

The results of this colonization effort gave the Midwest the country's largest per capita increase in agricultural production, from 1940 to 1950. The population of Goiás and Mato Grosso also grew strongly, as can be seen in the data in Table 1, below:

State	Total population 1940	Total population 1950	Urban population 1950	Rural population 1950
Goiás (1)	826,414	1,214,921	245,667	969,254
Mato Grosso (2)	432,265	522,044	177,830	344,214

Notes: (1) Data pertinent to the current state of Tocantins are included in Goiás; (2) Mato Grosso and Mato Grosso do Sul formed a single state.
Source: IBGE- *Recenseamento Geral do Brasil*, 1940 and 1950

Table 1. Brazilian Midwest—population growth, 1940-1950.

Small-scale agricultural production, on family farms, was the typical format of the pioneer front. It was supported by fertile soils, cheap land, government financing, and abundant and cheap labor. Once opened and settled, the value of land increased and thus the production model could not expand. On the other hand, productivity was hurt by losses of soil fertility, after years of consecutive crops planted with elementary technology and little concern with conservation. Considering the techniques employed, pioneers should leave part of their plots fallow, but the size of the plots did not allow this.

The alternative would be to make investments in modern inputs and technology in order to increase productivity, but lack of capitalization ruled this out. Thus, traditionally managed small farms became poorer, producing their own population surpluses, a breeding ground for labor ready to migrate.

The rural areas started to expel people, as many rural inhabitants moved to nearby towns. The towns, in their turn, were affected by the impoverishment of the countryside and by the failure of small farms. The towns thus could not offer employment and income to all migrants.

The pioneer front followed on, leaving behind depleted lands, erased forests, and people who had neither land or jobs. The policultural, family-farm model did not consolidate itself as a formula for land occupation. In places where fertility allowed a more intensive exploration, such as in Dourados, however, small farms were dynamic and absorbed modern technology.

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Biographical Sketches

Marília Luiza Peluso has been deputy professor at the Department of Geography at the Universidade de Brasília (UnB) since 1985, teaching Urban Geography, Brazilian Geography, Geography Theory as well as Perception Geography. Born in Rio do Sul, Santa Catarina, where graduated in Geography, from the Department of Philosophy, Sciences and Letters at the Universidade Federal de Santa Catarina (1963). Having completed the course on Specialization in Urban Planning, at the Instituto de Arquitetura e Urbanismo (1978) and having presented the dissertation on her Masters at the same program (1983). Having finished her Doctorate in Social Psychology (1998), at the Pontifícia Universidade Católica (PUC) in São Paulo. Research staff member under the subject "Planned Cities in the Mid West", having the support of the Institute de Recherche et Developpement – French Government. Recently (2002) has been to a techno-scientific exchange visit to the Institute de Recherche et Developpement.

Professor Marília participates regularly in scientific events, both national and international, in the field of Geography, Urban Planning and Environmental Psychology, having presented several papers. In the last five years has published papers in journals, congress annals as well as chapters in books about urban and regional subjects, emphasizing housing, environment, social representations and urban identity. To be pointed out "The sacred management of the urban space at the hieropollis of the Lord Jagannãtha" (Journal Espaço e Geografia); "The individual as subject of collective territorialities" (7th National Meeting of ANPUR); "The role of the representation of "buying a house" at the identification of housing problems" a chapter in the book "*Brasília – urban management: conflicts and citizenship,* published by Editora da UnB, 1998; "Living at the subjective constitution of urban space. Social housing representations at the satellite city of Samambaia, DF" (Annals of the 6th National Symposium of Urban Geography); "Comfort, intimacy and privacy among the poor in Brasília/Brazil" (IAPS 16, Metropolis 2000, Proceedings); "Brasília, the capital of hope" (IAPS-CSBE NETWORK BOOK SERIES, 3, 2001).

Professor Marília is also a member of national and international scientific associations, such as the Brazilian Association of Geography (AGB) and the International Association for People-Environment Studies (IAPS).

Ignez Costa Barbosa Ferreira is retired deputy professor of the Department of Geography at the Universidade de Brasília (UnB), having taught there from 1967 to 1991.

Born in Rio de Janeiro, Rio de Janeiro State, where graduated in Geography from the Faculty of Philosophy at the Universidade do Brasil, in 1960.

Having completed in 1961 the course on Specialization in Brazilian Geography at this same institution, as well as the Post graduation course at the Institute of Geography at the Universidade de Paris, in 1963, where obtained the title of "Expert géographe".

Associate Researcher at the Universidade de Brasília, working with the Group of Urban and Regional Studies at the Universidade de Brasília - NEUR, where coordinates the research project: "Urban environmental Management in three planned cities located at the mid-west region of Brazil. Such project is sponsored by the "*Institut de Récherche pur le Developpement*" – IRD/França and CNPq/Brasil.

Since 1965, has participated regularly in scientific events, both at national and international levels, in the field of Geography and its correlates, having presented papers concerning themes about urban and regional geography.

In the past five years has published papers in journals, congress annals as well as chapters in books about urbanization, urban management and local integrated development. Some of the works worth being highlighted are: "Territorial Management and new territorialities"), a chapter in the book "*Brasília – urban management: conflicts and citizenship,* published by Editora da UnB, 1998; "Territorial Management of inequalities", in *International Meeting – Networks and systems, teaching about the urban and the region"*. USP, São Paulo, 1998); "Space, power and culture within the territorial management" In: Vasconselos P.A e Mello e Silva,S (org). *New Studies under the Brazilian Urban Geography* - Ed. Universidade Federal da Bahia, Salvador, 1999; "Management of the use of the soil and the distortions of

urban growth. The case of urban agglomerate in Brasília", part of the collective work: *Management of the use of the soil and the distortions of urban growth*) published by IPEA, 2003.

Marília Steinberger has been deputy professor at the Department of Geography at the Universidade de Brasília (UnB) since 1994, teaching political geography, urban environment and economics geography. Born in Rio de Janeiro where graduated in Economic Sciences at the Faculdade de Ciências Políticas e Econômicas do Rio de Janeiro. Having taken her Master degree in Urban and Regional Planning at the COPPE-UFRJ (Coordenação de Programas de Pós-Graduação em Engenharia da Universidade Federal do Rio de Janeiro), having concluded the course in 1976.

Professor Marília Steinberger has already taught urban and regional economy at the master courses of the Post-graduation programs under the subject Urban and Regional Planning at PROPUR/UFRGS (1973-1976) and FAU/UnB (1986-1989). Professor Marília has also, during the 70's and the 80's, performed professional activities as planning technician at IPEA (Research Institute of Applied Economics), as Urban Political Coordenator as well as Development Regional Secretary at the Ministery of Inland. Having taken her Doctorate in Urban and Regional Planning – Environmental Urban Structures in 1994 at FAU-USP (Urban and Architecture Faculty from the University of São Paulo), has been developing researches in the field of urban, regional and environmental politics as member of the Group of Urban and Regional Studies (NEUR/UnB).

She has also been the coordinator of the international project "Methodological Discussions and Application of Economic-Ecological Zoning in Urban Areas", in partnership with the Development Planning Unit/University College London, and with the support DFID/ British Council since 1999. She coordinates also research projects on the subject 'Tourism Potencialities in the Mid West region' as well as "Bringing back Urban and Regional Politics in the History of Brazil.

Professor Marília has participated regularly in scientific events, both at national and international levels, in the field of urban and regional planning. Has published articles in journals and written chapters in books among those: "Zonificación Ecológico-Económica como instrumento de Gestión Ambiental urbana-rural: el Caso de la Amazonia Brasileña", published by Cuadernos del CENDES, Caracas, v. 53, 2003. "The construction of myths on the (in) sustainability of (on) urban space", published Brasilian Journal of Urban and Regional Studies (ANPUR), São Paulo, v. A3, n. 4, 2001 "Urban air pollution by wildfire in the Brazilian Amazon" In: Brebbia, C.A.; Martin-Duque, J.F.. (Org.). Air Pollution X. 1ª ed. Southampton-UK: WIT PRESS, 2002. "Management of the use of the soil and the distortions of urban growth. The case of urban agglomerate in Brasília", part of the collective work: *Management of the use of the soil and the distortions of urban growth*, published by IPEA, 2003.

Rafael Sanzio Araújo dos Anjos has been deputy professor at the Department of Geography at the Universidade de Brasília (UnB).Born in the region of Recôncavo in the state of Bahia, has graduated in Geography from the Geosciences Institute at the Universidade Federal da Bahia (1983).Has taken the course on Specialization on Remote Censoring Applied to Environmental Management, at the Universidade Estadual Paulista (Campus Rio Claro – 1985).Has taken the masters course on Urban Planning at the Faculdade de Arquitetura e Urbanismo - UnB (1991) and has completed the Doctorate in Space Information in 1995, at the Escola Politécnica – USP, having received "Poste D´Accueil" in the field of Instrumentation in Territorial Information from the Institut de Recherche pour lê Développement (IRD) in Montpellier - France.

Professor Rafael has been taught and given consultancy in technical-scientific visitation held at Universidade de Abidjan – Côte D´Ivoire (1998) and recently (2002) has performed technical-scientific visitation at the Département de Géographie da École Normale Supérieure (ENS) in *Paris – FR*.

Researches, articles and papers written and published emphasize the investigation of spatial processes which form urban dynamics; techniques of cartographic representation applied to territorial planning and teaching; the historiography of the African continent; the mapping of the remaining communities of old "quilombos" in Brazil and the elaboration of teaching material for various levels of school education.

Consulting technician on the review of the Main Plan of Territorial Order of the Federal District Federal, project elaborated by the Government of the Federal District (1994-1995) of the Government of the Federal District.

Professor Rafael is author of the following papers: Map Multitemporal Picture of the Federal District

(1997); Map of the Forming Processes of the Territorial Dynamics in the Federal District (1998); Image Letter on the Use of the Land of the central zone (Plano Piloto) of Brasilia and its surrounding area (1998); Territories of the Old Remaining Communities of Quilombos in Brazil (2000); the Africa-Brazil Collection: Cartography for Teaching-Learning (2000).

Currently, Professor Rafael is the Coordinator of the Center of Applied Cartography and Geographic Information at UnB – Universidade de Brasília, where projects on the Popularization of Geographic Information and Afro-Brazilian Geography are developed.