CO YVY ORE RETAMA

1.º JAN. 1989

ESTADO DO TOCANTINS

TOCANTINS STATE GOVERNMENT

TOCANTINS ATLAS

Support to land management planning

SEPLAN

PLANNING AND ENVIRONMENT SECRETARIAT

TOCANTINS ECOLOGICAL AND ECONOMIC ZONING

SEPLAN/DZE

TOCANTINS STATE GOVERNMENT

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Tocantins' Atlas: support to land management plannig/Planning and Environment Secretariat, Ecological-economical Zoning Directorate - DZE - Palmas: Seplan, 1999.

49 p.

Content: Administrative, natural resources and land use maps for land management planning.

1. Natural resources - Tocantins. 2. Land use - Tocantins 3. Land management - Tocantins

I. Tocantins Planning and Environment Secretariat. II. Tocantins. Ecological-economic Zonning Program.

Project funded by BIRD/ The World Bank and State Treasure resources under the (Tocantins State Highway Managing Program)

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Pictures kindly lent by the Communication Secretariat - SECOM, and thecnicians of the Planning and Environment Secretariat - SEPLAN.

TOCANTINS STATE GOVERNMENT
Planning and Environment Secretariat
Ecological-economical Zoning Directorate

TOCANTINS ATLAS

Support to land management planning

Palmas - TO
2000

GENERAL DATA

INCEPTION

october the 5th, 1988

AREA

278.420,7 km²

NUMBER OF MUNICIPALITES

139

GEOGRAPHIC POSITION

Latitudes

South 5º 10´ 06” (Extreme North: Tocantins River - Tocantins/Maranhão Boundary)

South 13 º 27´ 59” (Extreme South: Traíras or Palmas - Tocantins/Goiás Boundary)

Longitudes

West Gr. 45º 41´ 46” (Extreme East: EPA Tabatinga Range - TO/PI/BA Boundary)

West Gr. 50º 44´ 33” Extreme West: Araguaia River - Tocantins/Mato Grosso Boundary)

Distance between extreme points

North-South distance: 899,5 km

East-West distance: 515,4 km

STATE BOUNDARY

The State perimeter is around 4.163,7 Km long, boundried by the following neighbor States: Maranhão (1.167,2 Km), Goiás (1.051,4 Km), Pará (790,4 Km), Mato Grosso (565,5 Km), Bahia (554,8 Km) and Piauí (34,4 Km).

CLIMATE DATA

Annual Air Temperature Range

25 ºC a 29 ºC

Annual Rainfall Range

1.200 mm a 2.100 mm

Annual Hydric Deficit Range

300 mm a 600 mm

Annual Hydric Excess Range

150 mm a 650 mm

MAIN RIVERS

Araguaia,Tocantins, Paranã, Javaés, do Sono, Formoso, Santa Teresa, Manuel Alves Grande and do Côco.

HIGHEST POINT

1340 m (Trairas or Palmas Range, Goiás boundary)

LOWEST POINT

90 m (Esperantina municipality, Pará boundary)

Mandacaru Hill
(Catedral Hill) Jalapão

PRESENTATION

For a long time I have aimed to organize a geographic database illustrating natural resources, social and economic information in order to plan Tocantins State land management. This initiative derives from the understanding that the environmental issue must be present at the beginning of every political and decision process, embracing from conception to elaboration of plans, programs and projects.

I trust that the use of the database in this atlas and its technical quality will both ease the conciliation of economic development and environmental conservation based upon the sustainable development concept.

I want to exalt the State of Tocantins´ natural resource potentialities, its water availability and the beauty of its rivers, its lands and productive capacity, the scenic beauties of Ilha do Bananal, Cantão State Park, Jalapão and other conservation units.

It is my wish to give continuity to important advances we have obtained in the land management field, through implementation and execution of integrated environment management projects in Tocantins' administrative regions. Of course I still have a long journey if I seek and rely on land management as a way of combining the productivity desired with Tocantins' peculiarities and the preservation of its environment.

José Wilson Siqueira Campos
Governor

INTRODUCTION

The Planning and Environment Secretariat has prioritized the development of the Ecological and Economic Zoning Program works in order to provide the State with cartographic documentation that may support Tocantins' land management and sustainable development programs, which must be ecologically coherent, economically possible and socially desired.

Amongst other purposes, the Tocantins State Atlas is a key point in the systematization of a geographic database for the State. It complements and exhibits the work done under the Tocantins Agroecological Zoning Program and by SEPLAN.

This program stands out as a pioneering move towards the integration of the Agroecological Zoning activities with the Tocantins State Highway Management Program, which will undoubtedly be adopted by other Brazilian States.

The Atlas, with the future in mind, synthesizes Tocantins' geographic characteristics and constitutes a valuable didactic, educational, technical and scientific document for analysis by numerous private and public entities and the State Government itself.

Methodologically, legends were uniformed and given compatibility for various themes. Also unpublished maps were produced, which originated a broad geographic information system organized in maps, each one equivalent to the 1:250.000-scale sheets that cover the State of Tocantins.

The efforts to elaborate a database that covers a whole state and natured to support land management, were exhaustive and planned within a view that combined the use of modern technologies and recover of well-known programs, such as RADAMBRASIL.

I consider that we have progressed in the geographical knowledge of our State and that we have given the first steps in ordering Tocantins' land occupation process. Nevertheless, let us stress here that we are in a continuity phase, executing the ecological and economic zoning in several of the State regions

.

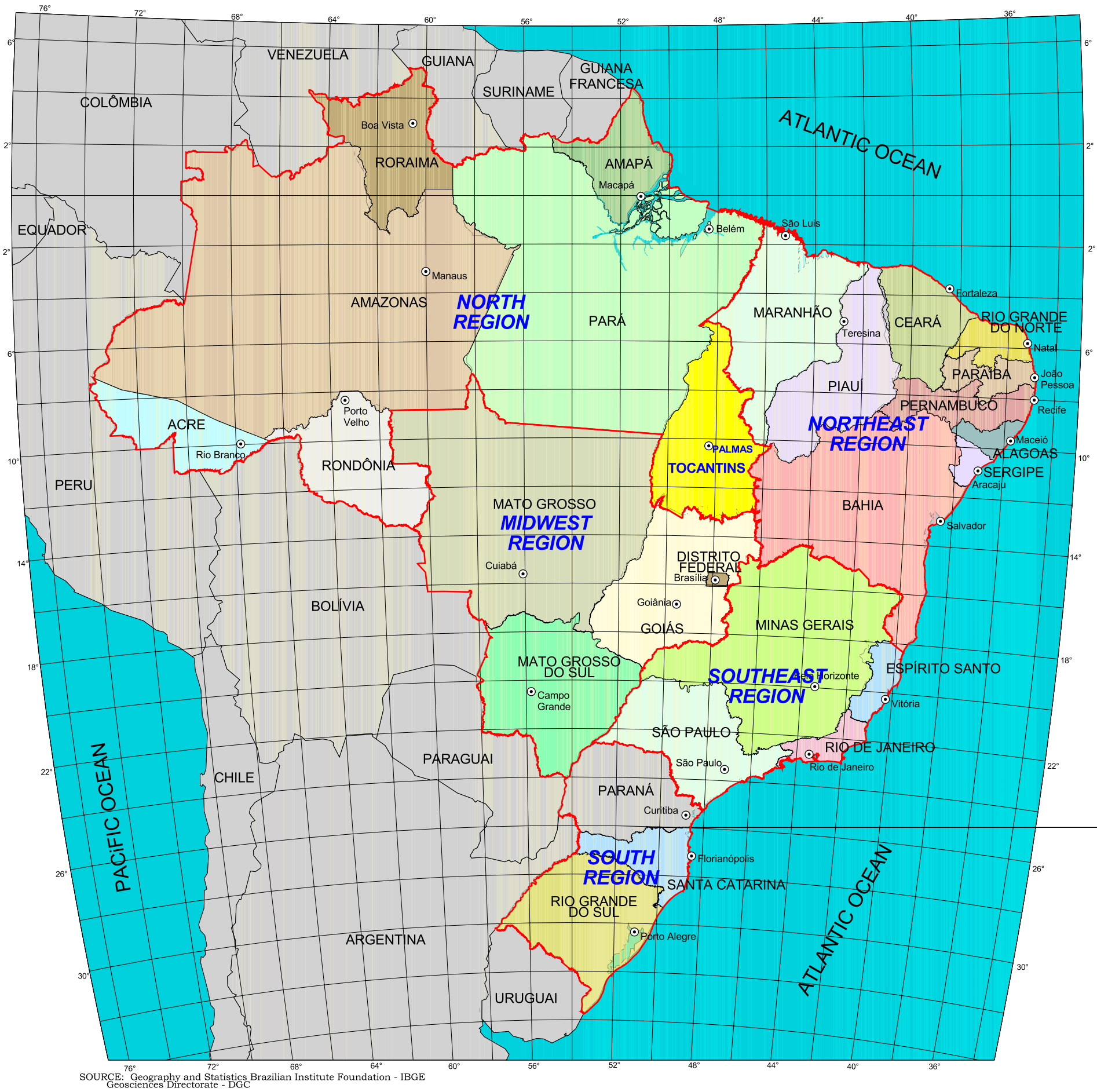
Lívio William Reis de Carvalho
Planning and Environment Secretary

SUMMARY

Pedra da Baliza. Jalapão.

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

FEDERATIVE REPUBLIC OF BRAZIL
Political map



SOURCE: Geography and Statistics Brazilian Institute Foundation - IBGE
Geosciences Directorate - DGC

200 0 200 400 600 800 km

Polyconic Projection
Central Meridian = 54° 00' 00" W. Gr.

REGION	AREA (km²)
NORTH	3.858.595
NORTHEAST	1.548.672
SOUTHEAST	924.935
SOUTH	577.723
MIDWEST	1.602.040

Tocantins, with 278,420.7 km², represents around 3.3% on the whole national territory, and 7.2% of the North Region.
The portion of Tocantins included into the Legal Amazon is around 5.4% of this land extension.

The ECOLOGICAL AND ECONOMIC ZONING DIRECTORATE thanks the kindness of anyone communicating any mistake or omission that may be verified within this map.
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SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

POLITICAL AND ADMINISTRATIVE DIVISION

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50° W 48° 46° W
5° S 7° 9° 11° 13° S

PARÁ
MARANHÃO
PIAUÍ
BAHIA
GOIÁS
MATO GROSSO

São Sebastião do Tocantins, Esperantina, Carrasco Bonito, Sampaio, Buriti do Tocantins, Praia Norte, Augustinópolis, São Miguel do Tocantins, Sítio Novo do Tocantins, Araguatins, Axixá do Tocantins, Itaguatins, Maurilândia do Tocantins, São Bento do Tocantins, Cachoeirinha, Luzinópolis, Tocantinópolis, Ananás, Xambioá, Angico, Nazaré, Riachinho, Santa Terezinha do Tocantins, Aguiarnópolis, Araguanã, Palmeiras do Tocantins, Piraquê, Darcinópolis, Wanderlândia, Carmolândia, Muricilândia, Santa Fé do Araguaia, Aragominas, Araguaína, Babaçulândia, Filadélfia, Pau D'arco, Arapoema, Nova Olinda, Barra do Ouro, Goiatins, Bandeirantes do Tocantins, Bernardo Sayão, Palmeirante, Colinas do Tocantins, Juarina, Campos Lindos, Couto de Magalhães, Brasilândia do Tocantins, Itapiratins, Itacajá, Tupiratins, Itaporã do Tocantins, Presidente Kennedy, Pequizeiro, Araguaia River, Colméia, Santa Maria do Tocantins, Recursolândia, Araguacema, Goianorte, Guaraí, Bom Jesus do Tocantins, Centenário, Tupirama, Pedro Afonso, Fortaleza do Tabocão, Tocantins River, Caseara, Dois Irmãos do Tocantins, Rio Sono, Rio dos Bois, Miranorte, Miracema do Tocantins, Tocantínia, Abreulândia, Lizarda, Marianópolis do Tocantins, Divinópolis do Tocantins, Barrolândia, Lajeado, Monte Santo do Tocantins, Novo Acordo, Aparecida do Rio Negro, São Félix do Tocantins, Chapada de Areia, Paraíso do Tocantins, Pium, Pugmil, Santa Tereza do Tocantins, Lagoa do Tocantins, Cristalândia, Nova Rosalândia, Mateiros, Oliveira de Fátima, Porto Nacional, Fátima, Lagoa da Confusão, Santa Rita do Tocantins, Monte do Carmo, Ponte Alta do Tocantins, Brejinho de Nazaré, Crixás do Tocantins, Pindorama do Tocantins, Ipueiras, Silvanópolis, Aliança do Tocantins, Dueré, Rio da Conceição, Santa Rosa do Tocantins, Almas, Porto Alegre do Tocantins, Dianópolis, Chapada da Natividade, Natividade, Formoso do Araguaia, Gurupi, Cariri do Tocantins, Novo Jardim, Sucupira, Peixe, São Valério da Natividade, Figueirópolis, Taipas do Tocantins, Ponte Alta do Bom Jesus, Conceição do Tocantins, Sandolândia, Alvorada, Taguatinga, Jaú do Tocantins, Paranã, Aurora do Tocantins, Talismã, São Salvador do Tocantins, Combinado, Lavandeira, Araguaçu, Arraias, Novo Alegre, Palmeirópolis

Xambioá Indigenous Area
Apinayé Indigenous Area
Khraolândia Indigenous Area
Xerente Indigenous Area
Bananal/Cantão Island EPA
Cantão State Park
Araguaia National Park
Araguaia Indigenous Land National Park
Lajeado Range EPA
Palmas
Santa Teresa River Mouth EPA
Tabatinga Range EPA

CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Paved road
- Conservation Unit boundary
- Indigenous Area boundary
- Municipal boundary
- County town
- Built-up area - CAPITAL

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

ENG-VERSION 1.0

TOCANTINS STATE GOVERNMENT

PLANNING AND ENVIRONMENT SECRETARIAT

Municipality	Area (km²)	Pop (inhab.) (IBGE - 1996)	Pop. (inhab.) (IBGE - 1999)	Creation year
REGION I - ARAGUATINS				
Araguatins	**2.297**	**22.558**	**24.544**	**1948**
Cachoeirinha	354	2.039	2.154	1993
Esperantina	483	5.963	6.528	1993
São Bento do Tocantins	1.438	2.834	2.398	1993
São Sebastião do Tocantins	289	3.516	4.044	1963
REGION II - AUGUSTINÓPOLIS				
Augustinópolis	**395**	**13.924**	**19.712**	**1982**
Axixá do Tocantins	105	9.698	9.591	1963
Buriti do Tocantins	272	7.599	7.564	1988
Carrasco Bonito	196	2.727	3.250	1993
Praia Norte	295	5.149	5.637	1988
Sampaio	202	2.829	2.394	1988
São Miguel do Tocantins	409	8.304	9.091	1993
Sítio Novo do Tocantins	275	10.114	14.318	1963
REGION III - TOCANTINÓPOLIS				
Aguiarnópolis	240	...	2.947	1997
Angico	564	2.755	2.331	1993
Darcinópolis	1.555	3.905	4.226	1993
Itaguatins	828	6.492	7.107	1945
Luzinópolis	281	...	1.712	1997
Maurilândia do Tocantins	792	2.721	3.243	1993
Nazaré	392	7.156	5.353	1958
Palmeiras do Tocantins	750	3.533	4.063	1993
Santa Terezinha do Tocantins	277	...	2.041	1997
Tocantinópolis	**1.082**	**22.810**	**20.435**	**1858**
REGION IV - XAMBIOÁ				
Ananás	1.398	9.694	10.547	1963
Araguanã	869	3.069	3.530	1993
Piraquê	1.179	1.785	2.127	1993
Riachinho	686	3.502	3.461	1993
Xambioá	**1.388**	**11.183**	**11.399**	**1958**
REGION V - ARAGUAÍNA				
Aragominas	1.067	3.486	4.009	1993
Araguaína	**3.920**	**105.019**	**114.948**	**1958**
Babaçulândia	1.916	8.775	8.633	1953
Carmolândia	354	1.610	1.362	1993
Filadélfia	1.997	7.407	7.373	1948
Muricilândia	1.248	3.039	3.289	1993
Nova Olinda	1.724	8.724	9.492	1980
Palmeirante	2.472	3.769	3.862	1993
Santa Fé do Araguaia	1.684	4.336	4.987	1993
Wanderlândia	1.379	10.274	11.178	1980
REGION VI - COLINAS DO TOCANTINS				
Arapoema	1.559	8.693	5.933	1963
Bandeirantes do Tocantins	1.678	...	2.015	1997
Bernardo Sayão	931	4.319	4.425	1987
Brasilândia do Tocantins	644	1.761	1.804	1993
Colinas do Tocantins	**847**	**24.474**	**26.628**	**1963**
Couto de Magalhães	1.592	4.358	4.108	1963
Itaporã do Tocantins	877	3.214	3.030	1963
Juarina	483	2.376	2.832	1989
Pau D'Arco	1.308	4.875	5.976	1993
Pequizeiro	1.230	3.574	3.868	1987
Presidente Kennedy	774	4.146	4.487	1971
Tupiratins	899	1.313	1.416	1993
REGION VII - GOIATINS				
Barra do Ouro	1.111	...	3.150	1997
Campos Lindos	3.254	5.102	6.254	1993
Goiatins	**6.436**	**14.207**	**10.827**	**1953**
REGION VIII - GUARAÍ				
Araguacema	2.790	4.712	4.828	1937
Colméia	1.026	9.141	9.318	1980
Dois Irmãos do Tocantins	3.773	7.554	6.859	1963
Fortaleza do Tabocão	624	2.315	2.634	1993
Goianorte	1.809	5.134	5.110	1988
Guaraí	**2.277**	**20.404**	**19.795**	**1968**
Miranorte	1.036	10.774	10.600	1963
Rio dos Bois	849	2.042	2.434	1993
Tupirama	716	...	1.128	1997
REGION IX - PALMAS METROPOLITAN REGION				
Aparecida do Rio Negro	1.165	3.646	3.946	1987
Brejinho de Nazaré	1.729	5.932	4.681	1958
Fátima	385	4.219	3.266	1983
Ipueiras	817	...	1.168	1997
Lajeado	301	1.397	1.665	1993
Miracema do Tocantins	**2.667**	**17.483**	**15.985**	**1948**
Monte do Carmo	3.360	5.979	5.429	1963
Oliveira de Fátima	247	...	711	1997
Palmas	**2.475**	**86.116**	**121.919**	**1989**
Porto Nacional	**4.464**	**43.365**	**43.035**	**1861**
Tocantínia	2.595	5.169	4.693	1953

Municipality	Area (km²)	Pop (inhab.) (IBGE - 1996)	Pop. (inhab.) (IBGE - 1999)	Creation year
REGION X - PEDRO AFONSO				
Bom Jesus do Tocantins	1.338	2.279	1.928	1993
Centenário	1.896	2.189	2.361	1993
Itacajá	3.432	6.549	5.946	1953
Itapiratins	1.241	3.392	3.671	1993
Pedro Afonso	**2.050**	**8.648**	**7.852**	**1903**
Recursolândia	1.859	3.051	3.509	1993
Santa Maria do Tocantins	1.412	2.187	2.359	1993
REGION XI - PARAÍSO DO TOCANTINS				
Abreulândia	1.903	1.957	2.005	1993
Barrolândia	705	5.477	4.474	1988
Caseara	1.699	3.625	4.169	1987
Chapada de Areia	662	...	956	1997
Cristalândia	1.816	8.670	7.804	1953
Divinópolis do Tocantins	2.357	6.476	5.449	1987
Lagoa da Confusão	10.603	4.956	6.075	1993
Marianópolis do Tocantins	2.100	2.605	2.809	1987
Monte Santo do Tocantins	1.083	...	1.640	1997
Nova Rosalândia	490	3.591	3.886	1988
Paraíso do Tocantins	**1.331**	**34.251**	**35.884**	**1963**
Pium	10.057	6.733	5.157	1953
Pugmil	399	...	1.382	1997
Santa Rita do Tocantins	3.288	...	1.531	1997
REGION XII - NOVO ACORDO				
Lagoa do Tocantins	909	2.618	3.120	1993
Lizarda	5.826	4.085	4.037	1953
Mateiros	5.914	1.490	1.776	1993
Novo Acordo	**2.539**	**2.963**	**3.408**	**1958**
Ponte Alta do Tocantins	10.082	6.579	6.695	1958
Rio Sono	6.383	6.531	5.930	1982
Santa Tereza do Tocantins	544	2.155	2.568	1988
São Félix do Tocantins	1.916	1.155	1.377	1993
REGION XIII - NATIVIDADE				
Chapada da Natividade	1.678	...	3.276	1997
Natividade	**3.211**	**11.623**	**9.370**	**1734**
Pindorama do Tocantins	1.565	4.716	4.446	1963
Santa Rosa do Tocantins	1.803	3.764	3.720	1988
São Valério da Natividade	2.547	4.807	5.893	1988
Silvanópolis	1.305	4.974	4.516	1980
REGION XIV - GURUPI				
Aliança do Tocantins	1.586	7.201	6.124	1988
Alvorada	1.217	10.219	9.308	1963
Araguaçu	5.188	9.801	9.642	1958
Cariri do Tocantins	1.067	2.473	2.092	1993
Crixás do Tocantins	991	...	1.204	1997
Dueré	3.466	4.190	3.950	1958
Figueirópolis	1.939	6.084	6.056	1980
Formoso do Araguaia	13.511	18.385	20.003	1963
Gurupi	**1.847**	**64.725**	**70.423**	**1958**
Jaú do Tocantins	2.181	3.437	3.719	1993
Peixe	5.111	8.740	7.505	1895
Sandolândia	3.542	3.495	4.020	1993
Sucupira	1.230	1.303	1.102	1993
Talismã	2.165	...	1.595	1997
REGION XV - DIANÓPOLIS				
Almas	4.106	7.747	7.883	1958
Dianópolis	**3.230**	**14.882**	**16.192**	**1884**
Novo Jardim	1.315	2.010	2.396	1993
Porto Alegre do Tocantins	482	2.463	2.656	1988
Rio da Conceição	761	1.035	1.234	1993
Taipas do Tocantins	1.277	1.722	1.457	1993
REGION XVI - PARANÃ				
Palmerópolis	1.710	7.395	6.714	1980
Paranã	**12.161**	**9.270**	**8.476**	**1857**
São Salvador do Tocantins	1.428	2.229	1.886	1993
REGION XVII - ARRAIAS				
Arraias	**5.419**	**11.551**	**11.774**	**1914**
Combinado	192	4.915	5.001	1987
Conceição do Tocantins	1.915	4.393	4.754	1963
Novo Alegre	132	1.981	2.029	1993
REGION XVIII - TAGUATINGA				
Aurora do Tocantins	756	4.382	3.076	1963
Lavandeira	522	...	1.055	1997
Ponte Alta do Bom Jesus	1.813	4.715	4.445	1958
Taguatinga	**2.447**	**13.711**	**14.918**	**1868**

The ECOLOGICAL AND ECONOMIC ZONING DIRECTORATE thanks the kindness of anyone communicating any mistake or omission that may be verified within this map.

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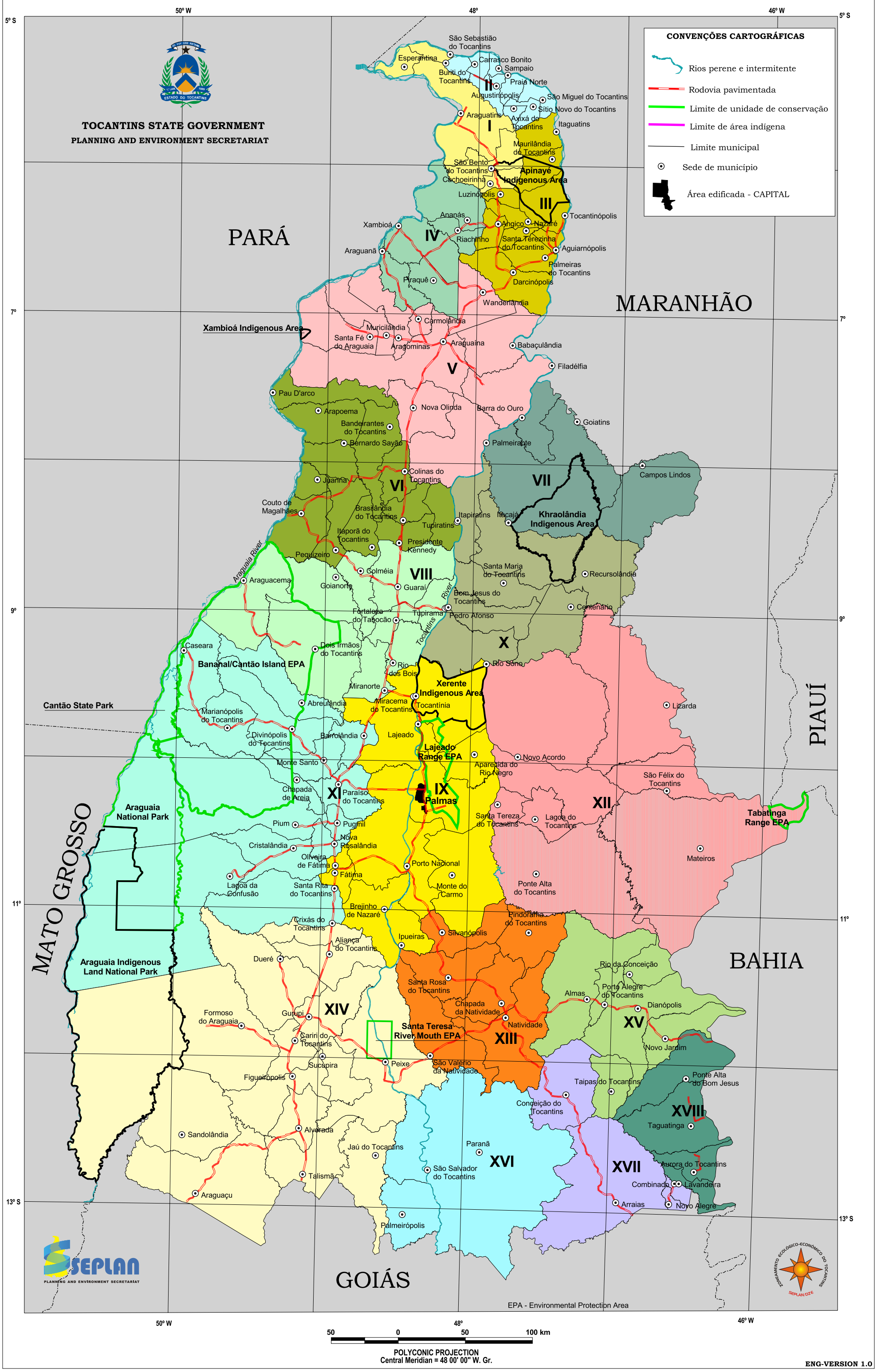
NOTE

This political and administrative division map was produced upon the Land Registry Details of each municipality as published in the Official State Journal and by later digitalization of municipal boundaries described on the topographic chart scale 1:100.000 done by the IBGE and DSG.

ECOLOGICAL AND ECONOMIC ZONING DIRECTORATE
DZE
2000

ENG-VERSION 1.0

ADMINISTRATIVE REGIONS AND PROGRAM-AREAS



TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

GEOLOGICAL ENVIRONMENT DIVISION
(Area - % of State Total)

Cenozoic Covers (45.345km² - 16,3%)

The Cenozoic covers refer to detrital--lateritic, Bananal and alluvial. The detrital-lateritic cover embraces sand-pelites sediments mainly unconsolidated and partially or totally laterized, with presence of iron concretions and concentrations laterite. The sedimentary Bananal cover is constituted mainly of unconsolidated sandy-clayey sediments, with varied coloring, usually in advanced laterization. The presence of fine and medium sand sediments, pebble, silt and clay feature the areas of alluvial covers, restricted to the bed of the main rivers that drain the Tocantins. Generally, the most widespread areas of alluvial sediments are composed of badly selected sediments, with angular to well rounded grains.

São Francisco Sedimentary Basin (20.580,8km² - 7,4%)

The São Francisco Sedimentary Basin is equivalent to the Urucuia Formation, which is featured by a sequence of sandstone layers mainly red, fine, kaolinitic, red claystone finely laminated and loamy lime.

Parnaíba Sedimentary Basin (92.257,2km² - 33,2%)

The Parnaíba sedimentary basin presents the following geologic formations: Serra Grande, Pimenteiras, Cabeças, Longá, Poti, Piauí, Pedra de Fogo, Motuca, Sambaíba, Mosquito, Corda, Sardinha and Codó. Mostly, the formations enclose fine, medium and coarse sandstone, calciferous or not, a variety of shales, siltstones, microconglomerates, cherts, carbonates, dolomites, gypsum presence, clastic chemical sediments, flintstone presence and basalts. They are also a verifiable intercalation of basalts and sandstone. Such lithology derives from continental and marine sedimentation with lacustrine and fluvial influence, as well as sporadic wind events.

Upper and Medium Proterozoic Folds Belt (64.084,7km² - 23,0%)

The Serra da Mesa Group, Baixo Araguaia Supergroup (Estrondo and Tocantins Groups), Araí and Natividade Groups, Peixe and Porto Nacional alkaline rocks, and Paranoá and Bambuí Groups are associated to the Upper and Medium Proterozoic Folds Belt. The Serra da Mesa Group, found under the Uruaçu Belt, with basal and higher units, is composed of a variety of schist, quartzite and marble lenses. The Baixo Araguaia Supergroup embraces the Tocantins and Estrondo Groups. This Supergroup has a strong structural control associated with the Araguaia-Tocantins Folds Belt. The main lithologies of the Estrondo Group are quartzitic-feldspars schists, amphibolic schists, migmatites, gnaisses and quartzites, and associations of mafic bodies. The Tocantins Group presents phyllite, clorite schist, metarkosean and metagraywakes, quartzites, jaspers, marbles, metasiltstone and metaclaystone. The Araí Group refers to a pack of metasediments and metavolcanic rocks with green schist facies. This Group embraces fine and coarse quartzites interlayered with metapelites and metaconglomerates intraformational and calc-phyllite, phyllite interlayered with impure carbonates, metasiltstones and occurrences of medium and coarse quartzites. The Natividade Group embraces a pack of pure quartzite, conglomeratic and with restricted arkosean presence (metarkosean); dolomitic marbles, phyllites; arkosean slate and quartzites. The Peixe and Porto Nacional alkalines are represented by nefeline sirenite magnetite rich rocks. The Paranoá Group is a psamitic and pelitic sequence with dolomite and flint interleaving, this interleaving of low metamorphism, continent--origin sedimentary structure. Its main lithology is: quartzite, metasandstone, metasiltstone, phyllites and slate. The Bambui Group is characterized as a sequence of low-metamorphism pelitic-sandy-carbonate rocks. The Subgroup Paraopeba, which generically has the following lithotypes, represents this Group: metasiltstone, metakorsean, flint, metaclaystone and dolomitic carbonates. Its carbonate ores processed and used in the civil, metallurgic and agricultural industry are of great importance for the State.

Archean and Lower Proterozoic Metavolcanic Sedimentary Sequence (3.624,3 km² - 1,3%)

The Greenstone Belt type Metavolcanic Sedimentary Sequence found is: Natividade-Almas, Conceição do Norte, Rio do Côco and Palmeirópolis. The first two sequences are found close to its homonymous cities, being represented, generically, by metacid, metabasic and ultrabasic rocks (amphibolites, schist talc, serpentine, and tremolitites) interlayered with cherts, carbonic rocks and graphitic phyllite. The following may also be found in this sequence: iron graphitic phyllite, sericite-quartz schist and quartzite. The Rio do Côco Sequence is to the east of the city of Paraíso do Tocantins City. It is divided into two units (one lower and a second higher), which are represented by a sequence of pelitic metasediments composed, basically, of quartz-mica schist with or without garnet, of quartz schist feldspars intensely deformed and of metaultramafic rocks, mainly clorite and actinolite schist. There also can be observed thick layers of Banded Iron Formations (BIFs). The Palmeirópolis Sequence, with upper, intermediate and basal units, presents basic and ultrabasic metavolcanic rocks, besides mica schist interlayered sometimes with feldspar amphibole schist, calcic-silicate, metacherts and quartzites. Associated to these Metavolcanic Sedimentary Sequence there may occur gold mineralizations with the following minerals: Iron (Fe); Manganese (Mn); Zinc (Zn); Copper (Cu) and Lead (Pb).

Archean and Lower Proterozoic Metamorphic Complex (52.527,9km² - 18,8%)

The main lands that belong to this complex correspond to the stratigraphic units of the Goiano, Porto Nacional, Gameleira and Aruanã-Pindorama Complexes, as well as Ipueiras Suite. The Goiano Complex is very important in the geological regional context due to its widespread presence in the State. The Goiano, Colméia and Porto Nacional complexes lithology is composed of varied gneisses, migmatites, ranodiorite, tonalite, micaceous quartzites interlayered and amphibole associated, hornblendites and garnet--pyroxene granulite. The Gameleira Complex, of reduced geographic distribution, presents metamorphic rocks derived from anortositic leukogabbro, dunite-peridotite, usually serpentinized, as well as metabasites and metaultrabasites. The Aruanã-Pindorama Complex is grouped in three segments of metavolcanic basic rock (amphibole, magnesian schist - metaultrabasites), acid to intermediate (meta-riodacites and sericite schist) and detritic metasediments (metasandstone feldspar and metarkoseans, and varied schist, quarzite and granulite). The Ipueiras Suite, close to the city of Porto Nacional, is composed of several granitic plutonic rocks of biotite granite and leukogranite.

CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Paved roads
- Conservation Unit boundary
- Indigenous Area boundary
- Built-up area - CAPITAL
- County town
- Geological environment boundary

NOTE

This Geological Environment Division map is based on the combination of the Goiás State geological map, produced by the National Mineral Production Department (DNPM) and the Mineral Resources Research Company (CPRM) (1987) and the integration of geology information plans for every sheet 1:250.000 of the international division, done by DSG and IBGE, which cover the State of Tocantins. The geology information plans scale 1:250.000 result from the digitalization of the original minutes of RADAM and RADAMBRASIL after legend compatibilization between cartographic sheets, through the following agreement: Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

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GEOLOGICAL ENVIRONMENT DIVISION

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50º W 48º 46º W
5º S 7º 9º 11º 13º S

PARÁ
MARANHÃO
PIAUÍ
BAHIA
GOIÁS
MATO GROSSO

São Sebastião do Tocantins
Esperantina
Carrasco Bonito
Sampaio
Buriti do Tocantins
Praia Norte
Augustinópolis
São Miguel do Tocantins
Sitio Novo do Tocantins
Araguatins
Axixá do Tocantins
Itaguatins
Maurilândia do Tocantins
São Bento do Tocantins
Apinayé Indigenous Area
Cachoeirinha
Luzinópolis
Tocantinópolis
Ananás
Xambioá
Angico
Nazaré
Riachinho
Santa Terezinha do Tocantins
Araguanã
Aguiarnópolis
Palmeiras do Tocantins
Piraquê
Darcinópolis
Wanderlândia
Carmolândia
Xambioá Indigenous Area
Muricilândia
Santa Fé do Araguaia
Aragominas
Araguaína
Babaçulândia
Filadélfia
Pau D'arco
Arapoema
Nova Olinda
Barra do Ouro
Goiatins
Bandeirantes do Tocantins
Bernardo Sayão
Palmeirante
Colinas do Tocantins
Campos Lindos
Juarina
Couto de Magalhães
Brasilândia do Tocantins
Itapiratins
Itacajá
Khraolândia Indigenous Area
Tupiratins
Itaporã do Tocantins
Presidente Kennedy
Pequizeiro
Araguaia River
Colmeia
Santa Maria do Tocantins
Recursolândia
Araguacema
Goianorte
Guaraí
Bom Jesus do Tocantins
Tocantins River
Centenário
Fortaleza do Tabocão
Tupirama
Pedro Afonso
Caseara
Dois Irmãos do Tocantins
Bananal/Cantão Island EPA
Rio dos Bois
Rio Sono
Xerente Indigenous Area
Miranorte
Cantão State Park
Abreulândia
Miracema do Tocantins
Tocantínia
Lizarda
Divinópolis do Tocantins
Marianópolis do Tocantins
Barrolândia
Lajeado
Lajeado Range EPA
Monte Santo do Tocantins
Novo Acordo
Aparecida do Rio Negro
São Félix do Tocantins
Chapada de Areia
Paraíso do Tocantins
Palmas
Araguaia National Park
Pium
Pugmil
Santa Tereza do Tocantins
Lagoa do Tocantins
Tabatinga Range EPA
Nova Rosalândia
Cristalândia
Mateiros
Oliveira de Fátima
Porto Nacional
Fátima
Lagoa da Confusão
Santa Rita do Tocantins
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Araguaia Indigenous Land National Park
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Silvanópolis
Ipueiras
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Dueré
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Santa Rosa do Tocantins
Almas
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Dianópolis
Chapada da Natividade
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Gurupi
Natividade
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Cariri do Tocantins
Novo Jardim
Sucupira
Peixe
São Valério da Natividade
Figueirópolis
Talpas do Tocantins
Ponte Alta do Bom Jesus
Conceição do Tocantins
Sandolândia
Alvorada
Taguatinga
Jaú do Tocantins
Paranã
Aurora do Tocantins
Talismã
São Salvador do Tocantins
Combinado
Lavandeira
Araguaçu
Arraias
Novo Alegre
Palmeirópolis

SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

CLIMATE REGIONALIZATION

HUMID CLIMATE

B1wA'a' - humid climate with moderate hydric deficiency.

B2rA'a' - humid climate with little or none hydric deficiency.

HUMID SUBHUMID CLIMATE

C2rA'a' - humid subhumid climate with little hydric deficiency.

C2wA'a' - humid subhumid climate with moderate hydric deficiency.

DRY SUBHUMID CLIMATE

C1dA'a' - dry subhumid climate with moderate hydric deficiency.

CARTOGRAPHIC CONVENTIONS

Perennial and intermittent rivers

Paved road

Conservation Unit boundary

Indigenous Area boundary

Built-up area - CAPITAL

County town

TECHNICAL NOTE

Tocantins State climate regions were defined using the Thornwaite method, considering the representative indexes of humidity, aridity and thermal efficiency (potential evapotranspiration) derived directly from rain, temperature and other elements resultant from the Thornwaite-Mather hydric balance.

B1wA'a' - humid climate with moderate hydric deficiency during winter, potential evapotranspiration presenting an annual average variation between 1.400 and 1.700 mm, having about 390 and 480 mm distributed along the three hottest consecutive summer months.

B2rA'a' - humid climate with little or none hydric deficiency, potential evapotranspiration presenting an annual average of 1.700 mm, having about 500 mm distributed along the three hottest consecutive summer months.

C2rA'a' - humid subhumid climate with little hydric deficiency, potential evapotranspiration presenting an annual average of 1.600 mm, having about 410 mm distributed along the three hottest consecutive summer months.

C2wA'a' - humid subhumid climate with moderate hydric deficiency during winter, potential evapotranspiration presenting an annual average of 1.500 mm, having about 420 mm distributed along the three consecutive summer hottest months.

C1dA'a' - dry subhumid climate with moderate hydric deficiency during winter, potential evapotranspiration presenting an annual average of 1.300 mm, having about 360 mm distributed along the three hottest consecutive summer months.

NOTE

Climate Regionalization map was created using data from the National Meteorological Institute (INMET) weather stations and the National Department of Water and Electrical Energy (DNAEE) pluviometric stations, processed by the Metheorogical, Hydric Resources and Land Management Group (NEMET / UNITINS), referent to the period between 1961 and 1990. Product obtained through the agreement: Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

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CLIMATE REGIONALIZATION

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50º W 48º 46º W
5º S 7º 9º 11º 13º S

PARÁ
MARANHÃO
PIAUÍ
BAHIA
GOIÁS
MATO GROSSO

São Sebastião do Tocantins
Esperantina
Carrasco Bonito
Sampaio
Buriti do Tocantins
Praia Norte
Augustinópolis
São Miguel do Tocantins
Sitio Novo do Tocantins
Araguatins
Axixá do Tocantins
Itaguatins
Maurilândia do Tocantins
São Bento do Tocantins
Apinayé Indigenous Area
Cachoeirinha
Luzinópolis
Ananás
Tocantinópolis
Xambioá
Angico
Nazaré
Riachinho
Santa Terezinha do Tocantins
Aguiarnópolis
Araguanã
Palmeiras do Tocantins
Piraquê
Darcinópolis
Wanderlândia
Carmolândia
Xambioá Indigenous Area
Muricilândia
Santa Fé do Araguaia
Aragominas
Araguaína
Babaçulândia
Filadélfia
Pau D'arco
Arapoema
Nova Olinda
Barra do Ouro
Goiatins
Bandeirantes do Tocantins
Bernardo Sayão
Palmeirante
Colinas do Tocantins
Campos Lindos
Juarina
Couto de Magalhães
Brasilândia do Tocantins
Itapiratins
Itacajá
Khraolândia Indigenous Area
Tupiratins
Itaporã do Tocantins
Presidente Kennedy
Pequizeiro
Araguaia River
Colméia
Santa Maria do Tocantins
Recursolândia
Araguacema
Goianorte
Guaraí
Bom Jesus do Tocantins
Tocantins River
Fortaleza do Tabocão
Tupirama
Pedro Afonso
Centenário
Caseara
Dois Irmãos do Tocantins
Bananal/Cantão Island EPA
Rio dos Bois
Rio Sono
Miranorte
Xerente Indigenous Area
Cantão State Park
Abreulândia
Miracema do Tocantins
Tocantínia
Lizarda
Marianópolis do Tocantins
Divinópolis do Tocantins
Barrolândia
Lajeado
Lajeado Range EPA
Monte Santo do Tocantins
Novo Acordo
Aparecida do Rio Negro
São Félix do Tocantins
Chapada de Areia
Paraíso do Tocantins
Palmas
Araguaia National Park
Santa Tereza do Tocantins
Lagoa do Tocantins
Tabatinga Range EPA
Pium
Pugmil
Nova Rosalândia
Cristalândia
Mateiros
Oliveira de Fátima
Porto Nacional
Fátima
Lagoa da Confusão
Santa Rita do Tocantins
Monte do Carmo
Ponte Alta do Tocantins
Brejinho de Nazaré
Crixás do Tocantins
Pindorama do Tocantins
Ipueiras
Silvanópolis
Aliança do Tocantins
Araguaia Indigenous Land National Park
Dueré
Rio da Conceição
Santa Rosa do Tocantins
Almas
Porto Alegre do Tocantins
Dianópolis
Chapada da Natividade
Natividade
Formoso do Araguaia
Gurupi
Santa Teresa River Mouth EPA
Cariri do Tocantins
Novo Jardim
Sucupira
Peixe
São Valério da Natividade
Figueirópolis
Taipas do Tocantins
Ponte Alta do Bom Jesus
Conceição do Tocantins
Alvorada
Sandolândia
Taguatinga
Jaú do Tocantins
Paranã
Aurora do Tocantins
São Salvador do Tocantins
Talismã
Combinado
Lavandeira
Araguaçu
Arraias
Novo Alegre
Palmeirópolis

SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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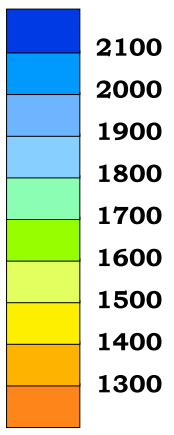
TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

AVERAGE ANNUAL RAINFALL (mm)



CARTOGRAPHIC CONVENTIONS

Perennial and intermittent rivers

Built-up area - CAPITAL

Paved road

County town

Conservation Unit boundary

Indigenous Area boundary

NOTE

This Average Annual Rain map was created using data from the National Meteorological Institute (INMET) weather stations and the National Department of Water and Electrical Energy (DNAEE) pluviometric stations, processed by the Metheorogical, Hydric Resources and Land Management Group (NEMET / UNITINS), referent to the period between 1961 and 1990. Product obtained through the agreement: Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

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AVERAGE ANNUAL RAINFALL

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50° W 48° 46° W
5° S 7° 9° 11° 13° S

PARÁ
MARANHÃO
PIAUÍ
MATO GROSSO
BAHIA
GOIÁS

São Sebastião do Tocantins
Esperantina
Carrasco Bonito
Sampaio
Buriti do Tocantins
Praia Norte
Augustinópolis
São Miguel do Tocantins
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Tocantinópolis
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Angico
Nazaré
Riachinho
Santa Terezinha do Tocantins
Aguiarnópolis
Araguanã
Palmeiras do Tocantins
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Darcinópolis
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Babaçulândia
Filadélfia
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Arapoema
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Rio dos Bois
Rio Sono
Miranorte
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Cantão State Park
Abreulândia
Tocantínia
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Palmeirópolis

SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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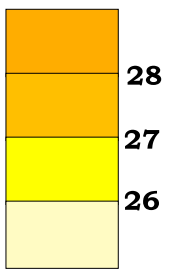
TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

AVERAGE ANNUAL AIR TEMPERATURE (°C)



CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Built-up area - CAPITAL
- Paved roads
- County town
- Conservation Unit boundary
- Indigenous area boundary

NOTE

This Average Annual Air Temperature was created using data of the National Meteorological Institute (INMET) weather stations and the Water and Electrical Energy National Department (DNAEE) pluviometric stations, processed by the Metheorogical, Hydric Resources and Land Management Group (NEMET / UNITINS), referent to the period between 1961 and 1990. Product obtained through the convention: Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

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AVERAGE ANNUAL AIR TEMPERATURE

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50º W 48º 46º W
5º S 7º 9º 11º 13º S

PARÁ
MARANHÃO
PIAUÍ
BAHIA
GOIÁS
MATO GROSSO

São Sebastião do Tocantins
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Praia Norte
Augustinópolis
São Miguel do Tocantins
Sítio Novo do Tocantins
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Miracema do Tocantins
Tocantínia
Lizarda
Marianópolis do Tocantins
Divinópolis do Tocantins
Barrolândia
Lajeado
Lajeado Range EPA
Monte Santo do Tocantins
Novo Acordo
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São Félix do Tocantins
Chapada de Areia
Paraíso do Tocantins
Palmas
Araguaia National Park
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Lagoa do Tocantins
Tabatinga Range EPA
Pium
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Nova Rosalândia
Cristalândia
Mateiros
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Novo Alegre
Palmeirópolis

SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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VEGETATION

Riverside woods at the edges of Rio Novo. Mateiros. Jalapão.

Shrublands physiognomy with soil covered by a grass-wood stratus.

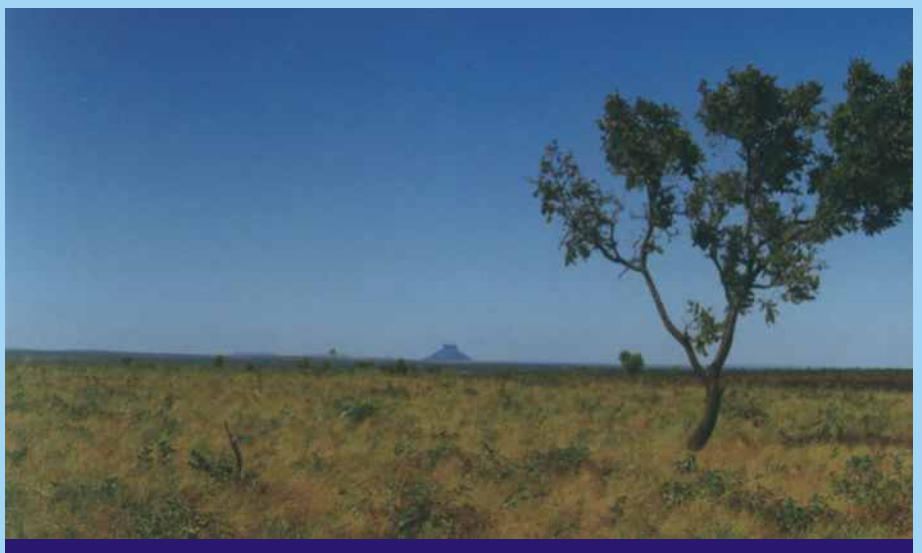
Grassland with gallery forest and Savannah shrubland.

Secondary vegetation aspect presenting young and adult individuals of Babaçu palm trees.

Open rain forest on plain relief. Praia Norte.

Physiognomic aspect of Dense Savannah. Ananás.

Palm tree wood featured with Buriti presence. Palmas.



Savannah grassland aspect. Mateiros. Jalapão.

Hillside seasonal forest on Lajeado Range. Palmas.

Strict-meaning Savannah aspect.

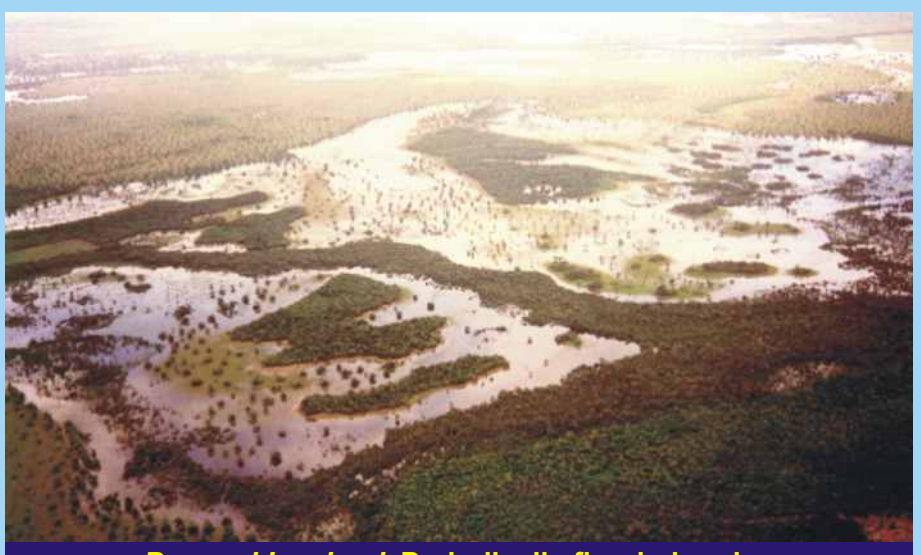
Hillside seasonal forest on Lajeado Range. Palmas.

RELIEF

Lajeado Range. Palmas. **Pediment articulation between a higher and a lower surfaces.**
Planalto residual do Tocantins / Depressão do Tocantins.

Grande Range**. São Salvador do Tocantins. Ridge dissected relief. Southern Tocantins Plateau**

Morro Mandacaru (Morro Catedral).
São Félix do Tocantins - Jalapão.



Bananal Lowland. **Periodically flooded region higher water retention at lower areas.**

Araguaia River alluvial islands. Pium.
Fluvial deposition result.

Segredo Hill. Lajeado. Pediplanation process on a tabular structured surface.

Middle North Chapadas. Wanderlândia.
Tabular surface residual relief with abrupt cliffs.

Jalapinha Range**. Mateiros. Jalapão. Residual relief.**
Medium São Francisco sedimentary plateau.

Itacajá. Terrace dissected relief.

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

RELIEF FORMS

STRUCTURAL FORMS

(Structural tabular surfaces and structural plateaus.)

EROSIVE FORMS

(Erosive tabular surfaces, pediplane surfaces, Inselbergs and fluvial terraces.)

DISSECTION FORMS

(Dissected in ridges, Dissected in mesas, Dissected in tabular interrills, Dissected in plateaus, Dissected in rounded hills, Dissected in plain top hills, Dissected in gullies, Dissected in groups of mesas, Dissected in ridges and mesas, Dissected in gullies and mesas and Dissected in low hills with imbedded valleys.)

ACCUMULATION FORMS

(Fluvial terraces, Fluvial lowlands and flooding accumulation areas.)

CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Paved roads
- Conservation Unit boundary
- Indigenous Area boundary
- Built-up area - CAPITAL
- County town

TECHNICAL NOTE

STRUCTURAL FORMS: relief with structure conditioned topography. In this case, morfodinamic processes relief forms in conformity with geological structure. The most resistant layers surpasses the surface.

EROSIVE FORMS : relief forms that are mainly originated from erosive processes, where there had been a lowering of the tops which trends to a relief leveling.

DISSECTION FORMS : relief forms engraved by erosive processes, presenting a differentiable dissection on the landscape, mainly along the hydrografy.

ACCUMULATION FORMS : sediment resulting relief, in fluvial regions, usually subject to flooding.

NOTE

This Relief forms map is based on the integration of the geomorphology information plan for each cartographic sheet scale 1:250.000 in the international division that covers the State of Tocantins, executed by IBGE and DSG. The geomorphology information plans scale 1:250.000 result from the digitalization of the original minutes of RADAM and RADAMBRASIL after legend compatibilization between cartographic sheets, through the convention of Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

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RELIEF FORMS

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PLANNING AND ENVIRONMENT SECRETARIAT

50º W 48º 46º W
5º S 7º 9º 11º 13º S

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BAHIA
GOIÁS
MATO GROSSO

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SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

SLOPE

Slope classes

Class A (slope equal or lower than 5%): predominance of areas with slight slope and gentle relief, where the run-off is slow or medium in most part of soils. This class of slope, by itself, does not restrict the use of standard agricultural machinery. Hydric erosion does not offer big problems. Simple soil conservation systems are recommended for some kinds of soils. On the other hand, more complex systems may be necessary such as terraces or cultivated contour practices in areas of long slopes with high erodibility.

Class B (slope greater than 5% to 10%): predominance of areas where undulated relief is common and run-off is medium or fast on most soils. The slope by itself usually does not restrict the use of agricultural machinery. In some cases, hydric erosion offers little problems which may be controlled with simple practices, but most of the time complex conservation practices are necessary for cultivating these kinds of lands.

Class C (slope greater than 10% to 15%): predominance of hilly areas, where run-off is very fast for most soils. Since declivity is not very complex, most part of agricultural machinery may be used. Soils on this slope class are easily eroded, except those with high permeability and not much sandy, such as some kind of latossols. For any situation, adequate conservation practices are necessary.

Class D (slope greater than 15% to 45%): predominance of areas with very fast run-off for most soils. May be worked only in contour line with animal traction machinery or under certain limitations and special care with tracklayer tractors. Intensive tillage is not recommended for the lands in this situation. They are more suitable for natural grassing or forestation.

Class E (slope greater than 30% to 45%): predominance of steep areas, where run-off is very fast. Soils may be mechanically worked only with simple animal-traction machinery and with serious limitations. Lands under this situation are nor suitable for agriculture and may be used for grassing. They are more suitable for forestation.

Class F (declivity higher than 45%): Predominance of steep areas, in mountainous regions, where no kind of agricultural machinery may be used. Run-off is always very fast and the soils in these classes are very susceptible to hydric erosion. They cannot be mechanically worked, even by simple animal-traction machinery. Only manual tools may be used. Lands in this class are unsuitable for agricultural use.

Association of declivity classes

Class AB: association of slope classes A and B with predominance of class A

Class BA: association of slope classes B and A with predominance of class B

Class BC: association of slope classes B and C with predominance of class B

Class CB: association of slope classes B and C with predominance of class C

Class CD: association of slope classes C and D with predominance of class C

Class DC: association of slope classes D and C with predominance of class D

CARTOGRAPHIC CONVENTIONS

Perennial and intermittent rivers

Paved roads

Conservation Unit boundary

Indigenous Area boundary

Built-up area - CAPITAL

County town

NOTE

This Declivity map is based on the integration of the declivity information plan for each cartographic sheet scale 1:250.000 in the international division that covers the State of Tocantins, done by IBGE and DSG. The declivity information plans scale 1:250.000 had its original classes obtained from the second derivative of the Digital Terrain Model, originated from contour line digitalization equally distanced in 100m. The confrontation of these units with semi-controlled RADAR mosaics and topographic maps allowed the generalization to the present classes. When pertinent, considering scale limitations, some original classes were associated into mosaics. Product obtained through the agreement of: Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

The ECOLOGICAL AND ECONOMIC ZONING DIRECTORATE
thanks the kindness of anyone communicating any
mistake or omission that may be verified within this map.
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SLOPE

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50° W 48° 46° W
5° S 7° 9° 11° 13° S

São Sebastião do Tocantins
Esperantina
Carrasco Bonito
Sampaio
Buriti do Tocantins
Praia Norte
Augustinópolis
São Miguel do Tocantins
Sítio Novo do Tocantins
Araguatins
Axixá do Tocantins
Itaguatins
Maurilândia do Tocantins
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Palmeiras do Tocantins
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Darcinópolis
Wanderlândia
PARÁ
MARANHÃO
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Bernardo Sayão
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Itacajá
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Itaporã do Tocantins
Presidente Kennedy
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Araguacema
Colméia
Goianorte
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Tocantins River
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Fortaleza do Tabocão
Tupirama
Pedro Afonso
Caseara
Dois Irmãos do Tocantins
Bananal/Cantão Island EPA
Rio dos Bois
Rio Sono
Miranorte
Xerente Indigenous Area
Cantão State Park
Abreulândia
Miracema do Tocantins
Tocantínia
Lizarda
Marianópolis do Tocantins
Divinópolis do Tocantins
Barrolândia
Lajeado
Lajeado Range EPA
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Novo Acordo
Monte Santo
São Félix do Tocantins
Chapada de Areia
Paraíso do Tocantins
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Santa Tereza do Tocantins
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EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

SOILS

Soil Groups ***(Area - % of total State)***

- Concretionary soils - (63.468,1 km² - 22,8%)
- Latosols - (61.648,8 km² - 22,1%)
- Sandy Soils - (52.555,8 km² - 18,9%)
- Plinthic soils - (30.800,6 km² - 11,1%)
- Podzolic Soils - (28.158,7 km² - 10,1%)
- Lithic Soils - (23.484,8 km² - 8,4%)
- Hydromorphic and alluvial soils - (14.089,2 km² - 5,1%)
- Cambisols - (4.214,7 km² - 1,5%)

CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Paved road
- Conservation Unit boundary
- Built-up area - CAPITAL
- County town
- Indigenous Area boundary

NOTE

This map of Soil Groups is based on the integration of the soil information plan for each cartographic sheet scale 1:250.000 in the international division that covers the State of Tocantins, done by IBGE and DSG. The soil information plans scale 1:250.000 result from the digitalization of the original minutes of RADAM and RADAMBRASIL after legend compatibilization between cartographic sheets, through the following agreement: Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

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SOILS

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50º W 48º 46º W
5º S 7º 9º 11º 13º S

PARÁ
MARANHÃO
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SEPLAN
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ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
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TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

POTENTIAL SOIL ERODIBILITY

SOIL POTENTIAL ERODIBILITY CLASSES (Area - % State total)

VERY LOW TO LOW: areas with soils of great agricultural significance. The soils usually are deep, porous, well permeable, even when they are very clayey, friable, located on plan and gentle relief with slope mostly less than 3%. The landscape dynamics is stable (pedogenesis > morphogenesis) and surface run-off processes are diffuse and slow (74,839.5 km2 ; 26.9% of the whole State).

SLIGTH: areas with well to very well drained deep soils on gentle undulated relief where predominate slopes between 3% and 8%. The landscape dynamics vary from stable to a transitional one (pedogenesis ≥morphogenesis). Run-off processes are diffuse and slow, with rare concentrated run-off events. (110,447.8 km2; 39.7%)

MODERATE: areas with well drained, permeable, deep to moderate deep soils in which there exists homogeneous morphological in the whole soil profile. They occur usually on undulated relief with slopes from 8% to 20%. The landscape dynamics is transitional (pedogenesis ≅morphogenesis). The urface run-off processes are diffuse and slow with rare concentrated occurence events. (25,083.8 km2 ; 9.0%)

STRONG: most soils in this class are not very deep, with moderate drainage, few aggregating agents and bulk structure, without cohesion on the surface horizon (A). Organic matter is very low and restricted to this horizon. They usually occur on heavily undulated relief (slopes from 20 to 45% predominance) and have restricted permeability, which causes them to be very erodible. Its landscape ecodynamics is unstable (pedogenesis < morphogenesis). Its surface run-off processes are diffuse and fast, concentrated, being possible even mass movements, such as creeping and flowage. (19,648.1 km2 ; 7.0%).

VERY STRONG: areas with shallow and very shallow soils, with presence of rock outcropping. The predominant relief varies from mountainous to scarped, with slope higher than 45%. Its landscape ecodynamic is very unstable (pedogenesis << morphogenesis). Surface run-off processes are concentrated. Mass movements are sliding, landslide, creeping and flowage, with casual block fall. (13,621.3 km2 ; 4.9%)

SPECIAL: poorly to very poorly drained soils, with usually high watertable. Landscape ecodynamics is unstable and transitional (pedogenesis < or ≅morphogenesis). The processes involved are: run-off along riverside, movement and deposition of fine sediments, as well as diffuse and slow run-off on lowlands, fluvial terraces and lake margins, besides casual floods. (13,621.3 km2 ; 4.9%).

NOTE

This Soil potential erodibility map is based on the integration of the soil erodibility information plan for each cartographic sheet scale 1:250.000 in the international division that covers the State of Tocantins, done by IBGE and DSG.

The method used for the creation of this Information Plan (IP) started with the collection of basic documents (soils, geomorpholgy, altimetry, etc.) and by making cartographic, bibliographic, numeric and iconographic information available for the State of Tocantins, compatible between each other. A database on Tocantins soils was established. Amongst the many characteristics that were integrated, the erodibility factor (k) was evaluated. It was qualitatively determined, based on a theoretic twenty-five-meter plot, nine-percent uniform slope of downslope tilled soil and free of vegetation cover. The information integrated in the SGI/INPE served as basis for two Information Plans: declivity classes and soil potential erosion.

To obtain the soil declivity classes IP, contour line were digitized, 100m equidistant, from IBGE planimetric maps, scale 1:250.000. Through automatic manipulation in SGI a Digital Terrain Model was created, and also a first version of declivity classes. After adjustment with satellite and RADAR imagery, a definitive IP was composed, with the following declivity classes: A (< 5%); B (5 to 10%); C (10 to 15%); D (15 to 30%); E (30 to 45%) and F (> 45%).

To obtain the potential soil erosion IP, a collection of variables intrinsic to the 53 mapping units (texture, horizon transition, internal permeability, structure, etc.) was related to potential erodibility. After combination of those variables, an index of potential erosion was determined for each soil unit, analyzed within the geomorphological context. Applied to each mapping unit, this index was used to generate a first version of soil erosion potential. The identified areas were contextualized with the morphostrucutural and morphopedologic units proposed for the State of Tocantins by IBGE/DIGEO-CO-SE, leading to the final IP version.

The soil potential erodibility IP was obtained from soil declivity classes and potential soil erosion basic Information Plans, constituting a decision matrix. This matrix was converted into a rules files from which resulted the first versions of the potential erodibility charts for the State. Erodibility class size, form, dispersion and localization were considered and reclassified within the landscape ecodynamic context (balance between pedogenesis and mophogenesis). This last procedure created a final version of the State of Tocantins soil erodibility potential.

Product obtained through the agreement of: Transport and Building Secretariat - SETO / Agricultural and Animal Husbandry Research Brazilian Company (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

CARTOGRAPHIC CONVENTIONS

Perennial and intermittent rivers

Conservation Unit boundary

Indigenous Area boundary

Built-up area - CAPITAL

County town

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POTENTIAL SOIL ERODIBILITY

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50º W 48º 46º W
5º S 7º 9º 11º 13º S

PARÁ
MARANHÃO
PIAUÍ
BAHIA
GOIÁS
MATO GROSSO

São Sebastião do Tocantins
Esperantina
Carrasco Bonito
Sampaio
Buriti do Tocantins
Praia Norte
Augustinópolis
São Miguel do Tocantins
Sitio Novo do Tocantins
Araguatins
Axixá do Tocantins
Itaguatins
Maurilândia do Tocantins
São Bento do Tocantins
Apinayé Indigenous Area
Cachoeirinha
Luzinópolis
Tocantinópolis
Ananás
Angico
Nazaré
Xambioá
Riachinho
Santa Terezinha do Tocantins
Aguiarnópolis
Araguanã
Palmeiras do Tocantins
Piraquê
Darcinópolis
Wanderlândia
Carmolândia
Xambioá Indigenous Area
Muricilândia
Santa Fé do Araguaia
Aragominas
Araguaína
Babaçulândia
Filadélfia
Pau D'arco
Arapoema
Nova Olinda
Barra do Ouro
Goiatins
Bandeirantes do Tocantins
Bernardo Sayão
Palmeirante
Colinas do Tocantins
Campos Lindos
Juarina
Couto de Magalhães
Brasilândia do Tocantins
Itapiratins
Itacajá
Khraolândia Indigenous Area
Tupiratins
Itaporã do Tocantins
Presidente Kennedy
Pequizeiro
Araguaia River
Araguacema
Colméia
Goianorte
Guaraí
Santa Maria do Tocantins
Recursolândia
Bom Jesus do Tocantins
Tocantins River
Fortaleza do Tabocão
Tupirama
Pedro Afonso
Centenário
Caseara
Dois Irmãos do Tocantins
Bananal/Cantão Island EPA
Rio dos Bois
Rio Sono
Miranorte
Xerente Indigenous Area
Cantão State Park
Abreulândia
Miracema do Tocantins
Tocantínia
Lizarda
Marianópolis do Tocantins
Divinópolis do Tocantins
Barrolândia
Lajeado
Lajeado Range EPA
Monte Santo
Aparecida do Rio Negro
Novo Acordo
São Félix do Tocantins
Chapada de Areia
Paraíso do Tocantins
Palmas
Araguaia National Park
Santa Tereza do Tocantins
Lagoa do Tocantins
Tabatinga Range EPA
Pium
Pugmil
Cristalândia
Nova Rosalândia
Mateiros
Oliveira de Fátima
Porto Nacional
Fátima
Lagoa da Confusão
Santa Rita do Tocantins
Monte do Carmo
Ponte Alta do Tocantins
Brejinho de Nazaré
Pindorama do Tocantins
Crixás do Tocantins
Ipueiras
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Aliança do Tocantins
Araguaia Indigenous Land National Park
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Rio da Conceição
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Dianópolis
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Natividade
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Gurupi
Santa Teresa River Mouth EPA
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Jaú do Tocantins
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Aurora do Tocantins
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Talismã
Combinado
Lavandeira
Araguaçu
Arraias
Novo Alegre
Palmeirópolis

SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

PHYTOECOLOGICAL REGIONS

(Area - % of total State)

- Decidual forest (Floresta Estacional Decidual) (1.756,9 km² - 0,6%)
- Semi-decidual forest (Floresta Estacional Semidecidual) (5.272,0 km² - 1,9%)
- Open rainforest (Floresta Ombrófila Aberta) (15.195,5 km² - 5,4%)
- Dense rainforest (Floresta Ombrófila Densa) (11.836,4 km² - 4,3%)
- Savannah (Cerrado) - (244.359,9 km² - 87,8%)

CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Paved roads
- Conservation Unit boundary
- Indian Area boundary
- Built-up area - CAPITAL
- County town

TECHNICAL NOTE

DECIDUAL SEASONAL FOREST REGION: this regions presents a kind of vegetation with large continuous areas, found, from north to south, between the Semi-decidual Seasonal Forest and Praire (Savanna Estépica - caatinga), where the deciduous feature of the vegetation is closely related to the water availability. It happens in the form of forest discontinuity, with a predominantly caduciphollium stratum.

SEMI-DECIDUAL SEASONAL FOREST REGION: this is a type of vegetation mainly constituted by phanerophytes with leaf gems protected against drought by scales, having decidual adult leaves. It is observed mainly on high lands or in the southern and southeastern Tocantins.

OPEN RAINFOREST REGION: this kind of vegetation represents a transition between the Amazon forest and extra-Amazon regions, evidence of a gradual diminishing of cover density. Occurs mainly in mountainous areas and feature the transition between Savannah (Cerrado) and Dense rain forest (Floresta Ombrófila Densa).

DENSE RAINFOREST REGION: its main ecological feature is the rainy environment it occupies, which marks the Amazon forest floristic region. It is featured by abundant vegetation of macro and mesofanerophytes, lianes and epiphytes, thus being different from other vegetation formations. Such kind of forest is observed in the northwestern part of the state.

SAVANNAH REGION: it is a region with open xerophytic vegetation, dominated by a herbaceous stratum. It occurs in almost the whole state, mainly under seasonal climate (more or less 6 dry months), and is also found in rainy climate, when it usually covers leached soils.

NOTE

This Phytoecological Regions map is based on the integration of the Potential Vegetation information plan for each cartographic sheet scale 1:250.000 in the international division that covers the State of Tocantins, done by IBGE and DSG. The potential vegetation information plans scale 1:250.000 result from the digitalization of the original minutes of RADAM and RADAMBRASIL after legend compatibilization between cartographic sheets, through the agreement of: Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) / Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

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PHYTOECOLOGICAL REGIONS

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50° W 48° 46° W
5° S 7° 9° 11° 13° S

PARÁ
MARANHÃO
PIAUÍ
BAHIA
GOIÁS
MATO GROSSO

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Crixás do Tocantins
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Dianópolis
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Lavandeira
Araguaçu
Arraias
Novo Alegre
Palmeirópolis

PLANNING AND ENVIRONMENT SECRETARIAT

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

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HIDROGRAPHY

Do Sono River. Novo Acordo.

Palma River. Paranã.

Côco River. Caseara. Cantão Ecotourism Center. Pium.

Javaés River. Formoso do Araguaia.

Novo River. Mateiros (Jalapão).

Tocantins River. Palmas.

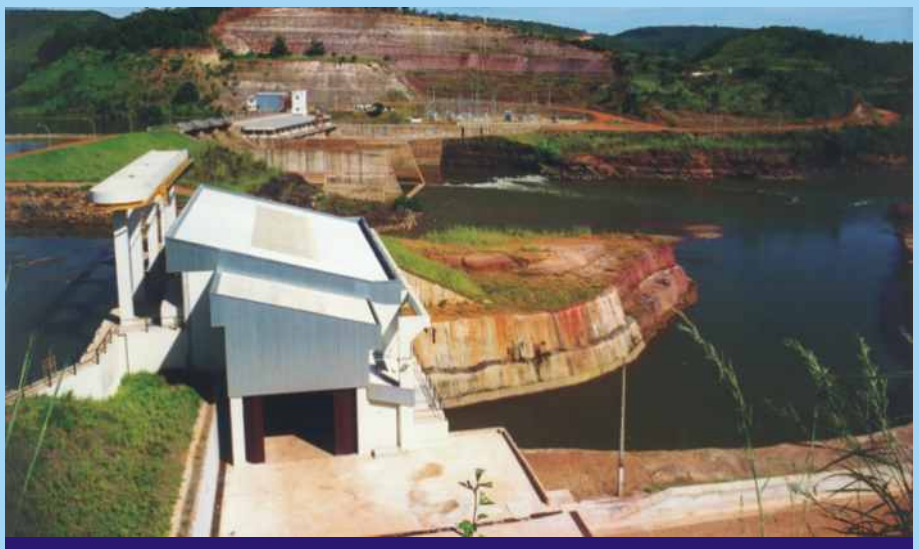
Lakes region. Cantão Ecotourism Center. Pium.

Araguaia River. Araguatins.

Formoso River. Formoso do Araguaia.

Paranã River. Paranã.

INFRASTRUCTURE



Isamu Ikeda Hydroelectric Power Plant. Ponte Alta do Tocantins.

Luis Eduardo Magalhães Hydroelectric Power Plant.
(UHE Lajeado). Lajeado.

138 kV transmission line. Palmas.

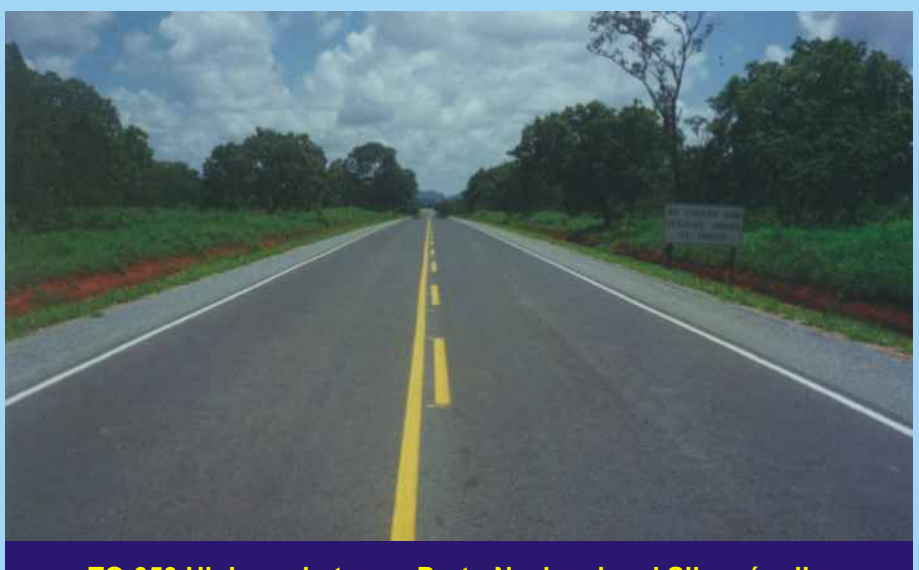
500 kV transmission line. Connection between the systems
Eletronorte and Furnas. Miracema do Tocantins.

Araguaia Waterway.

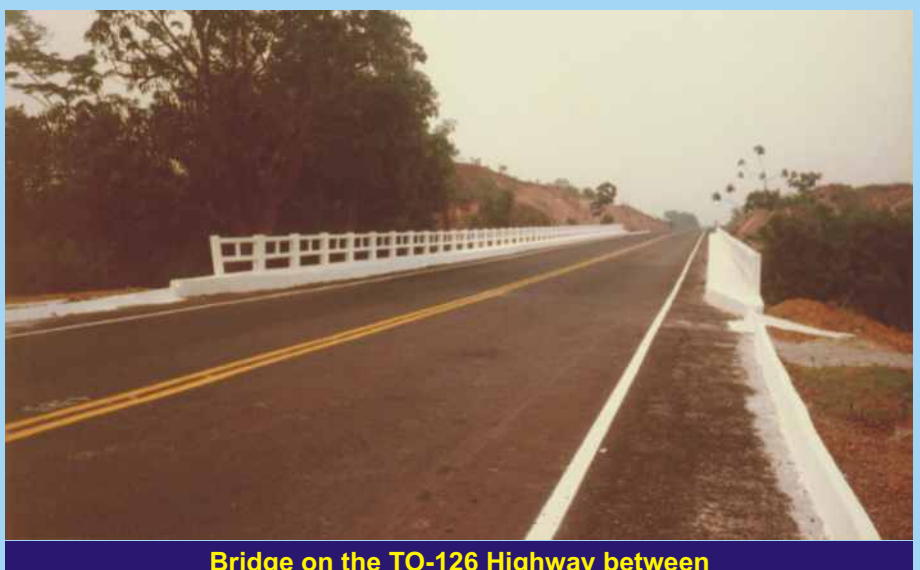
TO-010 Highway between Palmas and Lajeado.

Slaughter house. Gurupi Industrial District.

Palmas airport.



TO-050 Highway between Porto Nacional and Silvanópolis.



Bridge on the TO-126 Highway between
Aguiarnópolis and Tocantinópolis.

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

HYDROGRAPHY

HYDROGRAPHIC SYSTEMS
(Area - % State total)

ARAGUAIA RIVER(104.990,8 km² - 37,7%)

TOCANTINS RIVER(173.429,9 km² - 62,3%)

CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Paved roads
- Conservation Unit boundary
- Indigenous area boundary
- Built-up area - CAPITAL
- County town
- Hydrographic system boundary

NOTE

This Hydrography map is based on the integration of the hydrography and hydrographic watersheds information plans for each cartographic sheet scale 1:250.000 in the international division that covers the State of Tocantins, done by IBGE and DSG. The hydrography and hydrographic watersheds information plans scale 1:250.000 are result of the following agreement: Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

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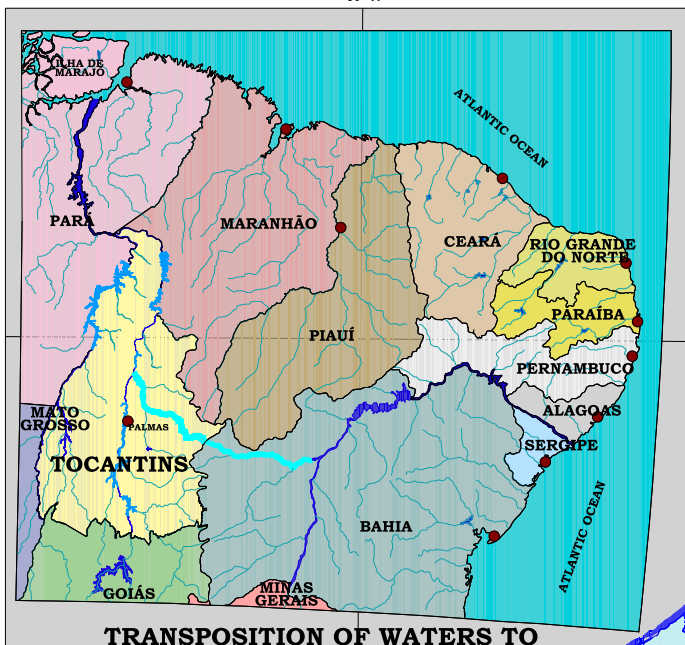
HYDROGRAPHY



TRANSPOSITION OF WATERS TO THE NORTHEAST (PLANNED)

TOCANTINS STATE GOVERNMENT

PLANNING AND ENVIRONMENT SECRETARIAT

50º W 48º 46º W

5º S 7º 9º 11º 13º S

PARÁ MARANHÃO PIAUÍ BAHIA GOIÁS MATO GROSSO

São Sebastião do Tocantins
Esperantina
Carrasco Bonito
Sampaio
Buriti do Tocantins
Praia Norte
Augustinópolis
São Miguel do Tocantins
Sítio Novo do Tocantins
Araguatins
Xixá do Tocantins
Itaguatins
Maurilândia do Tocantins
São Bento do Tocantins
Cachoeirinha
Apinayé Indigenous Area
Luzinópolis
Tocantinópolis
Ananás
Xambioá
Angico
Nazaré
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Carmolândia
Muricilândia
Santa Fé do Araguaia
Araguaína
Aragominas
Babaçulândia
Nascentes de Araguaína EPA
Filadélfia
Pau D'arco
Arapoema
Nova Olinda
Barra do Ouro
Goiatins
Bandeirantes do Tocantins
Bernardo Sayão
Palmeirante
Colinas do Tocantins
Campos Lindos
Juarina
Couto de Magalhães
Brasilândia do Tocantins
Itapiratins
Itacajá
Khraolândia Indigenous Area
Tupiratins
Itaporã do Tocantins
Presidente Kennedy
Araguaia River
Pequizeiro
Colméia
Santa Maria do Tocantins
Recursolândia
Araguacema
Goianorte
Guaraí
Bom Jesus do Tocantins
Centenário
Fortaleza do Tabocão
Tupiratins
Pedro Afonso
Tocantins River
Caseara
Dois Irmãos do Tocantins
Bananal/Cantão Island EPA
Rio dos Bois
Rio Sono
Miranorte
Xerente Indigenous Area
Cantão State Park
Abreulândia
Miracema do Tocantins
Tocantínia
Lizarda
Marianópolis do Tocantins
Divinópolis do Tocantins
Barrolândia
Lajeado
Lajeado Range EPA
Monte Santo
Aparecida do Rio Negro
Novo Acordo
Lago de Palmas EPA
São Félix do Tocantins
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Meandros do Araguaia EPA
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Araguaçu
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Arraias
Novo Alegre
Palmeirópolis

Transposition of waters to the Northeast (planned)

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

ENG-VERSION 1.0

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

HYDROGRAPHIC WATERSHEDS
(Area - % of total State)

ARAGUAIA RIVER HYDROGRAPHIC SYSTEM
(Area : 104.990,8 km2 - 37,7% of State total)

A1 - Araguaia River watershed (15.980,5 km2 - 5,7%)

A2 - Riozinho River watershed (10.737,7 km² - 3,9%)

A3 - Javaés River watershed (12.433,7 km² - 4,5%)

A4 - Formoso River watershed (20.736,7 km² - 7,4%)

A5 - Pium River watershed (5.016,5 km² - 1,8%)

A6 - Côco River watershed (6.713,6 km² - 2,4%)

A7 - Caiapó River watershed (5.569,5 km² - 2,0%)

A8 - Lajeado River watershed (6.066,4 km² - 2,2%)

A9 - Bananal River watershed (2.880,4 km² - 1,0%)

A10 - Mato da Banana River watershed (1.672,9 km² - 0,6%)

A11 - Cunhãs River watershed (2.710,3 km² - 1,0%)

A12 - Jenipapo River watershed (1.686,8 km² - 0,6%)

A13 - Muricizal River watershed (3.291,8 km² - 1,2%)

A14 - Lontra River watershed (3.926,0 km² - 1,4%)

A15 - Corda River watershed (3.511,8 km² - 1,3%)

A16 - Piranhas River watershed (2.056,2 km² - 0,7%)

TOCATINS RIVER HYDROGRAPHIC SYSTEM
(Area of 173.429,9 km² - 62,3% of State total)

T1 - Araguaia River watershed (59.513,3 km2 - 21,5%)

T2 - Santa Teresa River watershed (5.974,9 km² - 2,1%)

T3 - Paranã River watershed (7.949,3 km² - 2,9%)

T4 - Palma River watershed (17.373,0 km² - 6,2 %)

T5 - Manuel Alves da Natividade River watershed (14.938,0 km² - 5,4%)

T6 - São Valério River watershed (2.135,2 km² - 0,8%)

T7 - Santo Antônio River watershed (3.030,0 km² - 1,1%)

T8 - Crixás River watershed (3.477,2 km² - 1,2%)

T9 - Balsas River watershed (12.386,7 km² - 4,4%)

T10 - Sono's River watershed (24.041,5 km² - 8,6%)

T11 - Mangues River watershed (2.852,6 km² - 1,0%)

T12 - Perdida River watershed (9.611,4 km² - 3,5%)

T13 - Manuel Alves Pequeno River watershed (1.513,3 km² - 0,5%)

T14 - Manuel Alves Grande River watershed (8.633,5 km² - 3,1%)

CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Paved roads
- Conservation Unit boundary
- Indigenous Area boundary
- Built-up area - CAPITAL
- County town
- Hydrographic system boundary
- Hydrographic watershed boundary

NOTE

This Hydrographic watersheds map is based on the integration of the hydrographic watersheds information plans for each cartographic sheet scale 1:250.000 in the international division that covers the State of Tocantins, done by IBGE and DSG. The hydrographic watersheds information plan scale 1:250.000 is the result of the following agreement: Transport and Building Secretariat - SETO / Brazilian Agricultural Research Corporation (Embrapa) - Satellite Environmental Monitoring Group (NMA) / Planning and Environment State System (SEPLAN).

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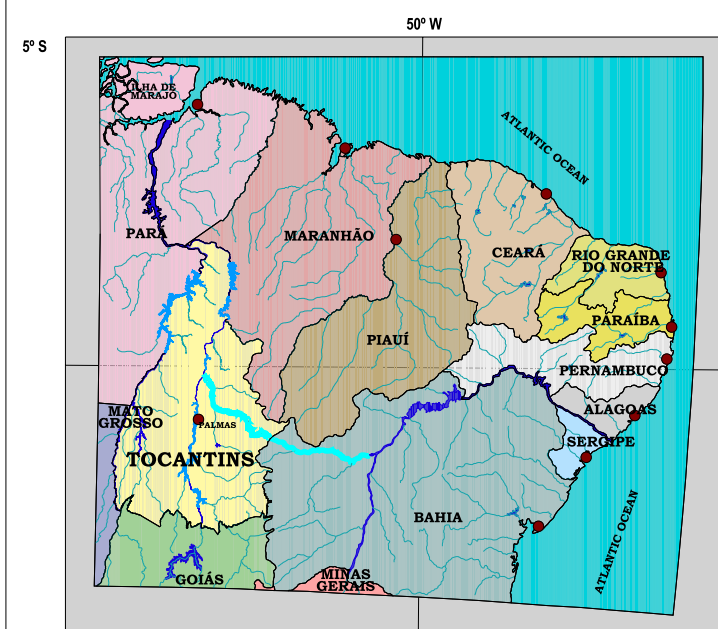
HYDROGRAPHIC WATERSHEDS



TRANSPOSITION OF WATERS TO THE NORTHEAST (PLANNED)

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

MARANHÃO

PARÁ

MATO GROSSO

PIAUÍ

BAHIA

GOIÁS

Transposition of waters to the Northeast (planned)

EPA - Environmental Protection Area

50° W 48° 46° W

5° S 7° 9° 11° 13° S

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

HYDROELECTRIC POTENTIAL

OPERATIONAL HIDROELECTRIC POWER PLANTS - Power (MW)

UHE* Agrotrafo	9,80
UHE Bagagem	0,28
UHE Corujão	0,64
UHE Diacal	5,10
UHE Dianópolis	5,00
UHE Isamu Ikeda	28,60
UHE Lajeadinho	1,80
UHE Lajes	2,40
UHE Palmeiras	5,00
UHE Ponte Alta	0,30
UHE Sobrado	5,00
UHE Taguatinga	1,80

PROJECTED HIDROELECTRIC POWER PLANTS - Power (MW)

UHE Água Limpa	14,00
UHE Areia	9,00
UHE Cachoeira da Velha	44,00
UHE Caetana	10,00
UHE Estreito	1.200,00
UHE Ipueiras	600,00
UHE Manuel Alves Grande	134,00
UHE Natividade I	72,00
UHE Peixe	800,00
UHE Santa Isabel	2.200,00
UHE São Domingos	315,00
UHE Serra Quebrada	1.328,00
UHE Sono IIIB	930,00
UHE Tupiratins	1.000,00

HIDROELECTRIC POWER PLANTS UNDER CONSTRUCTION - Power (MW)

UHE Fumaça	5,00
UHE Luis Eduardo Magalhães	850,00

* UHE - Hydroelectric Power Plant

CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Paved road
- Conservation Unit boundary
- Indian Area boundary
- Built-up area - CAPITAL
- County town
- Hydroelectric power plant
- Hydoelectirc power plant lake (present, planned and being built)

NOTE

This Hydroelectric Potential map is based on the integration of the Hydrography information plans for each cartographic sheet scale 1:250.000 in the international division that covers the State of Tocantins, done by IBGE and DSG and data from Infrastructure Secretariat.

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HYDROELECTRIC POTENTIAL

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50º W 48º 46º W
5º S 7º 9º 11º 13º S

PARÁ
MARANHÃO
PIAUÍ
BAHIA
GOIÁS
MATO GROSSO

São Sebastião do Tocantins
Esperantina
Carrasco Bonito
Sampaio
Buriti do Tocantins
Praia Norte
Augustinópolis
São Miguel do Tocantins
Sitio Novo do Tocantins
UHE Serra Quebrada
Araguatins
Axixá do Tocantins
Itaguatins
Maurilândia do Tocantins
São Bento do Tocantins
Apinayé Indigenous Area
UHE Santa Isabel
Cachoeirinha
Luzinópolis
Ananás
Tocantinópolis
Xambioá
Angico
Nazaré
Riachinho
Santa Terezinha do Tocantins
Aguiarnópolis
Araguanã
Palmeiras do Tocantins
UHE Estreito
Piraquê
UHE Lajes
Darcinópolis
Wanderlândia
Carmolândia
Xambioá Indigenous Area
Muricilândia
Santa Fé do Araguaia
Aragominas
Araguaína
UHE Corujão
Babaçulândia
Filadélfia
Pau D'arco
Arapoema
Nova Olinda
Barra do Ouro
UHE Manuel Alves Grande
Bandeirantes do Tocantins
Bernardo Sayão
Palmeirante
Colinas do Tocantins
Campos Lindos
Juarina
Couto de Magalhães
Brasilândia do Tocantins
Itapiratins
Itacajá
Khraolândia Indigenous Area
Tupiratins
UHE Tupiratins
Itaporã do Tocantins
Presidente Kennedy
Araguaia River
Pequizeiro
Colméia
Santa Maria do Tocantins
Recursolândia
Araguacema
Goianorte
Guaraí
Bom Jesus do Tocantins
Centenário
Fortaleza do Tabocão
Tupirama
Pedro Afonso
Tocantins River
Caseara
Dois Irmãos do Tocantins
Bananal/Cantão Island EPA
UHE Serra IIIB
Rio Sono
Rio dos Bois
Miranorte
Xerente Indigenous Area
Cantão State Park
Abreulândia
Miracema do Tocantins
Tocantínia
Lizarda
Marianópolis do Tocantins
UHE Luís Eduardo Magalhães - Lajeado
Divinópolis do Tocantins
Barrolândia
Lajeado
UHE Lajeadinho
Lajeado Range EPA
Monte Santo
Aparecida do Rio Negro
Novo Acordo
São Félix do Tocantins
Chapada de Areia
Paraíso do Tocantins
Palmas
UHE Cachoeira da Velha
Tabatinga Range EPA
Araguaia National Park
Pium
Pugmil
Santa Tereza do Tocantins
Lagoa do Tocantins
Nova Rosalândia
Cristalândia
Mateiros
Oliveira de Fátima
Porto Nacional
UHE Isamu Ikeda
Fátima
Lagoa da Confusão
Santa Rita do Tocantins
Monte do Carmo
Ponte Alta do Tocantins
Brejinho de Nazaré
UHE Fumaça
Crixás do Tocantins
Pindorama do Tocantins
Silvanópolis
Ipueiras
Aliança do Tocantins
UHE Ipueiras
Araguaia Indigenous Land National Park
Dueré
Rio da Conceição
UHE Dianópolis
Santa Rosa do Tocantins
UHE Bagagem
Almas
Porto Alegre do Tocantins
UHE Palmeiras
UHE Água Limpa
Dianópolis
UHE Agrotrafo
UHE Diacal
Chapada da Natividade
UHE Areia
Formoso do Araguaia
Gurupi
Natividade
Santa Teresa River Mouth EPA
Cariri do Tocantins
UHE Caetaná
Novo Jardim
UHE Natividade I
Sucupira
Peixe
São Valério da Natividade
UHE Ponte Alta
Ponte Alta do Bom Jesus
Figueirópolis
Taipas do Tocantins
UHE Peixe
Conceição do Tocantins
Taguatinga
UHE Taguatinga
Sandolândia
Alvorada
UHE Sobrado
Jaú do Tocantins
Paranã
São Salvador do Tocantins
UHE São Domingos
Aurora do Tocantins
Talismã
Combinado
Lavandeira
Araguaçu
Arraias
Novo Alegre
Palmeirópolis

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

HIGHWAY AND RAILWAY SYSTEM

Paved road

Road being paved

Road under construction

Road pavement contracted

Road base and pavement contracted

Final engineer project contracted

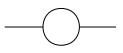
Dirt road

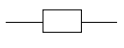
Norte-Sul Railway (under construction)

CARTOGRAPHIC CONVENTIONS


River port


Planned river port


State road


Federal road


Perennial and intermittent rivers

Conservation Unit boundary

Indigenous area boundary


Built-up area - CAPITAL

County town

NOTE

This Highway and Railway System map is based on the data available at the Planning and Environment Secretariat and completed with data furnished by the Infrastructure Secretariat.

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HIGHWAY AND RAILWAY SYSTEM

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50° W · 48° · 46° W · 5° S · 7° S · 9° S · 11° S · 13° S

PARÁ · MARANHÃO · PIAUÍ · BAHIA · MATO GROSSO · GOIÁS

São Sebastião do Tocantins · Esperantina · Carrasco Bonito · Sampaio · Buriti do Tocantins · Bahia Norte · Augustinópolis · São Miguel do Tocantins · Novo do Tocantins · Axixá do Tocantins · Itaguatins · Araguatins · p/ Marabá - PA · Maurilândia do Tocantins · São Bento do Tocantins · Cachoeirinha · Apinayé Indigenous Area · Luzinópolis · Ananás · Xambioá · p/ Marabá - PA · Angico · Nazaré · p/ Imperatriz - MA · Tocantinópolis · Riachinho · Santa Terezinha do Tocantins · Aguiarnópolis · p/ Imperatriz - MA · Araguanã · Palmeiras do Tocantins · Piraquê · Darcinópolis · Wanderlândia · Carmolândia · Xambioá Indigenous Area · Muricilândia · Santa Fé do Araguaia · Araguaína · Babaçulândia · Filadélfia · Pau D'arco · Arapoema · Bandeirantes do Tocantins · Nova Olinda · Goiatins · Palmeirante · Bernardo Sayão · Colinas do Tocantins · Campos Lindos · Juarina · Couto de Magalhães · p/ Conceição do Araguaia - PA · Brasilândia do Tocantins · Tupiratins · Itapiratins · Itacajá · Khraolândia Indigenous Area · Araguaia River · Itaporã do Tocantins · Presidente Kennedy · Pequizeiro · Colméia · p/ Santa Maria das Barreias - PA · Araguacema · Guaraí · Santa Maria do Tocantins · Recursolândia · Bom Jesus do Tocantins · Centenário · Fortaleza do Tabocão · Tupirama · Pedro Afonso · Norte-Sul Ferrovia · Tocantins River · p/ Santana do Araguaia - PA · Caseara · Bananal/Cantão Island EPA · Dois Irmãos do Tocantins · Rio dos Bois · Rio Sono · Xerente Indigenous Area · Miranorte · Miracema do Tocantins · Tocantínia · Cantão State Park · Abreulândia · Marianópolis do Tocantins · Lizarda · Divinópolis do Tocantins · Barrolândia · Lajeado · Lajeado Range EPA · Aparecida do Rio Negro · Novo Acordo · Monte Santo do Tocantins · Chapada de Areia · Palmas · São Félix do Tocantins · Araguaia National Park · Paraíso do Tocantins · Santa Tereza do Tocantins · Lagoa do Tocantins · Tabatinga Range EPA · Pium · Pugmil · Nova Rosalândia · Cristalândia · Mateiros · Lagoa da Confusão · Oliveira de Fátima · Porto Nacional · Fátima · Ponte Alta do Tocantins · Santa Rita do Tocantins · Monte do Carmo · Brejinho de Nazaré · Crixás do Tocantins · Pindorama do Tocantins · Aliança do Tocantins · Silvanópolis · Ipueiras · Araguaia Indigenous Land National Park · Dueré · Rio da Conceição · Santa Rosa do Tocantins · Almas · Chapada da Natividade · Porto Alegre do Tocantins · Dianópolis · Formoso do Araguaia · Gurupi · Santa Teresa River Mouth EPA · Natividade · p/ Salvador - BA · Novo Jardim · Cariri do Tocantins · São Valério da Natividade · Peixe · Sucupira · Taipas do Tocantins · Ponte Alta do Bom Jesus · Figueirópolis · Conceição do Tocantins · Taguatinga · p/ Salvador - BA · Sandolândia · Alvorada · Jaú do Tocantins · Paranã · Aurora do Tocantins · Talismã · São Salvador do Tocantins · Combinado · Lavandeira · Araguaçu · Palmeirópolis · Arraias · Novo Alegre · p/ São Miguel do Araguaia - GO · p/ Goiânia - GO · p/ Brasília - DF

EPA - Environmental Protection Area

SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

ENG-VERSION 1.0

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

AGROECOLOGICAL REGIONS

I-PALEO-MESOZOIC AND MESO-CENOZOIC SEDIMENTARY BASINS DOMAIN

1 Tocantins and Araguaia confluence

2 Médio Tocantins depressions and flat highlands

3 Darcinópolis flat highlands

4 Ananás and Araguaína Depressions and Plateaus

5 Capivara River Plateau

6 Palmeirante Depression

7 Cangalha flat highlands and Range

8 Parnaíba Basin "Chapada" and Plateau

9 Sono's River region Plateaus

10 Sono's River and Itacajá Plateaus and Depression

11 Tocantins Longitudinal Depressions

12 Ponte Alta do Tocantins flat highlands

13 Jalapão "Chapadas"

II - MEDIUM AND UPPER PROTEROZOIC FOLD BELT DOMAIN

14 Xambioá Ranges

15 Xambioá Depression

16 Médio Araguaia Depression

17 Tocantins and Araguaia Interrill flat highlands

18 Cordilheiras Range

19 Cristalândia, Abreulândia and Formoso do Araguaia Depressions

20 Caseara and Sandolândia Depressions

21 Dianópolis flat highland

22 Taipas do Tocantins and Combinado Plateaus

23 Southern Tocantins flat highland

III - CENOZOIC SEDIMENTARY BASINS DOMAIN

24 Araguaia lowlands

IV - ARCHEAN VOLCANO-SEDIMENTARY AND LOWER PROTEROZOIC SEQUENCE AND METAMORPHIC COMPLEX DOMAIN

25 Alto Tocantins Depression

26 Natividade and Santa Rita do Tocantins Depression and Hills

27 Conceição do Tocantins Depression and Hills

V - ALLUVIAL AREAS AZONAL DOMAIN

28 Fluvial lowlands

CARTOGRAPHIC CONVENTIONS

Perennial and intermittent rivers

Paved roads

Built-up area - CAPITAL

County town

Conservation Units boudary

Indigenous areas boundary

The ECOLOGICAL AND ECONOMIC ZONING DIRECTORATE thanks the kindness of anyone communicating any mistake or omission that may be verified within this map.

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AGROECOLOGICAL REGIONS

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50° W 48° 46° W
5° S 7° 9° 11° 13° S

PARÁ
MARANHÃO
PIAUÍ
BAHIA
GOIÁS
MATO GROSSO

São Sebastião do Tocantins, Esperantina, Carrasco Bonito, Sampaio, Buriti do Tocantins, Praia Norte, Augustinópolis, São Miguel do Tocantins, Sítio Novo do Tocantins, Araguatins, Axixá do Tocantins, Itaguatins, Maurilândia do Tocantins, São Bento do Tocantins, Cachoeirinha, Apinayé Indigenous Area, Luzinópolis, Tocantinópolis, Ananás, Xambioá, Angico, Nazaré, Riachinho, Santa Terezinha do Tocantins, Araguanã, Aguiarnópolis, Palmeiras do Tocantins, Piraquê, Darcinópolis, Wanderlândia, Carmolândia, Xambioá Indigenous Area, Muricilândia, Santa Fé do Araguaia, Aragominas, Araguaína, Babaçulândia, Filadélfia, Pau D'arco, Arapoema, Bandeirantes do Tocantins, Nova Olinda, Barra do Ouro, Goiatins, Bernardo Sayão, Palmeirante, Campos Lindos, Colinas do Tocantins, Juarina, Couto de Magalhães, Brasilândia do Tocantins, Itapiratins, Itacajá, Khraolândia Indigenous Area, Tupiratins, Itaporã do Tocantins, Presidente Kennedy, Pequizeiro, Araguaia River, Araguacema, Colméia, Goianorte, Guaraí, Santa Maria do Tocantins, Recursolândia, Bom Jesus do Tocantins, Tocantins River, Fortaleza do Tabocão, Tupirama, Pedro Afonso, Centenário, Caseara, Dois Irmãos do Tocantins, Bananal/Cantão Island EPA, Rio dos Bois, Rio Sono, Xerente Indigenous Area, Miranorte, Miracema do Tocantins, Tocantínia, Cantão State Park, Marianópolis do Tocantins, Abreulândia, Lizarda, Divinópolis do Tocantins, Barrolândia, Lajeado, Lajeado Range EPA, Novo Acordo, Monte Santo, Aparecida do Rio Negro, São Félix do Tocantins, Chapada de Areia, Paraíso do Tocantins, Palmas, Araguaia National Park, Santa Tereza do Tocantins, Lagoa do Tocantins, Tabatinga Range EPA, Pium, Pugmil, Cristalândia, Nova Rosalândia, Oliveira de Fátima, Fátima, Porto Nacional, Mateiros, Lagoa da Confusão, Santa Rita do Tocantins, Monte do Carmo, Ponte Alta do Tocantins, Brejinho de Nazaré, Crixás do Tocantins, Pindorama do Tocantins, Aliança do Tocantins, Ipueiras, Silvanópolis, Araguaia Indigenous Land National Park, Dueré, Rio da Conceição, Santa Rosa do Tocantins, Porto Alegre do Tocantins, Almas, Dianópolis, Chapada da Natividade, Natividade, Formoso do Araguaia, Gurupi, Cariri do Tocantins, Santa Teresa River Mouth EPA, Novo Jardim, Sucupira, Peixe, São Valério da Natividade, Figueirópolis, Taipas do Tocantins, Ponte Alta do Bom Jesus, Conceição do Tocantins, Alvorada, Sandolândia, Jaú do Tocantins, Paranã, Taguatinga, Aurora do Tocantins, Talismã, São Salvador do Tocantins, Combinado, Lavandeira, Araguaçu, Arraias, Novo Alegre, Palmeirópolis

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 23 24 25 26 27 28

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

LAND USE POTENTIAL *(Area - % of State total)*

I - AREAS OF HIGH INVESTMENT FOR PRODUCTION

Floresta Ombrófila (Rain forest) phytoecological region

Annual tillage and intensive grazing areas (13.568,8km² - 4,9%)

AP1 - areas which are characterized by intermediate to stable ecodynamic, morphogenetic processes of very slow to fast diffuse run-off and mass movements: creeping and flowage, with dominant effects or sheet and rill erosion. The predominant soils are Red-Yellow Latossols and Red-Yellow Podzols associated with Sandy soils and Lithosols, presenting medium to clayey texture and plain to smooth relief. Lands in this class present moderate limitations to sustainable production, requiring little investment**(10.379,2 km2 - 3,8%)**

AP2 - areas which are characterized by stable to intermediate ecodynamic, morphogenetic processes of medium diffuse run-off and mass movements: creeping and flowage, with dominant effects of sheet and rill erosion. Red-Yellow Podzols soil with inclusions of Red-Yellow Latossols associated with Concretionary soils, presenting textures that go from sandy to medium and medium to clayey on a smooth to undulated relief (locally plain to very smooth). Lands in this class present moderate to strong limitations for sustainable production and may require intense investment**(8.189,6 km2 - 1,1%)**

Intensive grazing and annual tillage areas (8.658,8 km² - 3,1%)

AP3 - areas which are characterized by unstable to very unstable ecodynamic, morphogenetic processes of very slow to medium diffuse run-off and mass movements: creeping and flowage, with dominant effects or sheet, rill and gully erosion. The predominant soils are Red-Yellow Latossols associated with Red-Yellow Podzolic Soils, Sandy soils, Plinthic soils, Cambisols and Lithic Soils, presenting sandy to medium and medium to clayey texture and plain to smooth relief (locally rough). Lands in this class present aptness for cultivated graze and moderate limitations to sustainable annual production, requiring moderate investment.

Seasonal forest (Floresta Estacional) phytoecological region

Annual tillage and intensive grazing areas (2.188,5 km² - 0,8%)

AP4 - areas which are characterized by stable to intermediate ecodynamic, morphogenetic processes of very slow diffuse run-off, with dominant effects or sheet, rill and gully erosion. The predominant soils are Red-Yellow Latosols associated with ambisols and Lithic Soils, presenting medium to clayey texture and plain to smooth relief. Lands in this class present moderate to strong limitations for sustainable production and may require intense investment. **(1.953,9 km² - 0,7%)**

AP5 - areas characterized by stable to intermediate ecodynamic, morphogenetic process of very slow diffuse run-off, with dominant effects of sheet, rill and gully erosion. The predominant class of soil is Red-Yellow Latosol associated with Cambisols and Lithic Soils, presenting clayey texture on mainly plain to smooth relief (sometimes strongly undulated). Lands in this class present moderate to strong limitations for sustainable production, requiring intense investment. **(234,6 km² - 0,1%)**

Savannah (Cerrado) Phytoecological region

Annual tillage and intensive grazing areas (51.851,9 km² - 18,6%)

AP6 - areas which are characterized by very stable to moderate ecodynamic, morphogenetic processes of medium to fast diffuse run-off and concentrated along drainage runways, with dominant effects of sheet and rill erosion. The predominant soils are Red-Yellow Latosols associated with Cambisols and Lithic Soils, presenting medium to clayey texture and plain to smooth relief. Lands in this class present moderate to strong limitations to sustainable production and may require intense investment.**(738,3 km² - 0,3%)**

AP7 - Areas characterized by stable to intermediate ecodynamic, morphogenetic processes of medium diffuse run-off, with dominant effects of sheet and rill erosion. The predominant soil is Dark-Red Podzol associated with Dark-Red Latosol, Red-Yellow Latosol and Sandy soils, clayey texture, plain to smoothly undulated relief (sometimes strongly undulated). Lands in this class present moderate to strong limitations for sustainable production and may require intense investment. **(2.567,1 km² - 0,9%)**

AP8 - Areas characterized by very stable to intermediate ecodynamic, morphogenetic processes of very slow to medium diffuse run-off and mass movements: sliding and creeping, with dominant effects of sheet, rill and gully erosion to fast earth mass movements. Red-Yellow Latosols, Red-Yellow Podzolic Soils, Concretionary Soils, Lithic Soils, Dark-Red Latosol, Yellow Latosol and Sandy soils in various associations, presenting medium to clayey, sandy to medium and clayey to very clayey textures on plain relief (sometimes strongly undulated). Lands in this class present moderate to strong limitations for sustainable production and may require intense investment. **(48.546,5 km² - 17,4%)**

Intensive grazing and annual tillage areas (30.975,7 km² - 11,1%)

AP9 - areas characterized by intermediate to very unstable ecodynamic, morphogenetic processes of very slow to medium diffuse run-off and mass movements: creeping and flowage, with dominant effects of sheet, rill and gully erosion, earth mass movements and floods. The predominant soils are Red-Yellow Podzols and Red-Yellow Latosols in various associations with Concretionary soils, Lithic Soils, Sandy soils, Cambisols, Plinthic soils, Dark-Red Latossols, Hydromorphic soils and Yellow Latosol, presenting medium to clayey, sandy and sandy to medium texture on plain to smooth relief (sometimes strongly undulated). Lands in this class present aptness for cultivated graze and moderate to strong limitations for sustainable annual production and may requiring intense investment.

II - AREAS OF MEDIUM INVESTMENT FOR PRODUCTION

Savannah (Cerrado) Phytoecological region

Semi-intensive grazing and/or silviculture areas(14.291,3km² - 5,1%)

AP10 - areas characterized by stable ecodynamic, morphogenetic processes of medium diffuse run-off, with dominant effects of sheet and rill erosion. The predominant soils are associations of Concretionary soils With Red-Yellow Latosols, presenting sandy to medium and medium to clayey texture on plain relief. Lands in this class present aptness for natural grassland, and also aptness for cultivated grassland and silviculture.

III - AREAS OF LOW INVESTMENT FOR PRODUCTION

Savannah (Cerrado) Phytoecological region

Silviculture and/or extensive grazing areas(8.880,4 km² - 3,2%)

AP11 - areas characterized by stable to unstable ecodynamic, morphogenetic processes of very slow to medium diffuse run-off, with dominant effects of sheet, rill and gully erosion. The predominant soils are Sandy Soils, Red-Yellow Latosols and Concretionary soils under several different associations with Red-Yellow Podzolic Soil, Lithic Soil, "Roxo" Latosol, Yellow Latossol and Dark-Red Latossol, presenting varied textural classes.(from sandy to very clayey) on plain relief (sometimes smoothly undulated). Lands in this class present aptness for silviculture and natural grassland.

Extensive grazing areas (79.260,9 km² - 28,6%)

AP12 - areas characterized by varied ecodynamic classes (stable to very unstable), morphogenetic processes of very slow to medium diffuse run-off and mass movements: creeping and flowage, with dominant effects of sheet, rill and gully erosion. The predominant soils are Sandy Soils, Red-Yellow Latosols and Concretionary soils under several different associations with Red-Yellow Podzolic Soils, Lithic Soils, Yellow Latosol, Plinthic soils and Dark-Red Latosol, presenting sandy and medium clayey textures, on plain to smoothly undulated relief (sometimes undulated). Lands in this class present aptness for natural grassland.

IV - SPECIAL AREAS FOR PRODUCTION

Savannah (Cerrado) Phytoecological region

Intensive grazing and annual tillage areas (9.228,2km² - 3,3%)

AE - areas characterized by intermediate to unstable ecodynamic, morphogenetic processes of run-off concentrated along drainage runways, movement and deposition of fine sediments, with flooding dominant effect. The predominant soils are Plinthic soils and Hydromorphic soils, presenting sandy to medium and medium to clayey textures, on predominantly plain relief. Lands in this class present aptness for planted grassland and annual cultures with moderate to strong limitations for sustainable production, almost always requiring intensive use of capital to supersede factors such as water excess, oxygen deficiency and chemical elements availability.

V - CRITICAL AREAS

Natural conservation areas (59.516,2 km² - 21,3%)

AC - high fragility areas characterized by unstable to very unstable ecodynamic, morphogenetic processes of medium to fast diffuse run-off concentrated, with dominant effect of sheet, rill and gully erosion. The soil associations are composed of Sandy soils, Lithosols and Hydromorphic Gley soils. Lands in this class present no aptness for agriculture or aptness for natural and silviculture. Furthermore, this class embraces areas with slopes higher than 45%, indicated for permanent preservation, as well as water table recharge zones of key importance for water course maintenance of Araguaia and Tocantins hydrografic systems.

CARTOGRAPHIC CONVENTIONS

Perennial and intermittent rivers

Built-up area - CAPITAL

Conservation units boundary

Paved road

County town

Indigenous areas boundary

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LAND USE POTENTIAL

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50° W 48° 46° W
5° S 7° 9° 11° 13° S

PARÁ
MARANHÃO
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Piraquê
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SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

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LAND USE

Rice plantation. Lagoa da Confusão.

Soybean plantation. Campos Lindos.

Beef cattle.

Extensive animal housbandry. Jalapão.

Rio Formoso Project.

Pineapple plantation. Palmas.

Fish culture. Porto Nacional.

Land tilled for soybean plantation.
Prodecer III. Pedro Afonso.

Planted grassland in Floresta ombrófila environment. Araguaína.

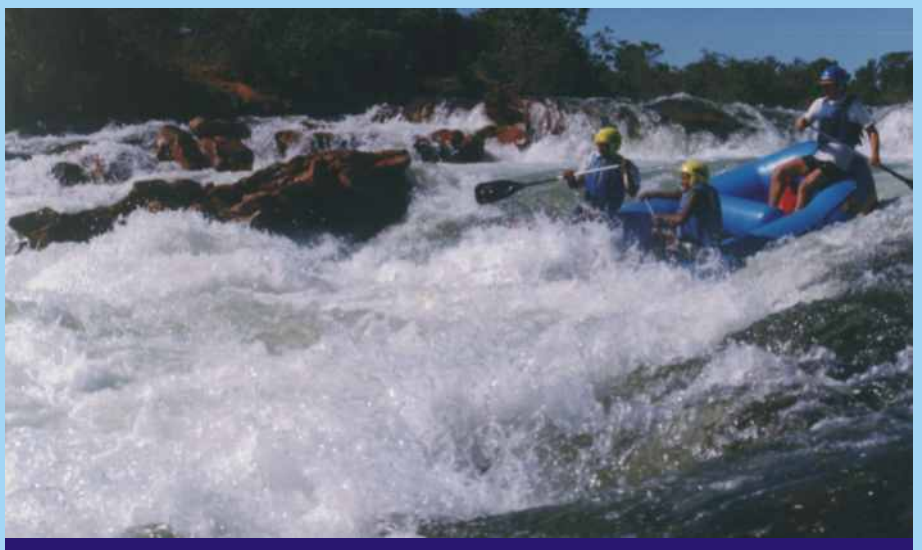
Familiar agriculture. Jalapão.

TOURISM

Graciosa beach. Palmas.

Joaquim Theotônio Segurado Avenue. Palmas.

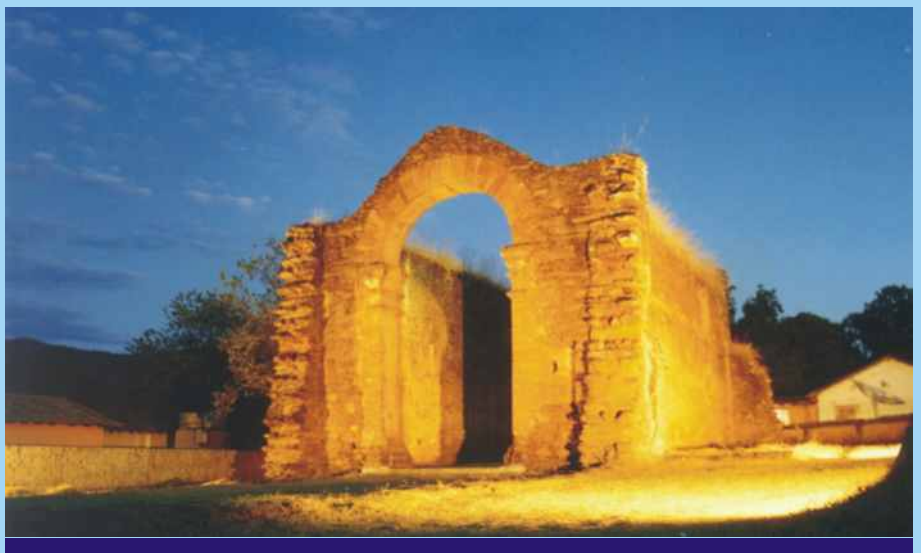
Dunes. Mateiros. Jalapão.



Rafting down Novo River rapids. Mateiros. Jalapão.

Karajá Tribe natives. Araguaia National Park Indian Land.
Ilha do Bananal.

Do Meio Beach. Araguacema.



Nossa Senhora dos Petros Church ruins. Natividade.

Divino Espirito Santo party. Natividade.

Roncador waterfall. Taquarussu.

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

LAND USE AND LAND COVER - 1996

Land use and land cover classes
(Area - % of State total)

Forest formations - riverside woods, dense rain forest, open rain forest, decidual seasonal forest, semi-decidual seasonal forest and secondary forest. (36.502,1km2 - 13,1%)

Grassland - either natural or planted grassland areas (74.982,5 km2 - 26,9%)

Tilling land - dry farming, central pivot and inundation irrigated and silviculture areas. (2.784,2 km2 - 1,0%)

Savannah (Cerrado) vegetation: savannah grasslands, dense savannah and shrubland. (157.373,4 km2 - 56,6%)

Rivers, lakes, dams and wiers. (6.474,0 km2 - 2,3%)

Other - mining areas and areas compromised with urban use. (304,5 km2 - 0,1%)

CARTOGRAPHIC CONVENTIONS

Perennial and intermittent rivers

Paved road

Conservation unit boundary

Indigenous area boundary

Built-up area - CAPITAL

County town

NOTE

This Land Use and Land Cover synthesis map was obtained from the integration of land use and land cover maps scale 1:250.000, which were based on Landsat 5 imagery interpretation, colored composition of bands TM4 - R, TM5 - G and TM3 - B, acquired in 1.996 and by field work.

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2000

ENG-VERSION 1.0

LAND USE AND LAND COVER - 1996

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

50° W 48° 46° W
5° S 7° 9° 11° 13° S

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SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

EPA - Environmental Protection Area

50 0 50 100 km

POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

ENG-VERSION 1.0

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

INSTITUTIONAL AREAS AND CONSERVATION UNITS

(Area - % of State total)

Potential conservation areas (9.702,1 km² - 3,5%)

Indigenous areas (19.895,1 km2 - 7,2%)

Legally restricted use implanted areas (29.776,5 km² - 10,7%)

High restriction

State Park (889,3 km² - 0,3%)

National Park (5.623,1 km² - 2,0%)

Low restriction

Environmental Protection Area - EPA (23.264,2 km² - 8,4%)

TECHNICAL NOTE

NATIONAL AND STATE PARK

Areas with exceptional natural attributes, conciliating integral protection of fauna, flora and natural scenes, with educational, recreational and scientific use.

INDIGENOUS AREAS

Areas traditonally occupied by native peoples, those inhabited by them on a permanent basis, those used for their productive activities and those indispensable for environmental resources preservation necessary for their welfare and physical and cultural reproduction, in accordance with their customs and traditions.

ENVIRONMENTAL PROTECTION AREA

Areas interesting for environment protection, in order to guarantee human populations welfare and conserve or improve local ecological conditions.

CARTOGRAPHIC CONVENTIONS

Perennial and intermittent rivers

Paved road

Built-up area - CAPITAL

County town

NOTE

This map of Institutional Areas and Conservation Units was based on the land registry details of conservation units and indigenous areas and thematic information. Potentially conservation areas were delimited based on the following thematic data: soils potential erodibility, hydrographic watersheds, land cover and land use and information about representativity of savannah (cerrado) and forestal ecossystems as well as scenic and landscape interests.

The ECOLOGICAL AND ECONOMIC ZONING DIRECTORATE
thanks the kindness of anyone communicating any
mistake or omission that may be verified within this map.
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INSTITUTIONAL AREAS AND CONSERVATION UNITS

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

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Araguaína Water Springs EPA
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PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

EPA - Environmental Protection Area

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POLYCONIC PROJECTION
Central Meridian = 48 00' 00" W. Gr.

ENG-VERSION 1.1

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

TOURISTIC ATTRACTIONS

NATURAL AND ECOLOGICAL ATTRACTIONS

- Forestal park
- Forestal reserve / Preservation
- Beach
- Cave
- Sportive fishing practice
- Waterfall
- Mountain climbing
- Gliding practice
- Thermal waters

HISTORICAL AND CULTURAL ATTRACTIONS

- Historic ruins
- Belvedere
- Historical architecture
- Heritage / Preservation
- Religous temple
- Touristic site

CARTOGRAPHIC CONVENTIONS

- Perennial and intermittent rivers
- Paved roads
- Built-up area - CAPITAL
- County town

NOTE

This Touristic attractions map was generated from data available at SEPLAN and information furnished by the Tourism Secretariat - SETUR, with final classification of touristic attractions types.

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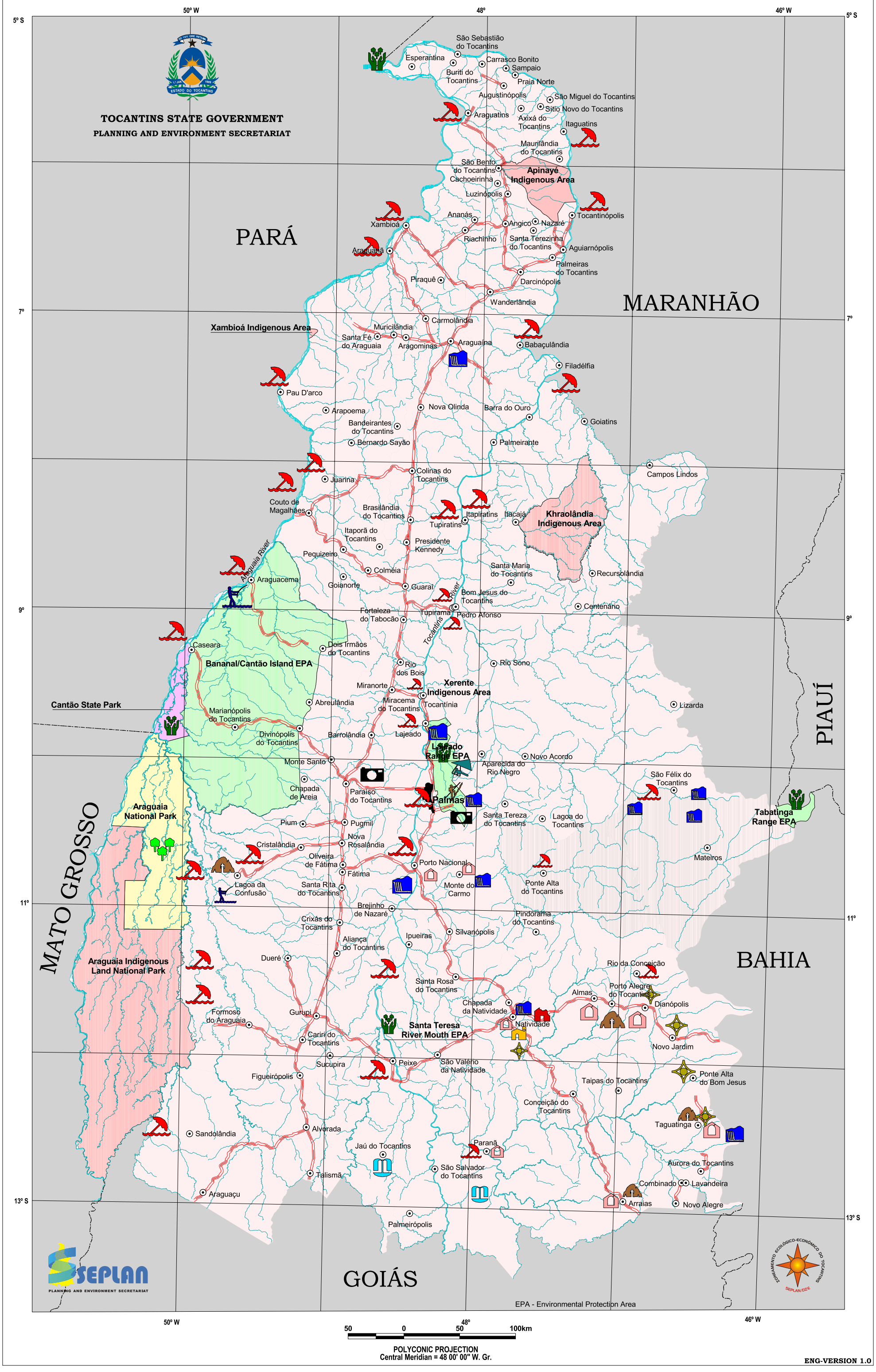
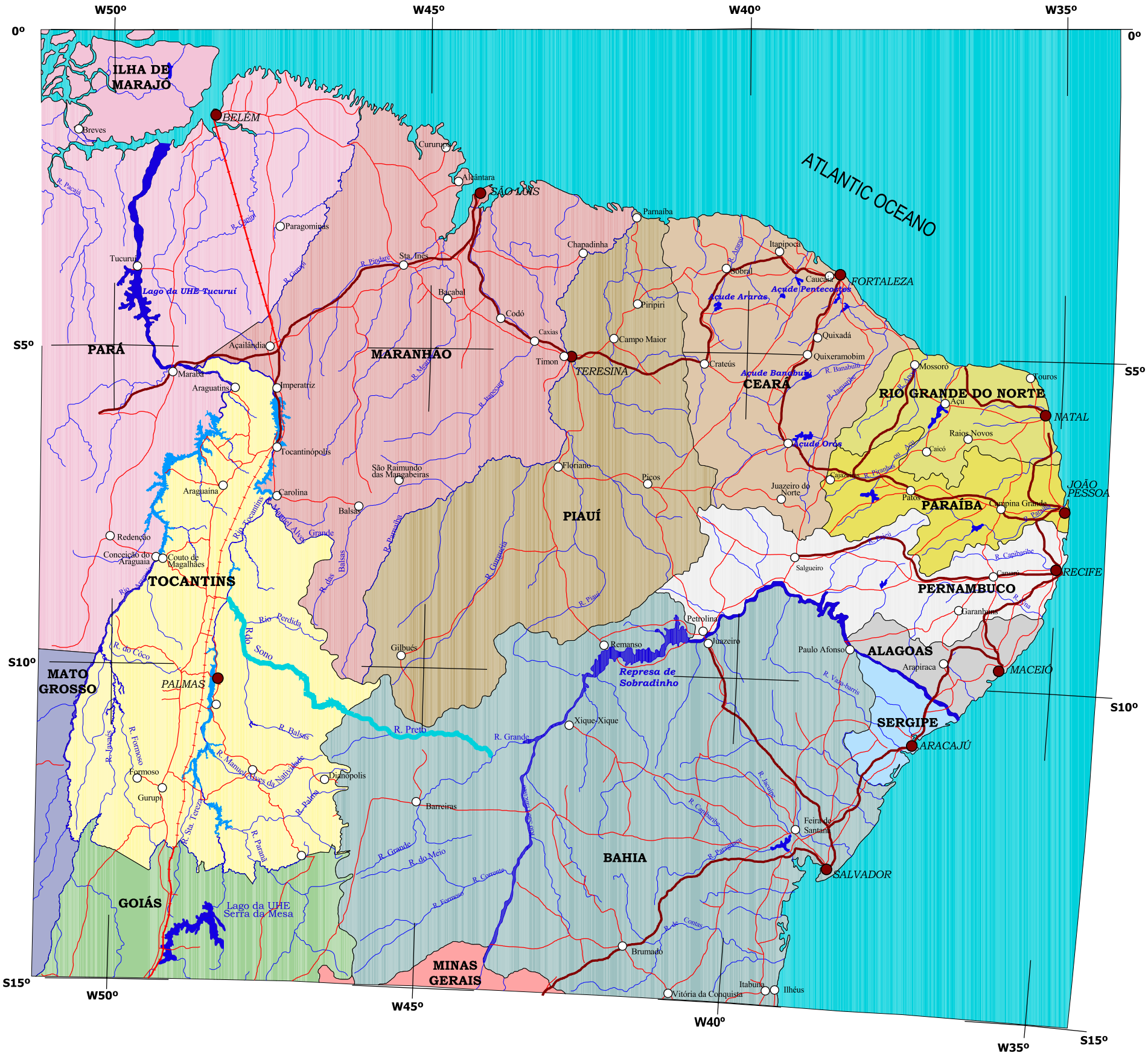
TOURISTIC ATTRACTIONS



TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

TRANSPOSITION OF WATERS FROM THE TOCANTINS TO THE NORTHEAST



Scale 1:8.000.000
POLYCONIC PROJECTION
Central Meridian W. Gr. 54º 00' 00"

CARTOGRAPHIC CONVENTIONS

- Paved roads
- Railroad
- Planned railroad
- Perennial and intermittent rivers
- Lakes and dams
- Planned lakes and dams
- Transposition of waters to the Northeast (Planned).

SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

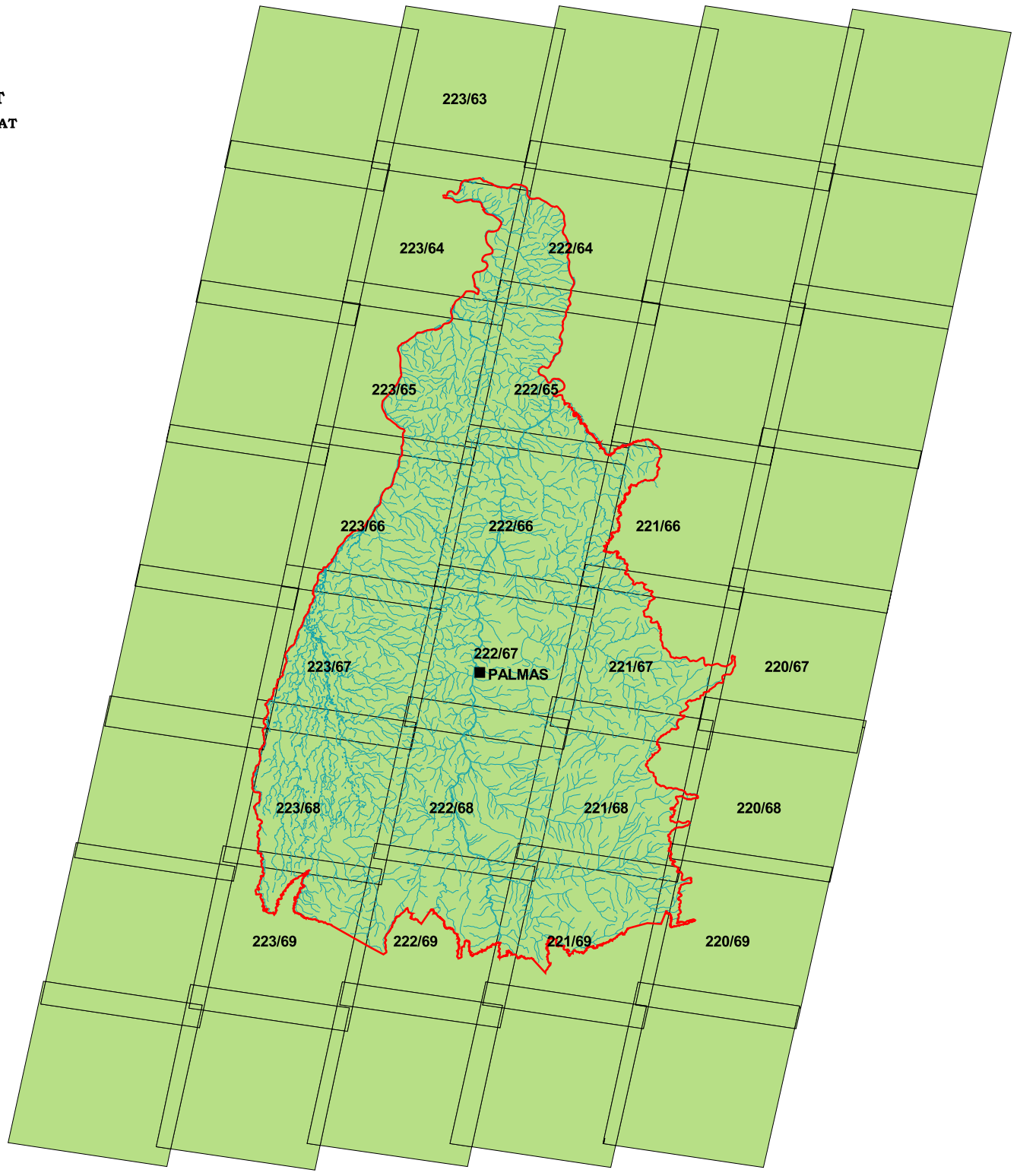
ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

ENG-VERSION 1.0

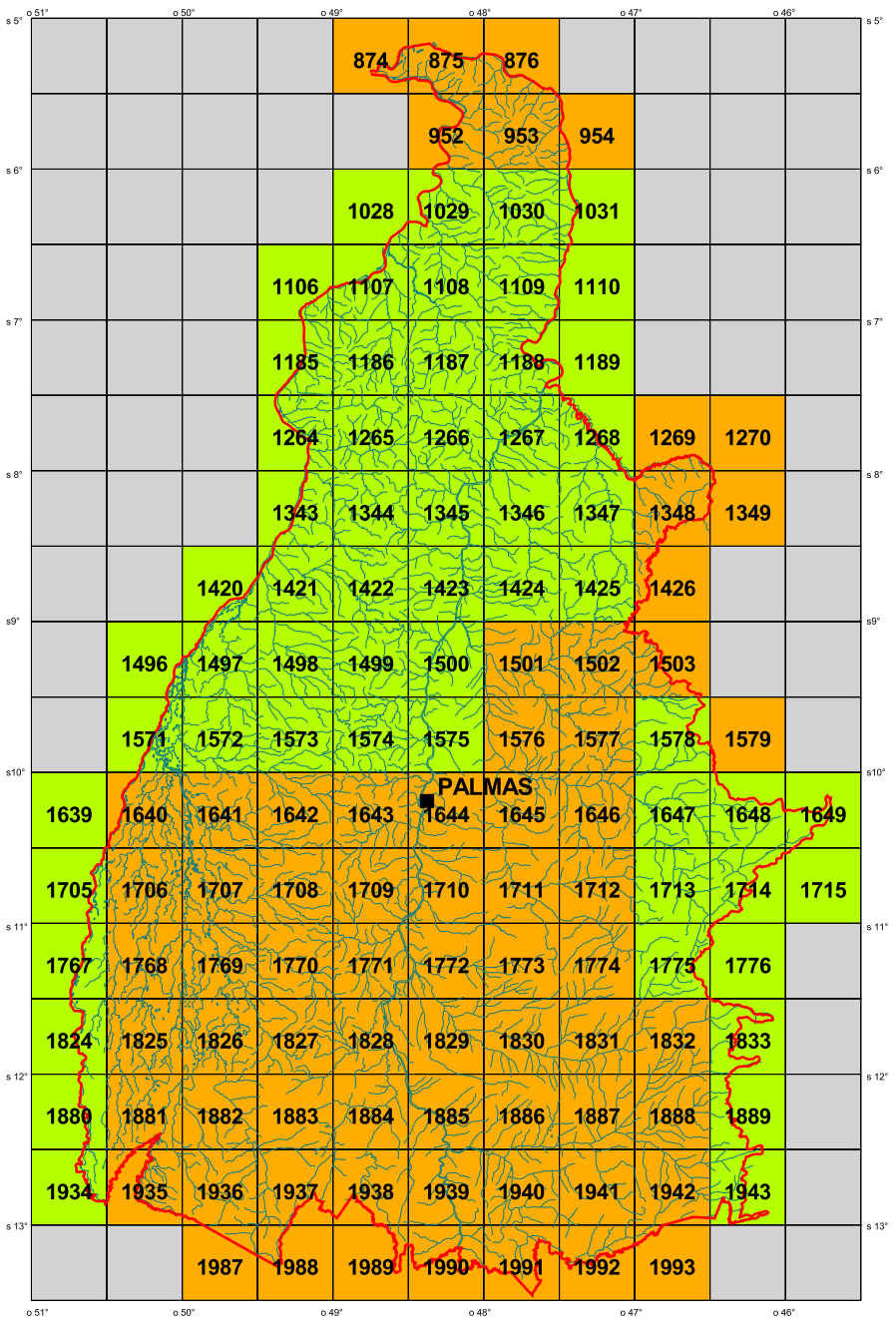
TOCANTINS STATE GOVERNMENT

PLANNING AND ENVIRONMENT SECRETARIAT

LANDSAT WORLD REFERENCE SYSTEM



INDEX MAP
Scala 1:100.000



Executed by DSG

Executed by IBGE

SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

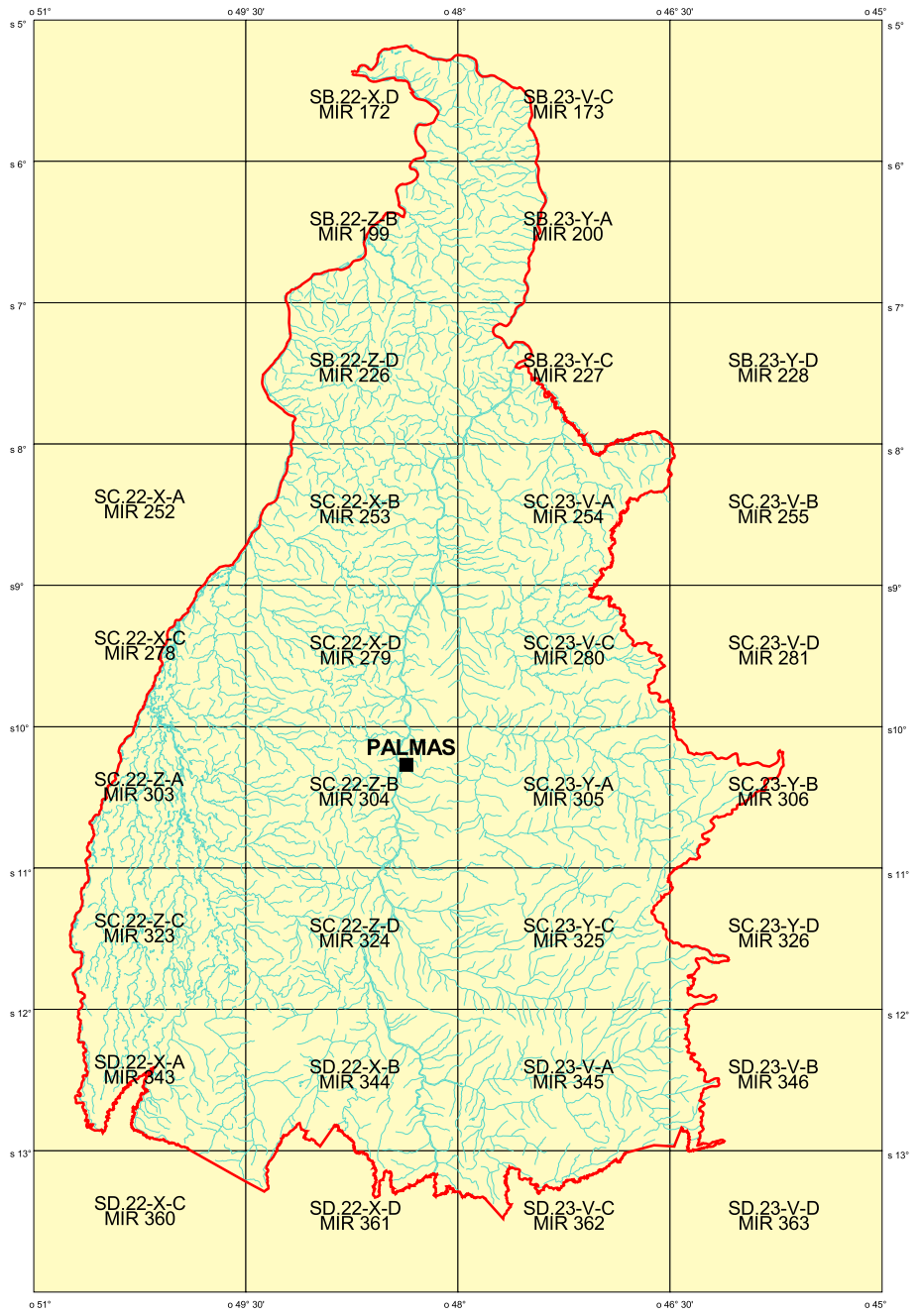
ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

ENG-VERSION 1.0

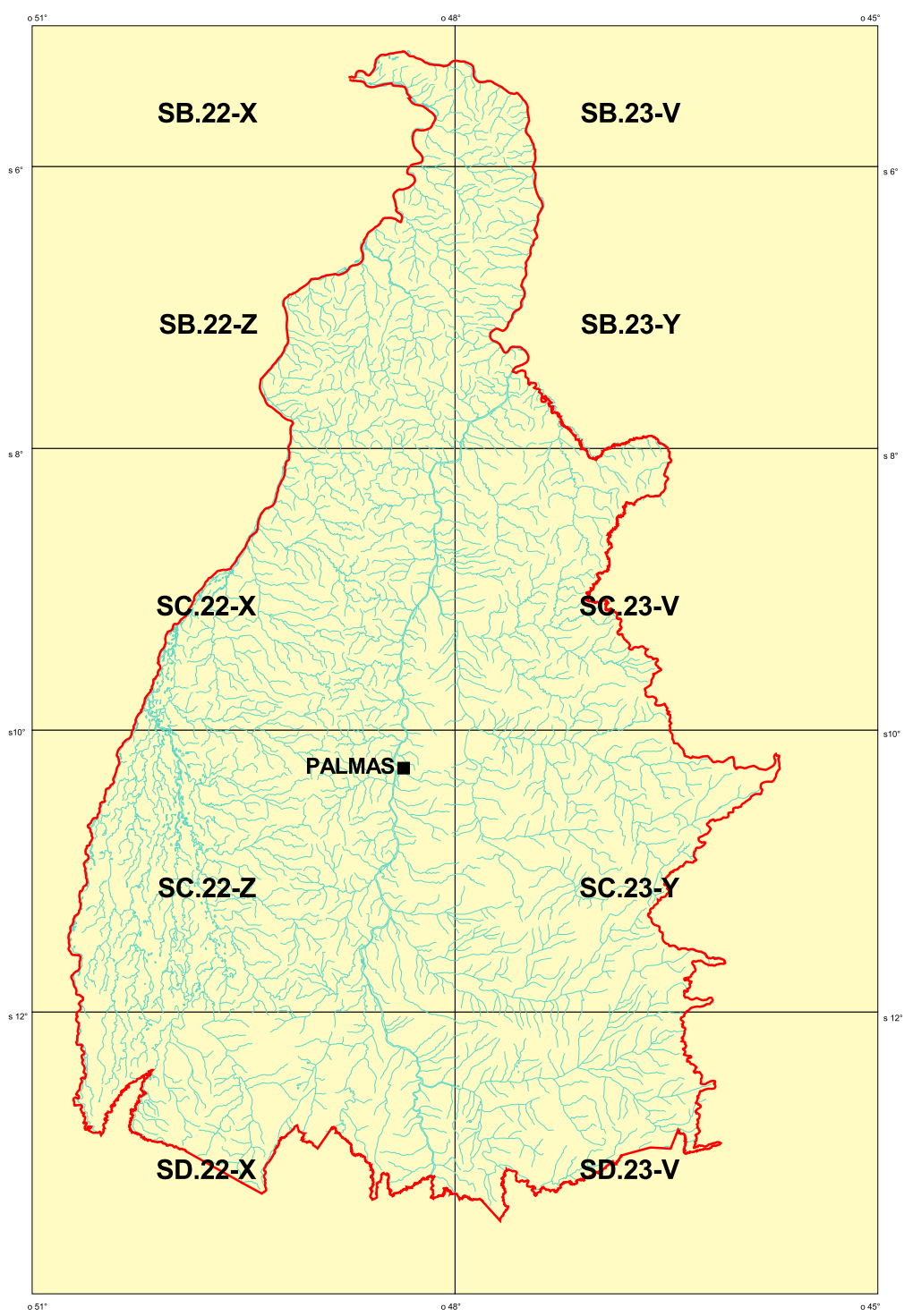
TOCANTINS STATE GOVERNMENT

PLANNING AND ENVIRONMENT SECRETARIAT

INDEX MAP
Scale 1:250.000



INDEX MAP
Scale 1:500.000



PLANNING AND ENVIRONMENT SECRETARIAT

ZONEAMENTO ECOLÓGICO-ECONÔMICO DO TOCANTINS
SEPLAN/DZE

ENG-VERSION 1.0

TOCANTINS STATE GOVERNMENT
PLANNING AND ENVIRONMENT SECRETARIAT

VARIABLES	1999	2002	2020
Total population (inhab.)	1,134,895*	1,300,000	2,510,000
Urban (inhab.)	820,529	988,000	2,208,000
Rural (inhab.)	314,366	312,000	302,000
Demographic density (inhab./km^2)	4.08	4.67	9.02
Illiteracy rate (%)	21.0	8.0	3.0
Infant mortality (‰)	21.0	16.0	10.0
Generation of eletric power (MW)	154.0	1,174.0	8,361.0
Area covered by EPP lakes (km^2)	56.0	676.0	8,526.0
Water volume of EPP lakes (billions of m^3)	1.5	7.3	106.5
Paved roads (km)	4,805.0	8,104.0	12,500.0
Sanitation - treated water - % of urban population attended	90	95	100
Sanitation - sewage – % of urban population attended	6	45	90
Agricultural area - Total (ha)	430,665.0	557,085.0	1,361,073.0
Agricultural area - Irrigated (ha)	66,059.0	180,000.0	390,000.0
Agricultural area - Dry farm (ha)	364,606.0	377,085.0	971,073.0
Agricultural production - Total (ton.)	644,801	2,943,000	6,247,500
Irrigated rice	288,138	900,000	1,950,000
Dry farm rice	153,520	432,000	480,000
Maize	97,106	702,000	780,000
Soybean	104,604	843,000	2,926,500
Bean	1,433	66,000	111,000
GDP (US$ 1,000.00 - US$ 1.0 = R$ 1.75)	1,115,245.0	1,492,422.0	6,690,171.0
Primary sector - Total	437,760.0	590,845.0	2,341,234.0
Vegetal production	70,354.0	81,428.0	300,960.0
Animal production	367,405.0	509,417.0	2,040,274.0
Industry	95,760,0	213,017.0	1,070,297.0
Services	581,725.0	688,560.0	3,278,640.0
Per Capita average rate (US$ 1.0 = R$ 1.75)	982.3	1,147.8	2,664.9
Revenues - Total (US$ 1,000.00 / US$ 1.0 = R$ 1.75)	661,752.0	880,792.0	4,897,100.0
Ordinary revenues	136,284.0	181,395.0	1,008,534.0
Tax revenues	381,378.0	507,614.0	2,822,271.0
Transference revenues	426,427.0	567,574.0	3,155,642.0
Other revenues	99,041.0	131,824.0	732,925.0

* IBGE. Other data produced by SEPLAN.

TOCANTINS STATE GOVERNMENT

PLANNING AND ENVIRONMENT SECRETARIAT

MARANHÃO

PARÁ

MARANHÃO

PARÁ

MARANHÃO

MATO GROSSO

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BAHIA

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SÃO SEBASTIÃO DO TOCANTINS
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SAMPAIO
PRAIA NORTE
ESPERANTINA
BURITI DO TOCANTINS
AUGUSTINÓPOLIS
SÃO MIGUEL DO TOCANTINS
AXIXÁ DO TOCANTINS
SÍTIO NOVO DO TOCANTINS
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ITAGUATINS
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MAURILÂNDIA DO TOCANTINS
APINAYÉ INDIGENOUS AREA
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RIACHINHO
ANGICO
SANTA TEREZINHA DO TOCANTINS
AGUIARNÓPOLIS
ARAGUANÃ
PALMEIRAS DO TOCANTINS
DARCINÓPOLIS
PIRAQUÊ
WANDERLÂNDIA
XAMBIOÁ INDIGENOUS AREA
CARMOLÂNDIA
MURICILÂNDIA
ARAGOMINAS
BABAÇULÂNDIA
SANTA FÉ DO ARAGUAIA
ARAGUAÍNA
FILADÉLFIA
PAU D'ARCO
ARAPOEMA
NOVA OLINDA
BARRA DO OURO
GOIATINS
BANDEIRANTE DO TOCANTINS
PALMEIRANTE
BERNARDO SAYÃO
CAMPOS LINDOS
COLINAS DO TOCANTINS
JUARINA
CAMPOS LINDOS PROJECT
COUTO DE MAGALHÃES
BRASILÂNDIA DO TOCANTINS
TUPIRATINS
ITAPIRATINS
ITACAJÁ
KRAHOLÂNDIA INDIGENOUS AREA
PRESIDENTE KENNEDY
ITAPORÃ DO TOCANTINS
PEQUIZEIRO
RECURSOLÂNDIA
ARAGUACEMA
GOIANORTE
COLMÉIA
GUARAÍ
SANTA MARIA DO TOCANTINS
TUPIRAMA
BOM JESUS DO TOCANTINS
CENTENÁRIO
FORTALEZA DO TABOCÃO
PEDRO AFONSO
DOIS IRMÃOS DO TOCANTINS
CASEARA
PRODECER III PROJECT
RIO DOS BOIS
RIO SONO
BANANAL ISLAND / CANTÃO EPA
PINEAPPLE PRODUCTION
MIRANORTE
TOCANTÍNIA
XERENTE INDIGENOUS AREA
MIRACEMA DO TOCANTINS
LIZARDA
CANTÃO STATE PARK
MARIANÓPOLIS DO TOCANTINS
ABREULÂNDIA
LAJEADO
DIVINÓPOLIS DO TOCANTINS
BARROLÂNDIA
NOVO ACORDO
MONTE SANTO
LAJEADO RANGE EPA
APARECIDA DO RIO NEGRO
CHAPADA DE AREIA
SÃO FÉLIX DO TOCANTINS
PARAÍSO DO TOCANTINS
PALMAS
SANTA TEREZA DO TOCANTINS
ARAGUAIA NATIONAL PARK
LAGOA DO TOCANTINS
TABATINGA RANGE EPA
PIUM
PUGMIL
CRISTALÂNDIA
NOVA ROSALÂNDIA
MATEIROS
OLIVEIRA DE FÁTIMA
PORTO NACIONAL
PONTE ALTA DO TOCANTINS
JAVAÉS PROJECT
FÁTIMA
LAGOA DA CONFUSÃO
SANTA RITA DO TOCANTINS
MONTE DO CARMO
BREJINHO DO NAZARÉ
CRIXÁS DO TOCANTINS
SILVANÓPOLIS
PINDORAMA DO TOCANTINS
IPUEIRAS
ARAGUAIA INDIGENOUS LAND NATITONAL PARK
JAVAÉS PROJECT
DUERÉ
ALIANÇA DO TOCANTINS
RIO DA CONCEIÇÃO
SANTA ROSA DO TOCANTINS
CHAPADA DA NATIVIDADE
ALMAS
DIANÓPOLIS
PORTO ALEGRE DO TOCANTINS
GURUPI
NATIVIDADE
FORMOSO DO ARAGUAIA
RIO FORMOSO PROJECT
SANTA TEREZA RIVER MOUTH EPA
NOVO JARDIM
CARIRI DO TOCANTINS
SUCUPIRA
SÃO VALÉRIO DA NATIVIDADE
PEIXE
PONTE ALTA DO BOM JESUS
FIGUEIRÓPOLIS
TAIPAS DO TOCANTINS
CONCEIÇÃO DO TOCANTINS
ALVORADA
TAGUATINGA
SANDOLÂNDIA
SÃO SALVADOR DO TOCANTINS
PARANÃ
JAU DO TOCANTINS
AURORA DO TOCANTINS
TALISMÃ
LAVANDEIRAS
COMBINADO
ARAGUAÇU
NOVO ALEGRE
ARRAIAS
PALMEIRÓPOLIS

50° 49° 48° 47° 46°
06° 07° 08° 09° 10° 11° 12° 13°

0 17 34 51km

SEPLAN
PLANNING AND ENVIRONMENT SECRETARIAT

TOCANTINS ECOLOGICAL AND ECONOMIC ZONING
SEPLAN/DZE