



Challenges in Geospatial Policy Formulation and Programme Management

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An Exchange with the Geospatial Industry for UN-GGIM

Seoul, October 23, 2011

BRAZIL

Land area	8,514,876.599 km ²
Sea area	3,600,000 km ²
States	27
Municipalities	5,565
Population (2010 Demographic Census)	190,755,799



High Demand for Geospatial Information (GI)



Everybody uses the Web!

High Demand for Geospatial Information (GI)



Defense and Intelligence



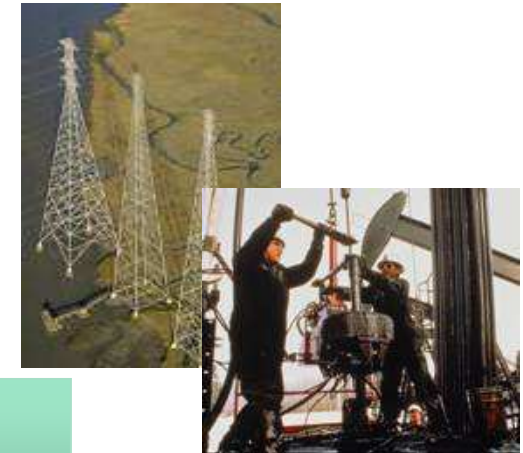
Research and Education



Sustainable Development



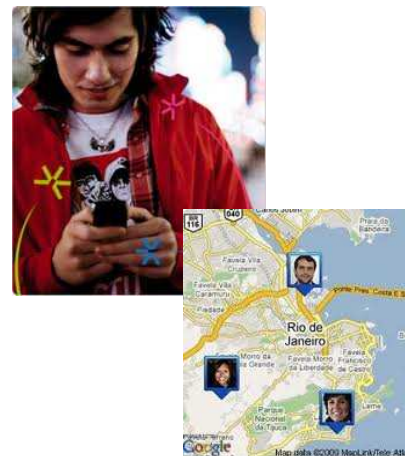
Energy and Communications



Risk and Disasters Management and Response



Positioning and Navigation Services



Natural Resources Management



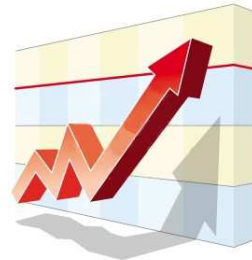
Electronic Government



Brazilian Challenges Regarding GI



**Environment
Monitoring**



**Government
Planning**



**Land
Management**



**Agriculture
Expansion**



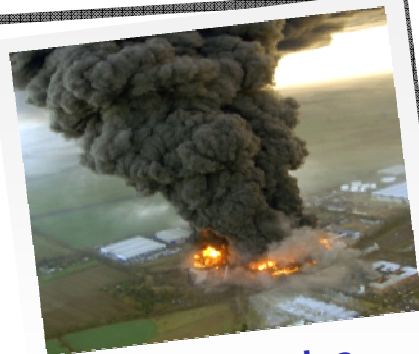
Warning Services



Climate Change



Tornados



**Emergencies
Response**



Forest Protection



Weather Forecast



**Land
management**

A Diagonal básica que divide o território nacional



Plano Amazônia Sustentável - PAS

**Amazon
biome**

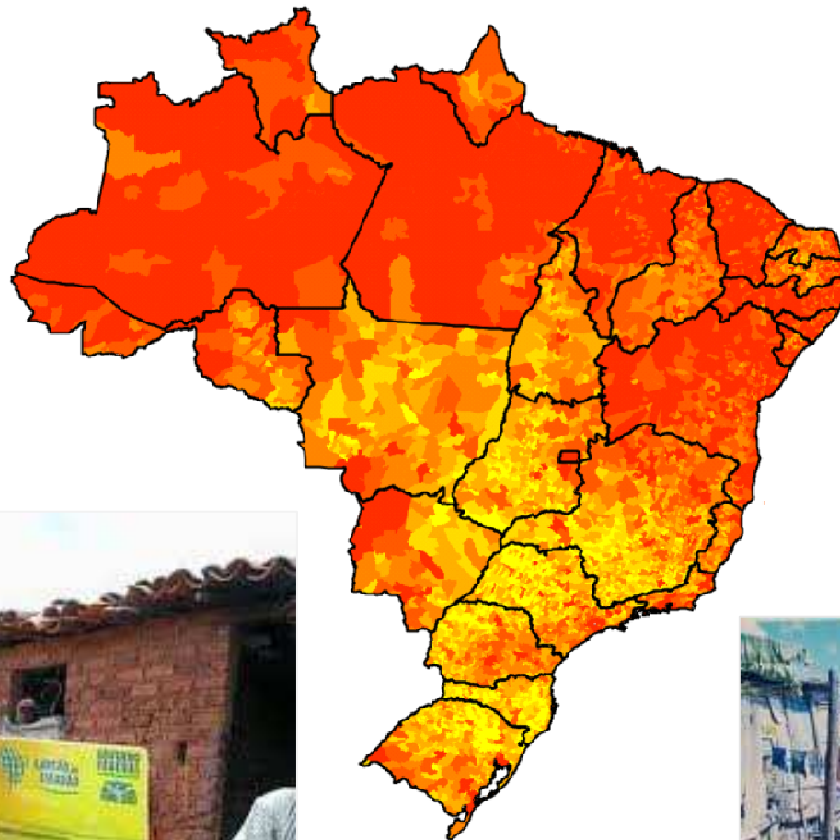


Homogeneous territories

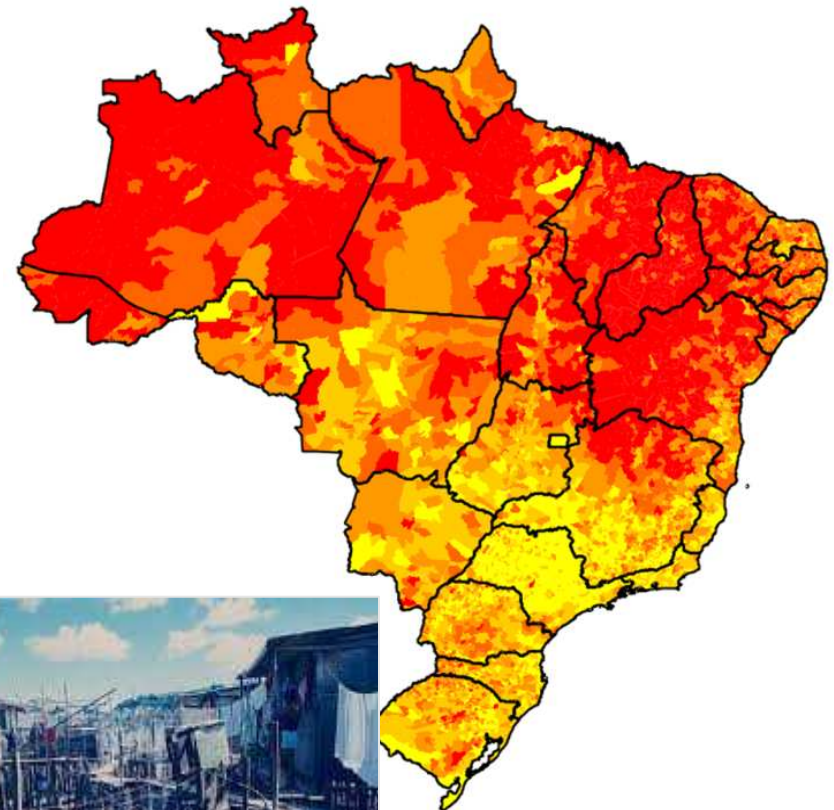
Use of GI in Brazil in Government Programs



Insuficiente Income



Lack of Public Ssrvices

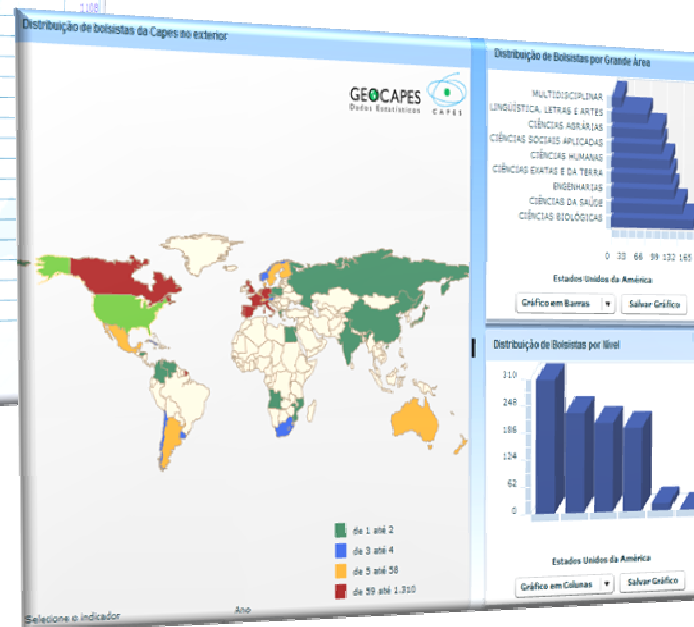


Source: Chaves, M., "Importância da Componente Territorial para as Políticas Públicas", Ministry of Planning, Sept 21, 2011

Research Investments Map CNPq Carlos Chagas Platform

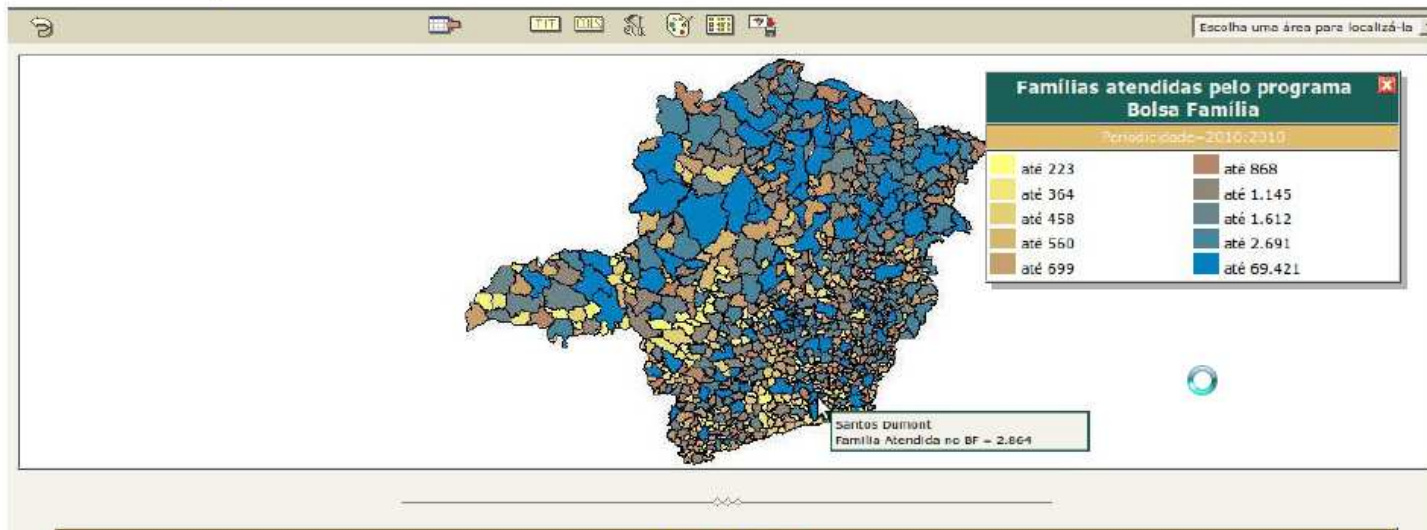


Scholarship Map - GeoCAPES CAPES

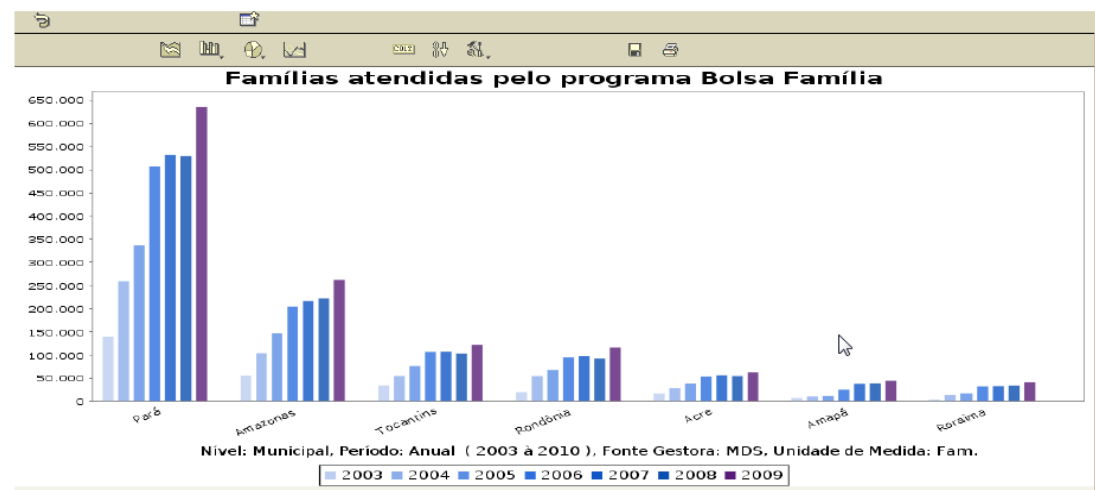


National Science and Technology Institutions Catalog

Government Action Indicators - low income families financial support -



Variável	Critério	Valor
Grupo Informação	igual a	Transfe
Periodicidade	maior ou igual a	2003
Periodicidade	menor ou igual a	2010
UF	igual a	Minas G
VAUF	igual a	Uf

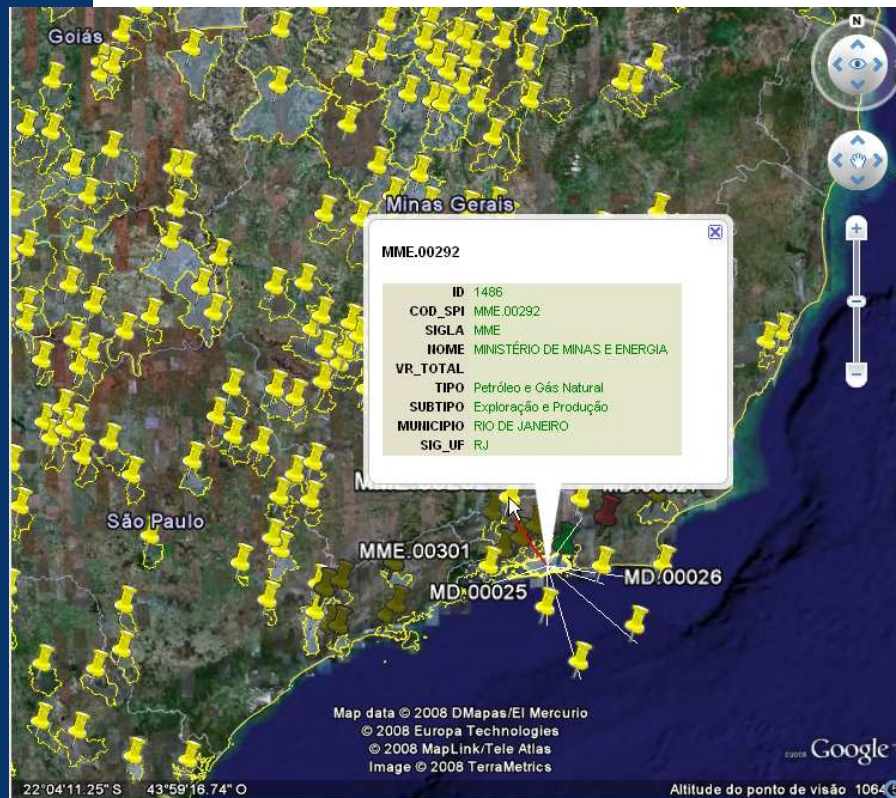


Source: Chaves, M., "Importância da Componente Territorial para as Políticas Públicas", Ministry of Planning, Sept 21, 2011

Growing Acceleration Program (PAC) Execution

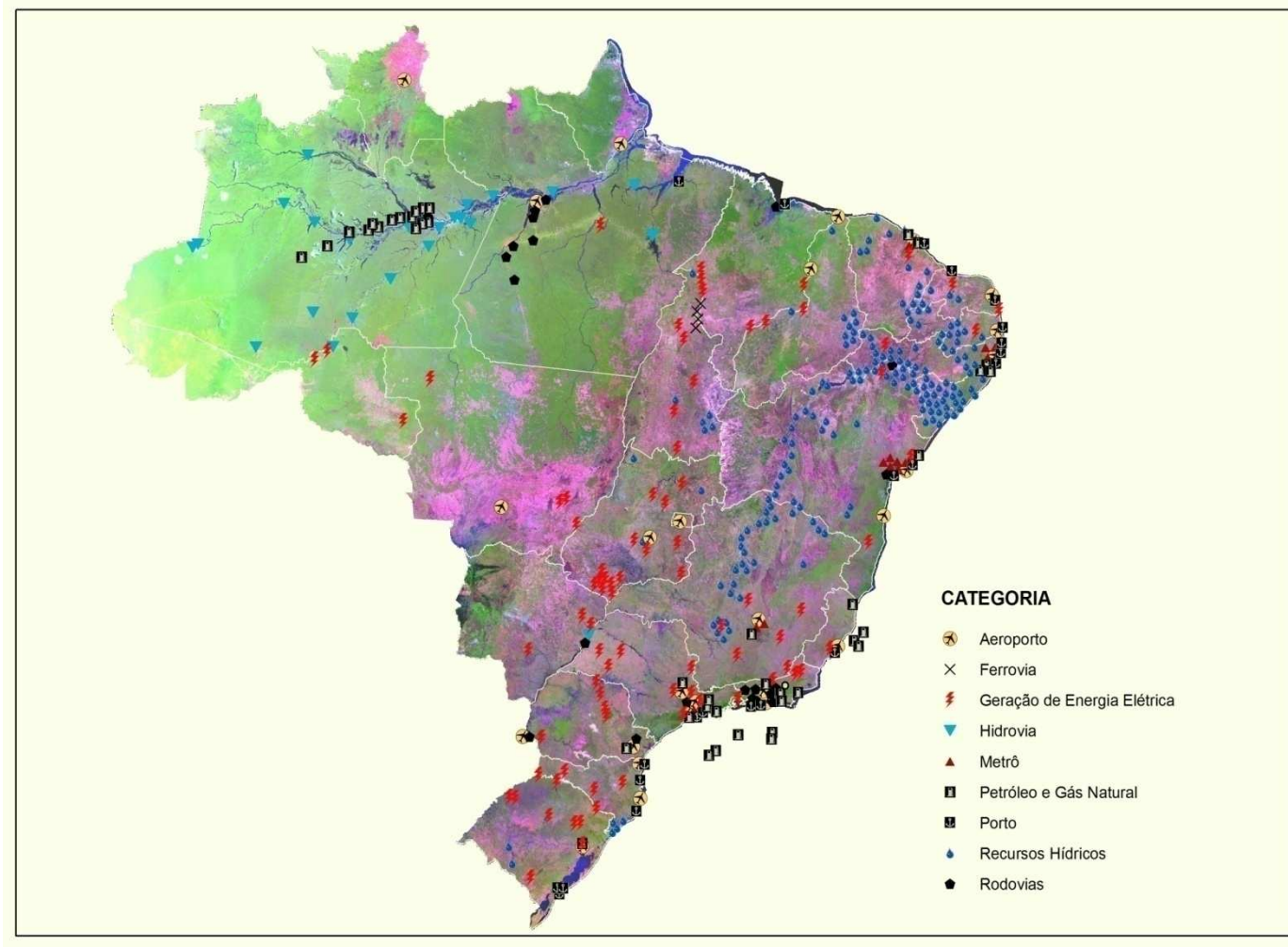
Municipalities Infrastructure Investments

Roads - GeoPAC GSI/PR



Source: Chaves, M., "Importância da Componente Territorial para as Políticas Públicas", Ministry of Planning, Sept 21, 2011

Geo-location of investments x infrastructure category



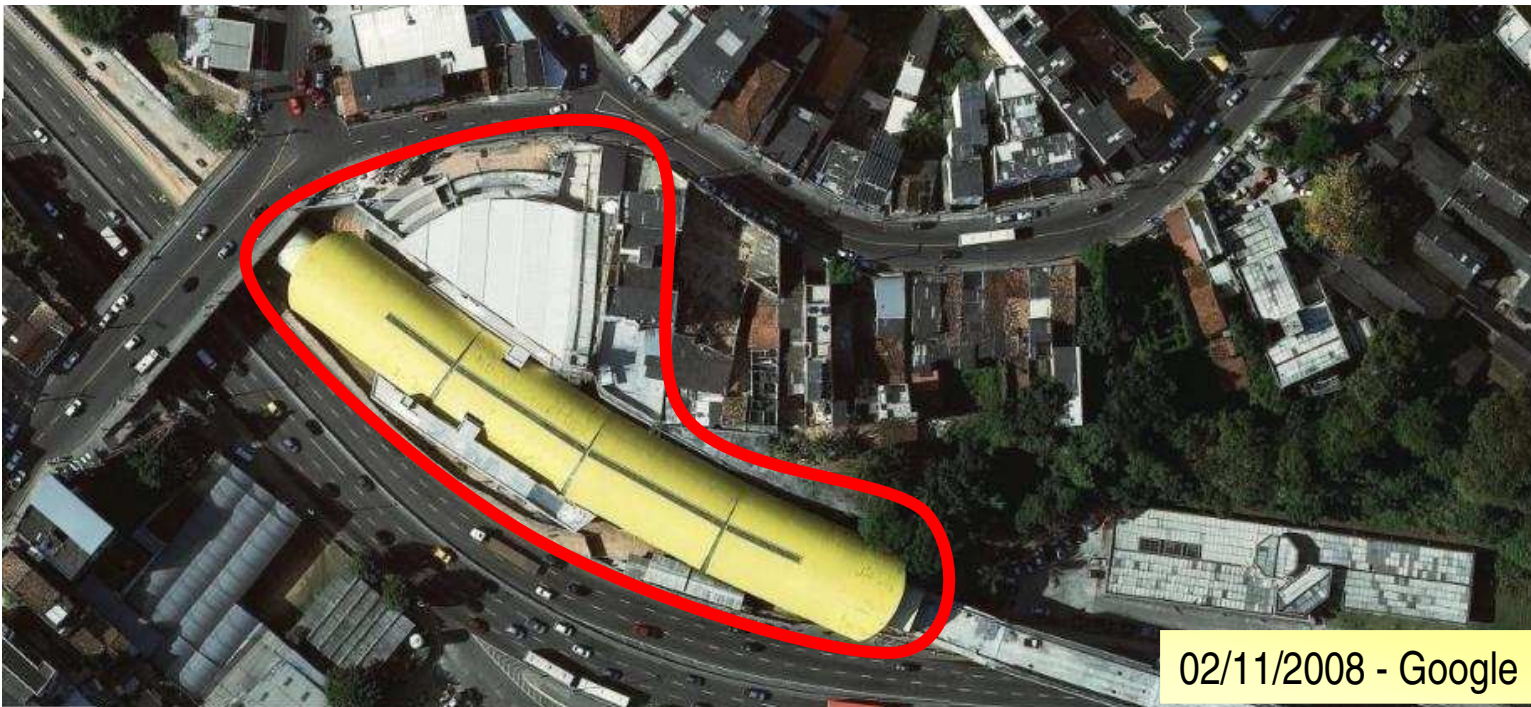
Source: Chaves, M., "Importância da Componente Territorial para as Políticas Públicas", Ministry of Planning, Sept 21, 2011

SALVADOR Subway – Brotas Station

05/01/2008 – Ikonos

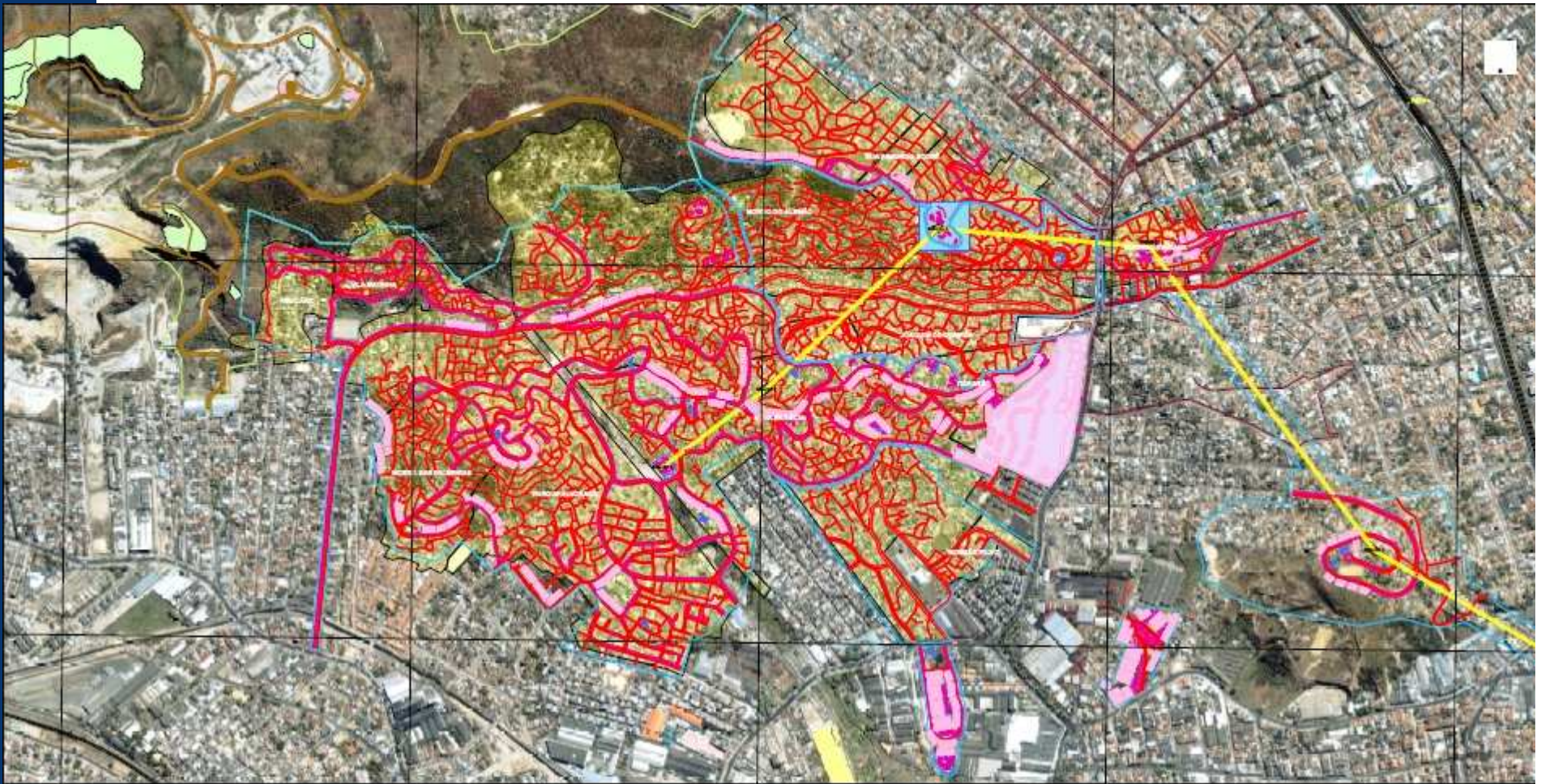


Fonte: CNPM/Embrapa



02/11/2008 - Google

Growing Acceleration Program (PAC) Urbanization work “Alemão Community”



Source: Chaves, M., "Importância da Componente Territorial para as Políticas Públicas", Ministry of Planning, Sept 21, 2011

- ✓ **Constitution of 1988:** Union has the responsibility of:
 - ✓ organizing and maintaining the National Cartographic Services
 - ✓ legislating on the National Cartographic System
- ✓ **Decree-Law 243/67:** establishes the directives of the brazilian cartographic activities
- ✓ **Decree 89817/1984:** establishes the Technical Standards of the National Cartography
- ✓ **Decree 6666/2008:** establishes the National Spatial Data Infrastructure of Brazil (INDE)



**Need to
update legal
framework**



GI Institutional

Arrangement in Brazil



Ministry of Planning

- Manager of the National Cartographic System
- Responsible for NSDI data sharing agreements



National Commission of Cartography

- Cartographic Policy
- NSDI Coordination

Examples of GI Producers



Instituto Nacional de Colonização e Reforma Agrária – INCRA



Instituto Nacional de Pesquisas Espaciais – INPE



Cidades
Ministério das Cidades

Ministério das Cidades



Diretoria de Hidrografia e Navegação – DHN



Departamento Nacional de Infraestrutura de Transportes – DNIT



Diretoria de Serviço Geográfico do Exército Brasileiro – DSG



Ministério do Meio Ambiente – MMA



Transportes
Ministério dos Transportes

Ministério dos Transportes



Secretaria do Patrimônio da União – SPU



Empresa Brasileira de Pesquisa Agropecuária – EMBRAPA



Instituto Brasileiro de Geografia e Estatística – IBGE



Instituto de Cartografia Aeronáutica – ICA



Agência Nacional de Transportes Terrestres – ANTT



Centro Gestor e Operacional do Sistema de Proteção da Amazônia -CENSIPAM



Serviço Geológico do Brasil -CPRM

National Commission of Cartography - CONCAR

- **Composed by representatives of Ministries, Federal Institutions, State Governments and Industry**
- **Created by the Decree-Law 243 of Feb 28, 1967**
- **Composition updated by Decree of Aug 01, 2008**



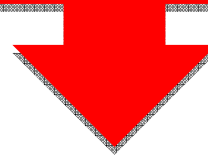
To assist the Minister of Planning in the supervision of the National Cartographic System

To coordinate the execution of the National Cartographic Policy



Geospatial Information (GI) in Brazil is mostly produced, maintained, and acquired by public institutions from all government levels

In terms of GI, it was difficult for the users to know...



... what was available



... where to find it

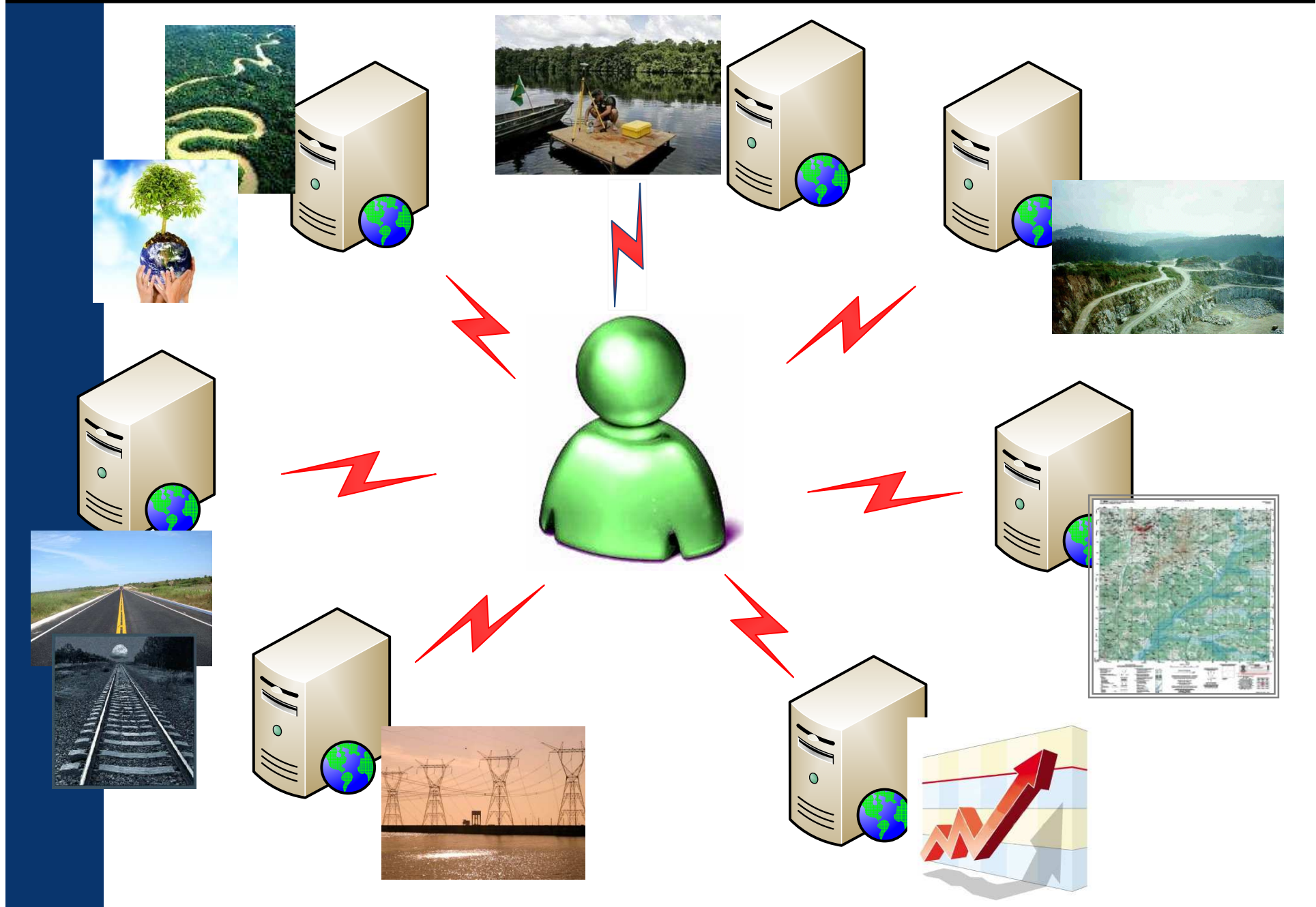


... who were the maintainers

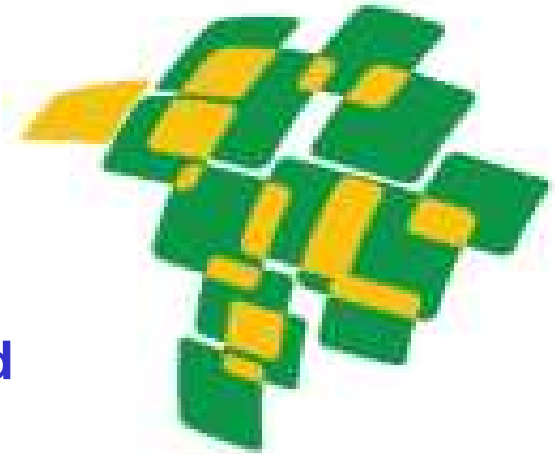


... how it could be accessed

GI Production and Use Context in Brazil – Before NSDI



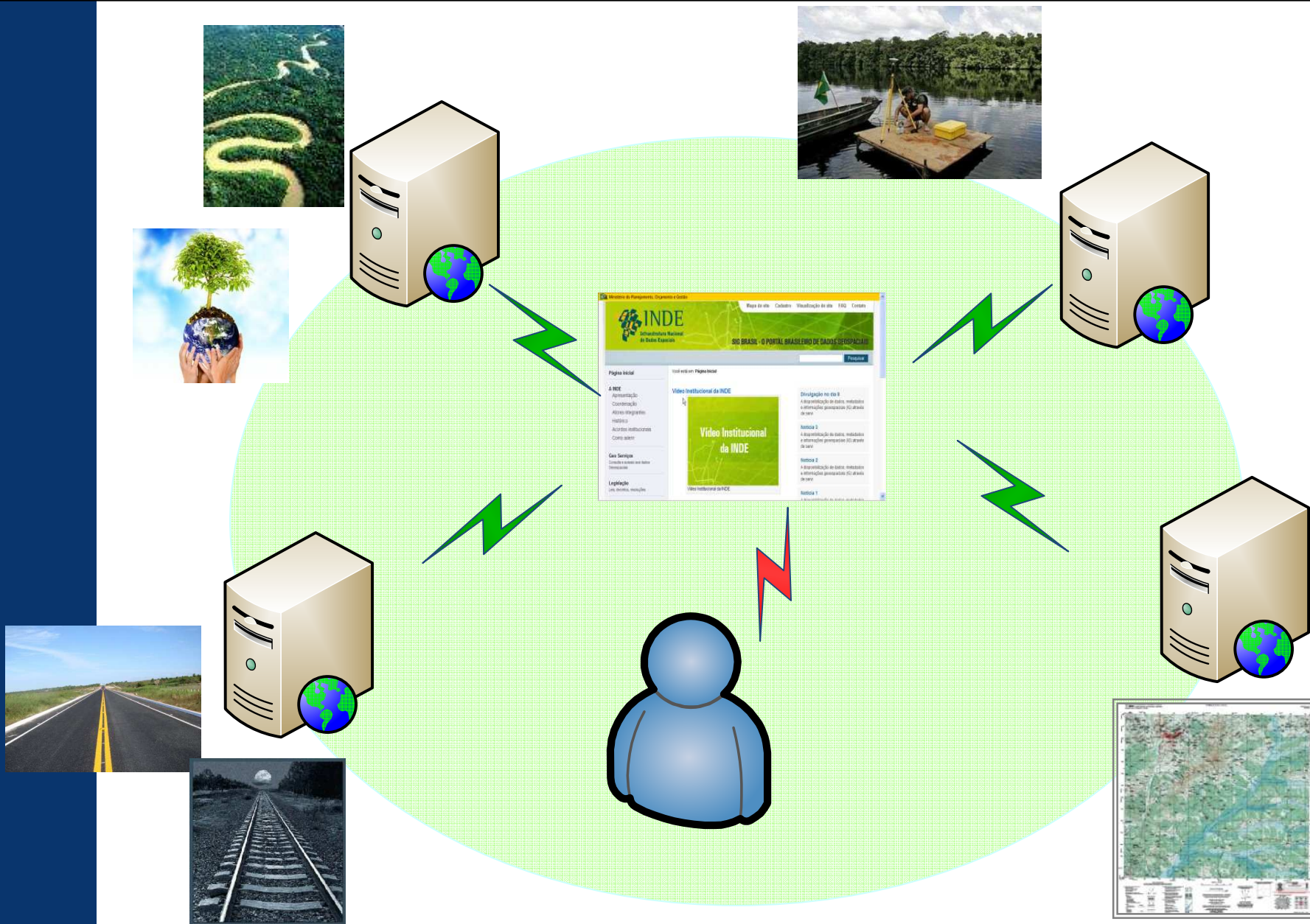
- **Established by Presidential Decree 6666 of November 27, 2008**
- **Coordinated by the National Commission on Cartography – CONCAR**
- **Used as reference for the National Open Data Infrastructure of Brazil (INDA)**
- **Industry has a role to be played, as indicated in the Decree**



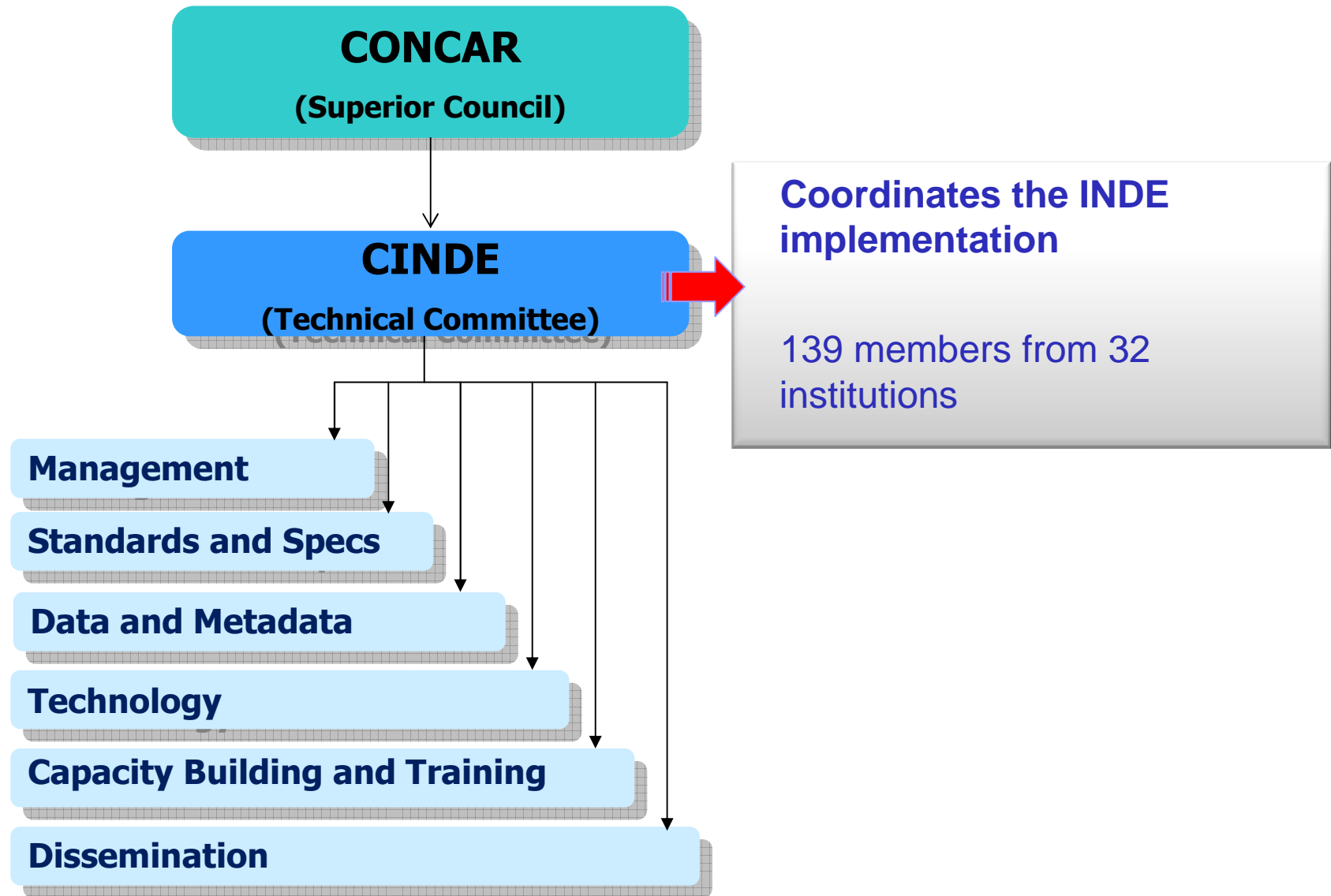
The goals

- To promote the proper generation, storage, access, share, dissemination and use of geospatial data produced at federal, state, and municipal level
- To promote the use of standards and specifications certified by the National Commission on Cartography – CONCAR
- To avoid duplication of efforts and waste of resources in obtaining geospatial data by public administration bodies

GI Production and Use Context in Brazil – After INDE



GI Institutional Arrangement in Brazil for INDE



INDE - Infraestrutura Nacional de Dados Espaciais - Windows Internet Explorer

http://13geo.inde.gov.br/13geo/aplicmap/geral.htm?9d9d0a358569f3aff4528670f38

Arquivo Editar Exibir Favoritos Ferramentas Ajuda

INDE - Infraestrutura Nacional de D... Página Ferramentas

Mapa +Temas Legenda Links Interface Arquivo Janelas Análise Ajuda?

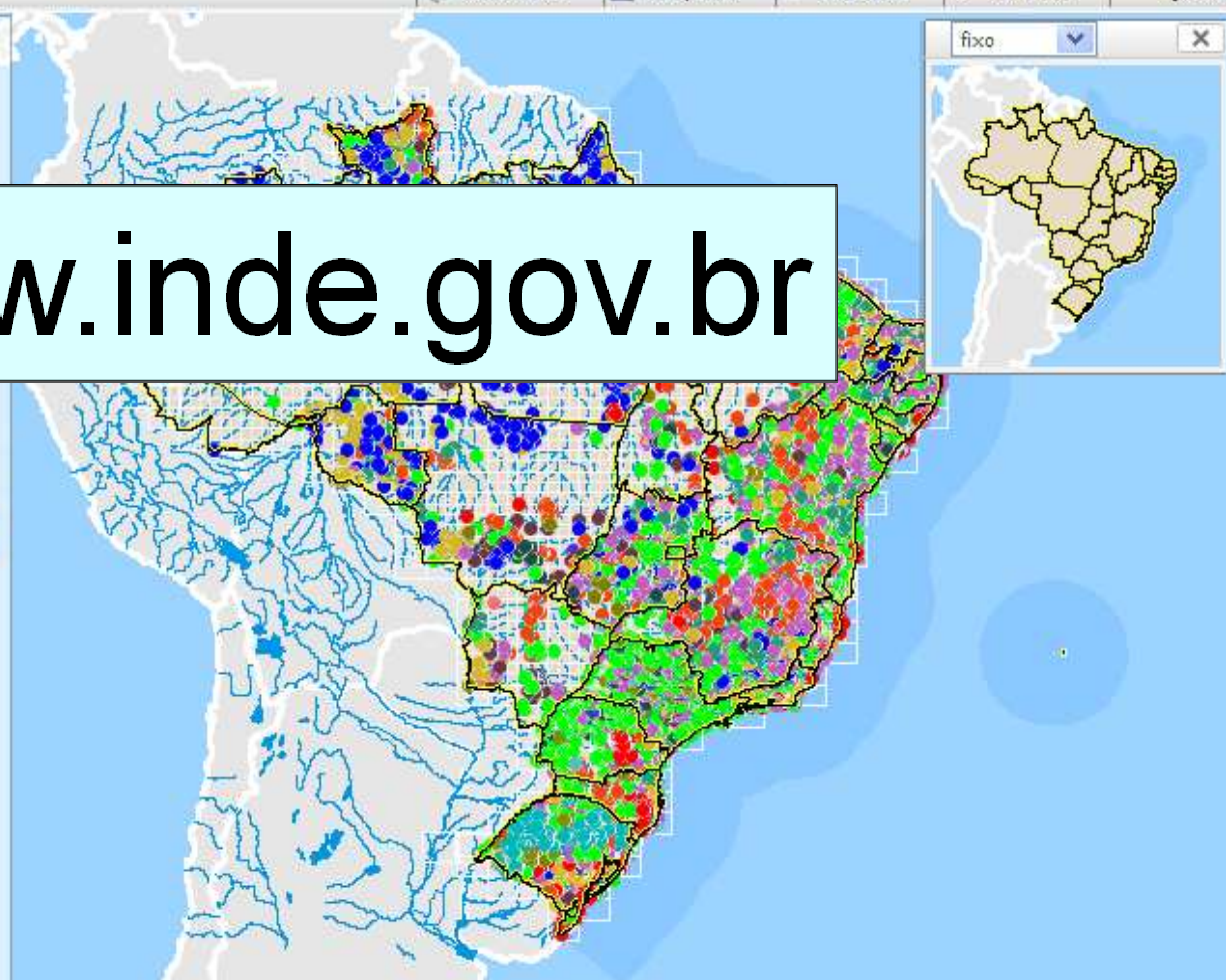
Busca rápida...

Propriedades

Temas

- Limite Estadual
- Recursos Minerais
- Recursos Minerais
- Opções
- Legenda
- Base cartografica
- Brasil
- Países do mundo
- Zona Econômica Exclusiva Marinha

www.inde.gov.br



Current status

✓ Available applications

- INDE portal: www.inde.gov.br
- Metadata catalog
www.metadados.inde.gov.br
- Visualization tool
www.i3geo.inde.gov.br



✓ Available data and metadata

- Metadata: 5320 documents of 3 institutions
- Data: ~150 WMS services

✓ Access statistics

- Metadata catalog: 1,800,000 hits per month

New portal and new visualization tool



The image displays the INDE (National Spatial Data Infrastructure of Brazil) portal and its visualization tool. The top banner features the INDE logo and the text "SIG BRASIL - O PORTAL BRASILEIRO DE DADOS GEOESPACIAIS". A search bar is present with the text "Pesquisar este site..." and a "Ir" button. The left sidebar contains a navigation menu with the following items:

- Página Inicial
- A INDE
 - Apresentação
 - Coordenação e Gestão
 - Atores Integrantes
 - Histórico
 - Acordos Institucionais
- Catálogo de IDEs
- Catálogo de Metadados
- Catálogo de Software
- Visualizador de Mapas
- Instituições do DBDG
- Consultar Web Services Ativos
- Dúvidas Frequentes
- Notícias
- Área Administrativa

The main content area shows the "Visualizador da INDE" interface. It includes a "Camadas" (Layers) panel on the left with the following list:

- (sem classificação)
 - Municipios
 - Capitais
 - Municípios
 - Limites dos Faltos
 - Unidades da Federação
 - Zona
 - Form. Imigração
 - Extração mineral
 - Marcos de limite
 - Ilhas
 - Trechos de massa d'água
 - Unidades de proteção ambiental
 - Trechos Ferroviários
 - Áreas Indígenas
 - Rios e Afluentes
- Camadas base
 - Mundo (HeatNetwork)

The main map area displays a satellite-style map of the world, with a small inset map in the bottom right corner. The interface includes standard map navigation controls (pan, zoom, etc.) and options to "Salvar como KMZ" and "Camadas WMTS".

Final Remarks

- ✓ High demand for Geospatial Information (GI) requiring the establishment of proper GI framework
- ✓ Brazilian government has been using GI for public policies, planning, programs monitoring, etc. in isolated cases
- ✓ INDE (Brazilian NSDI) to provide much of the required institutional and standards framework to boost GI integration
- ✓ Need for updating legal framework in some cases
- ✓ Open data is a reality in Brazil, but there is room for expansion
- ✓ INDE used as model for the National Open Data Infrastructure
- ✓ Industry has an important role to be played in NSDI
- ✓ Regional (PC-IDEA) and Global (GGIM) initiatives seen as very relevant opportunities to set regional and global political and institutional frameworks that will support nations towards establishing their GI production, sharing and dissemination structures



1958



1970



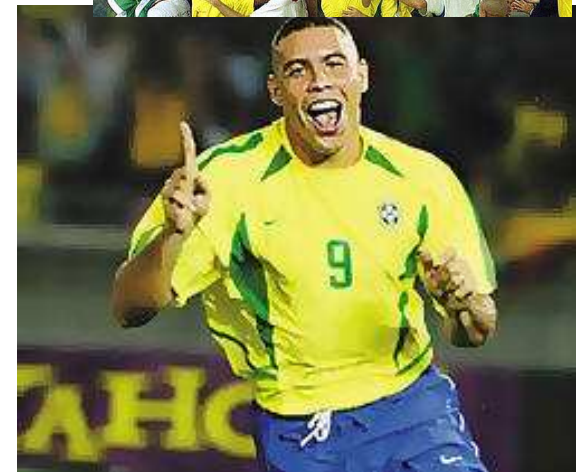
1962



2002



1994





Waiting for you all in 2014!!!!