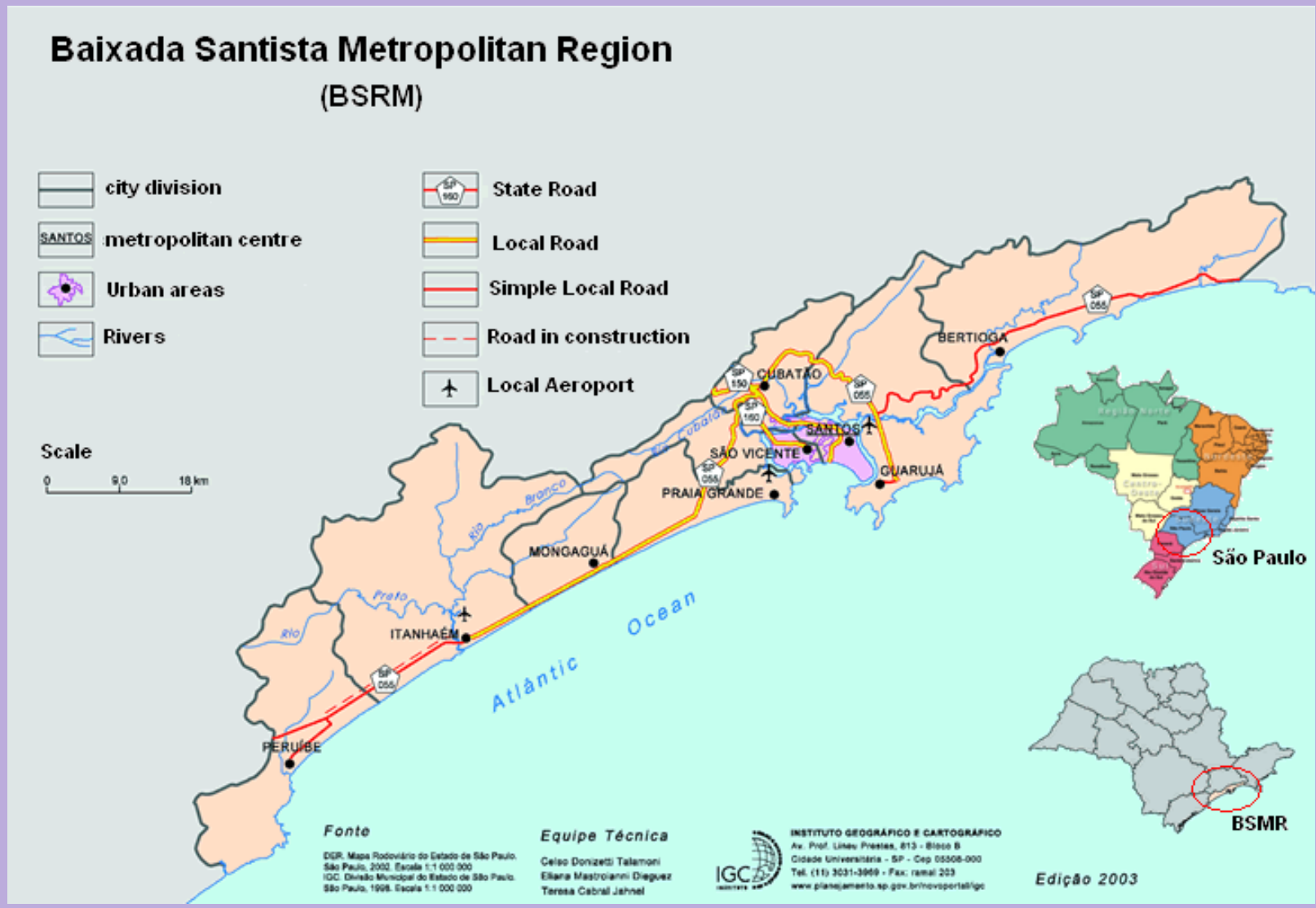
Environmental Risks and Social Dissimilarities: Facing the Challenges of Global Changes in the Baixada Santista Metropolitan Region (Brazil)

Andrea Ferraz Young

Baixada Santista Metropolitan Region



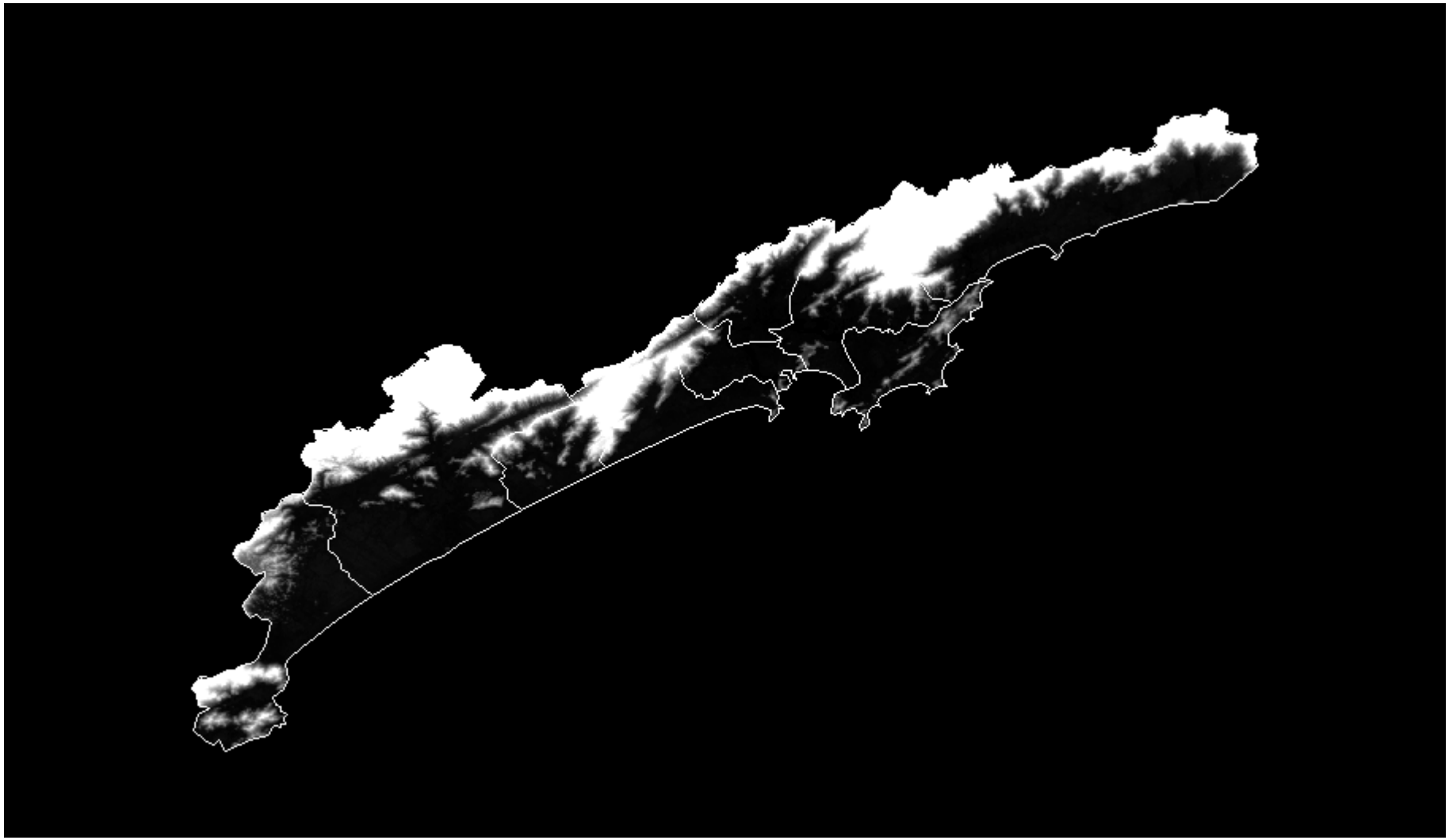

Industrial area - Cubatão
Cota 200 - Cubatão
Cota 100 - Cubatão
Panoramic View of Harbour of Santos
Mountain
Industrial area
Mountain
Centre
Cotas Neiborhood
Historical Centre
Harbour area
Hill
Hill
Residential area - São Vicente
Division
Vicente de Carvalho
Beach Point
Vicente de Carvalho neiborhood
Guarujá
South Express
Road
Historical Centre - Santos
Beach Point (sharp end)
Baquirão - Praia Grande
Padre Manoel da Nóbrega Road
Panoramic View of Beach

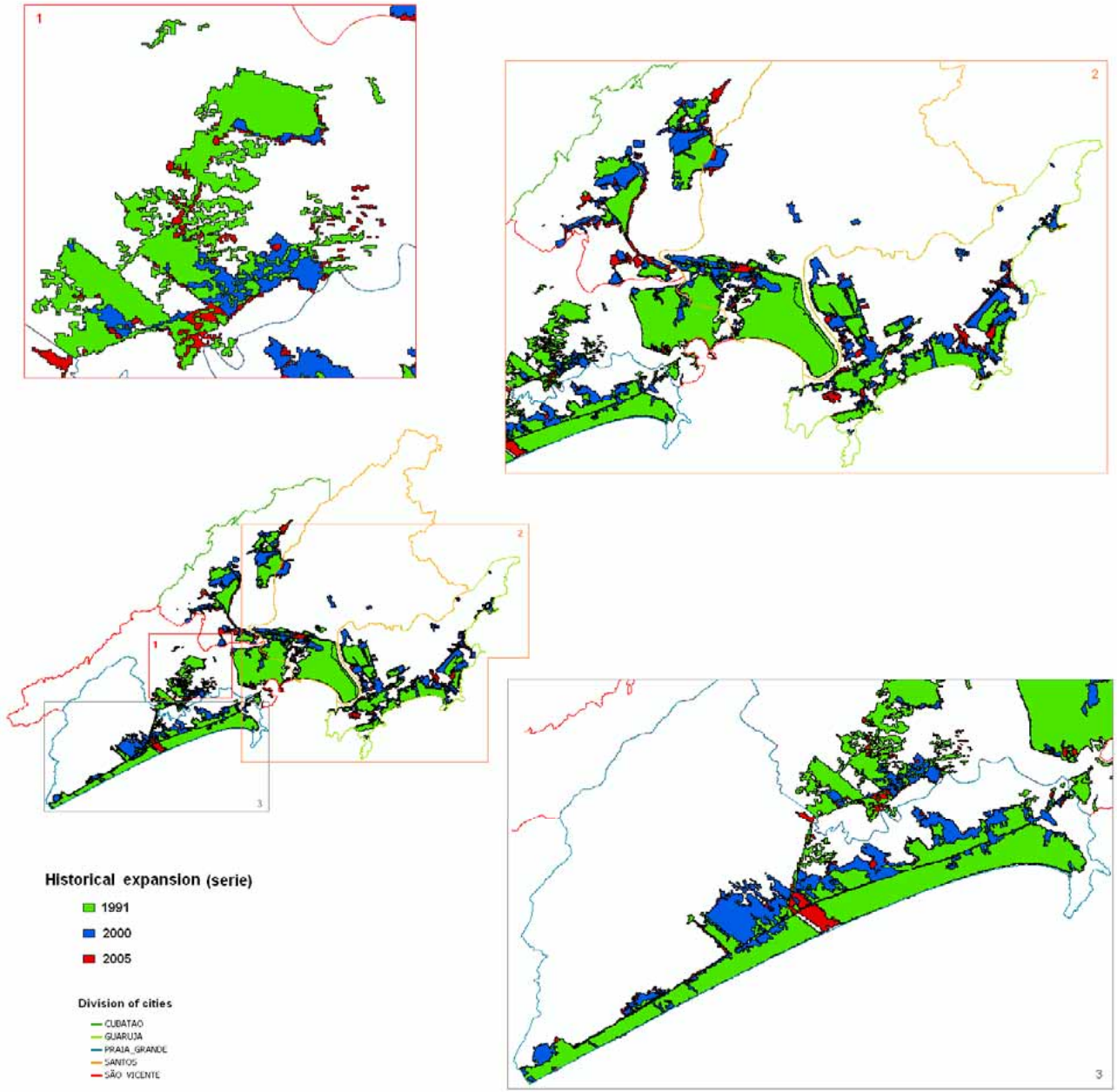
Industrial area of Cubatão

Significant transformations of the landscape are caused by socioeconomic and political decisions (chemical, fossil fuel, building industry)

The use of Landsat Images for spatial analysis (urban areas invade natural areas)

Topography – Digital Model Terrain

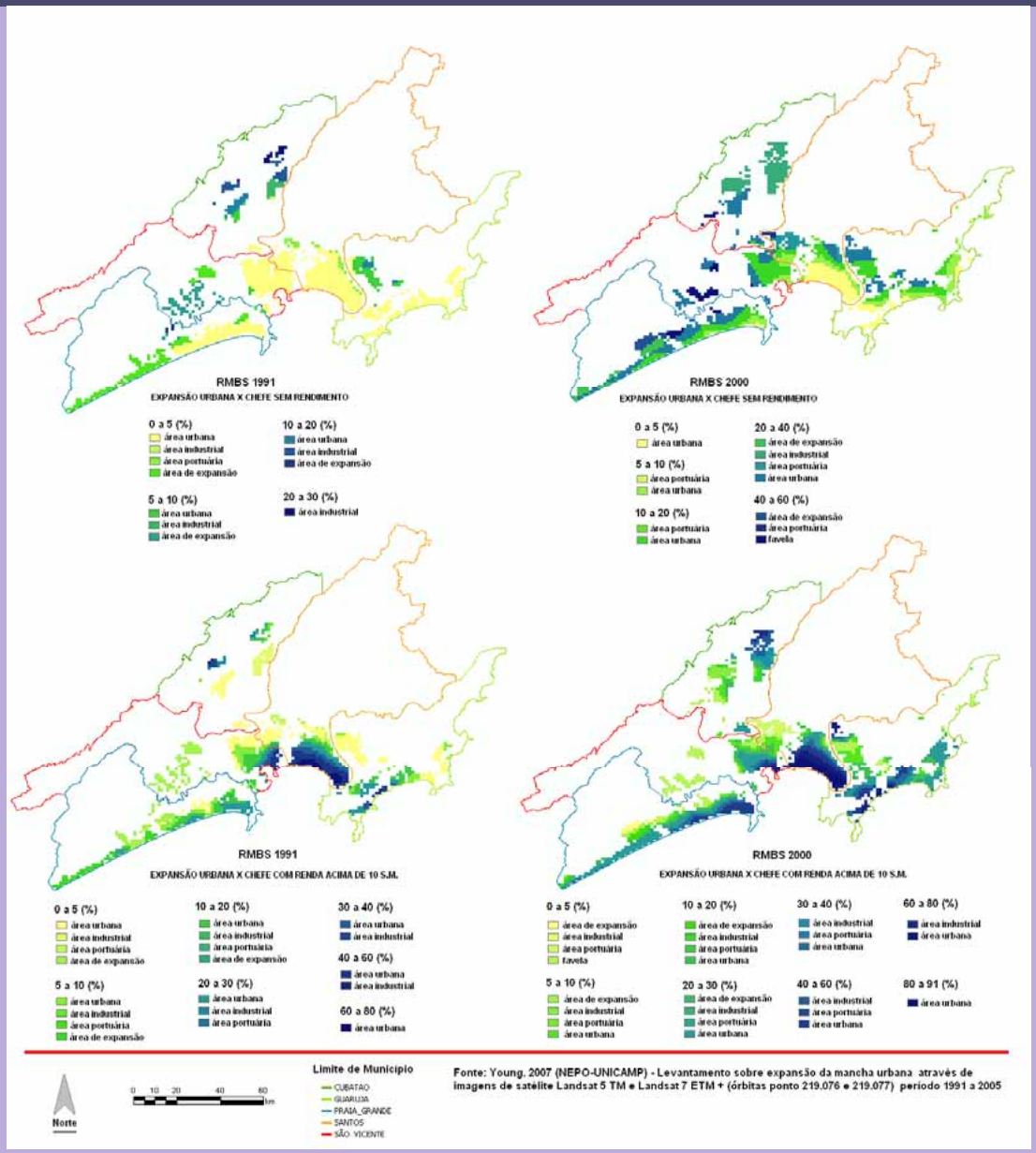




Fonte: Young, 2007 (NEPO-UNICAMP)

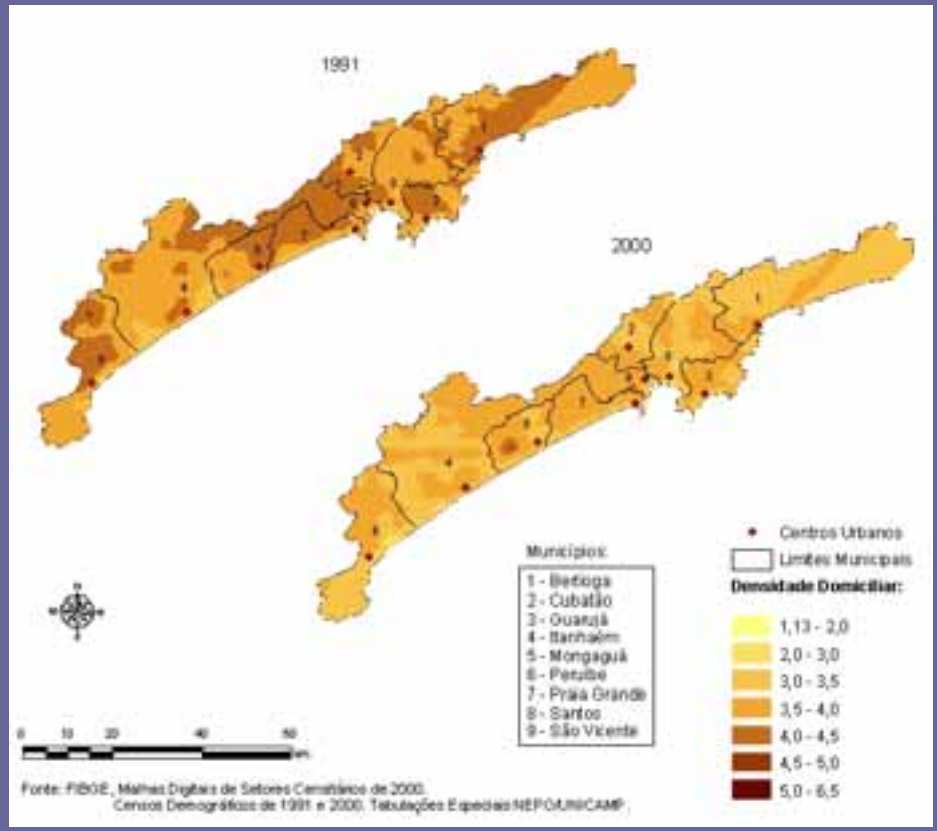
Landsat 5 TM e Landsat 7 ETM + 1991 to 2005

Income and Urban Expansion



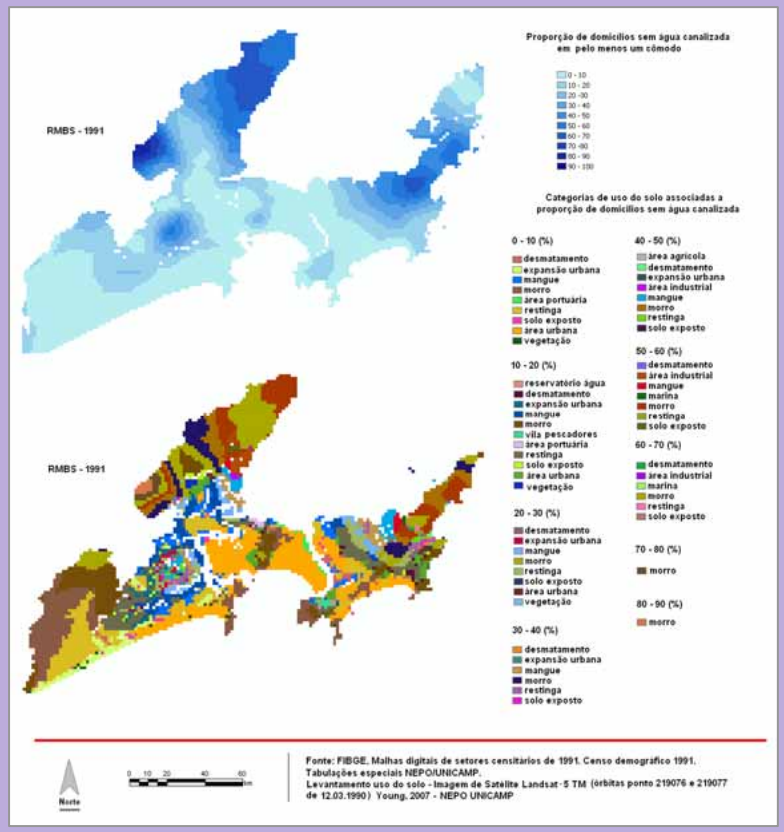
Population data

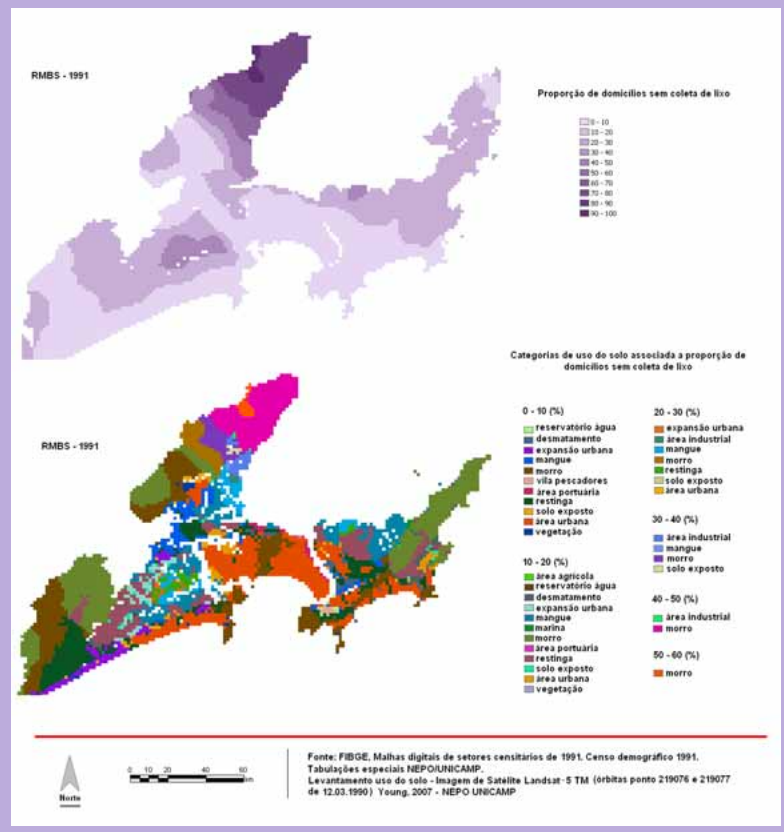
Population characteristic in space



To identify the characteristics of population in these situations it was considered the census data about head household income and domiciliary infrastructure

Stratification of the Space

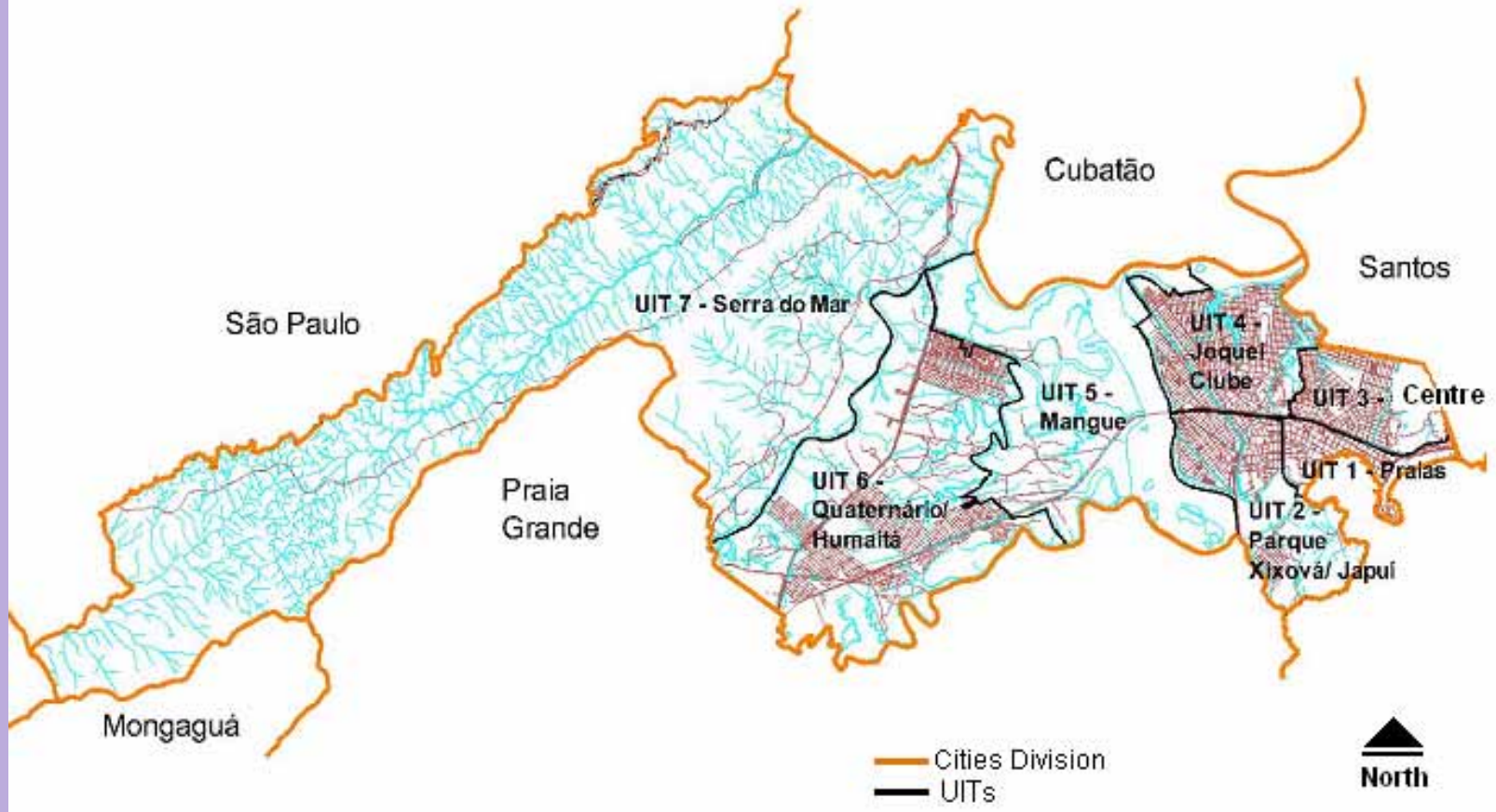




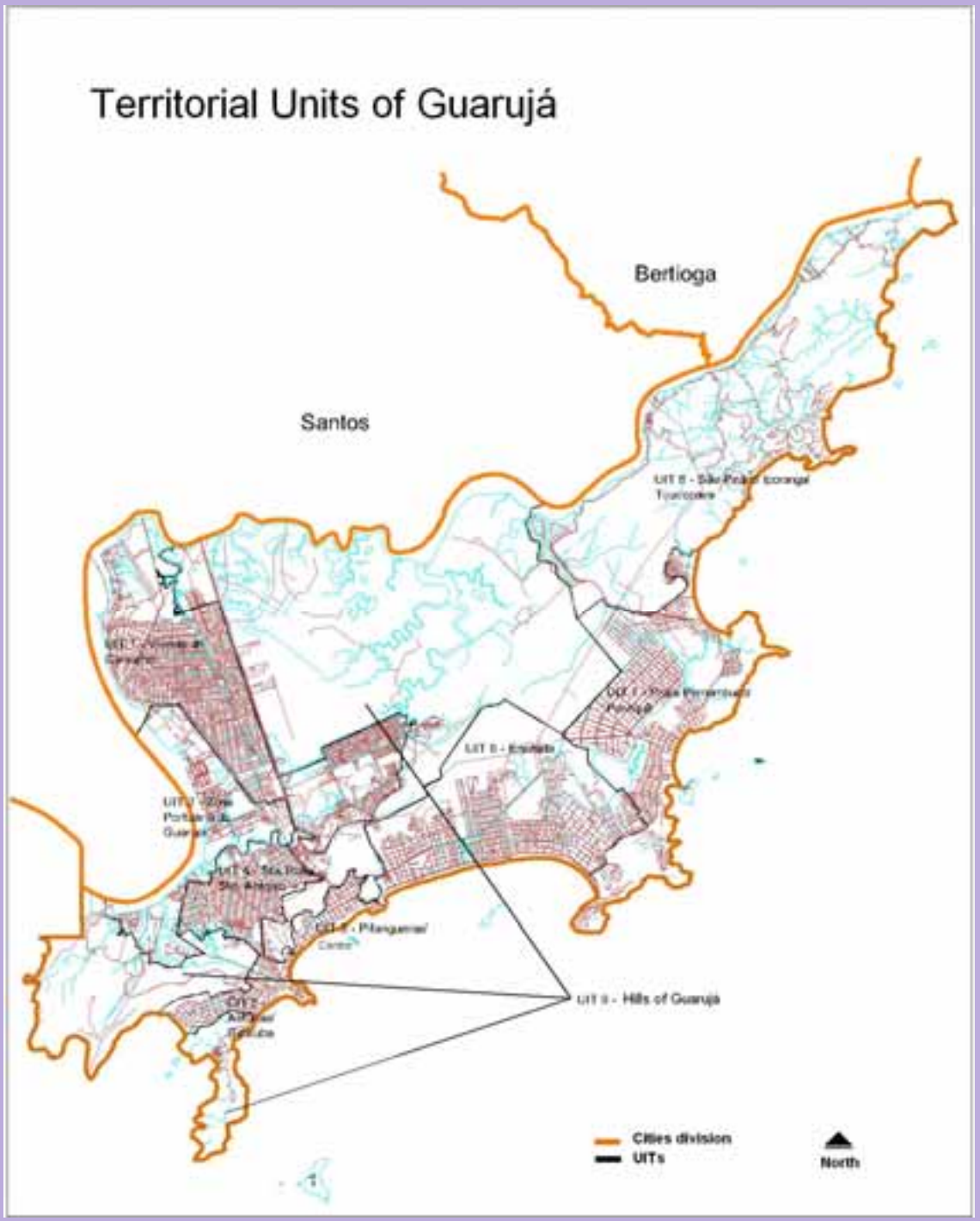
It was observed evidence of an increase of the socio-spatial inequalities by the stratification of the space in different social layers where the poor classes were pushed for distant and less valuable places with the worst conditions of infrastructure.

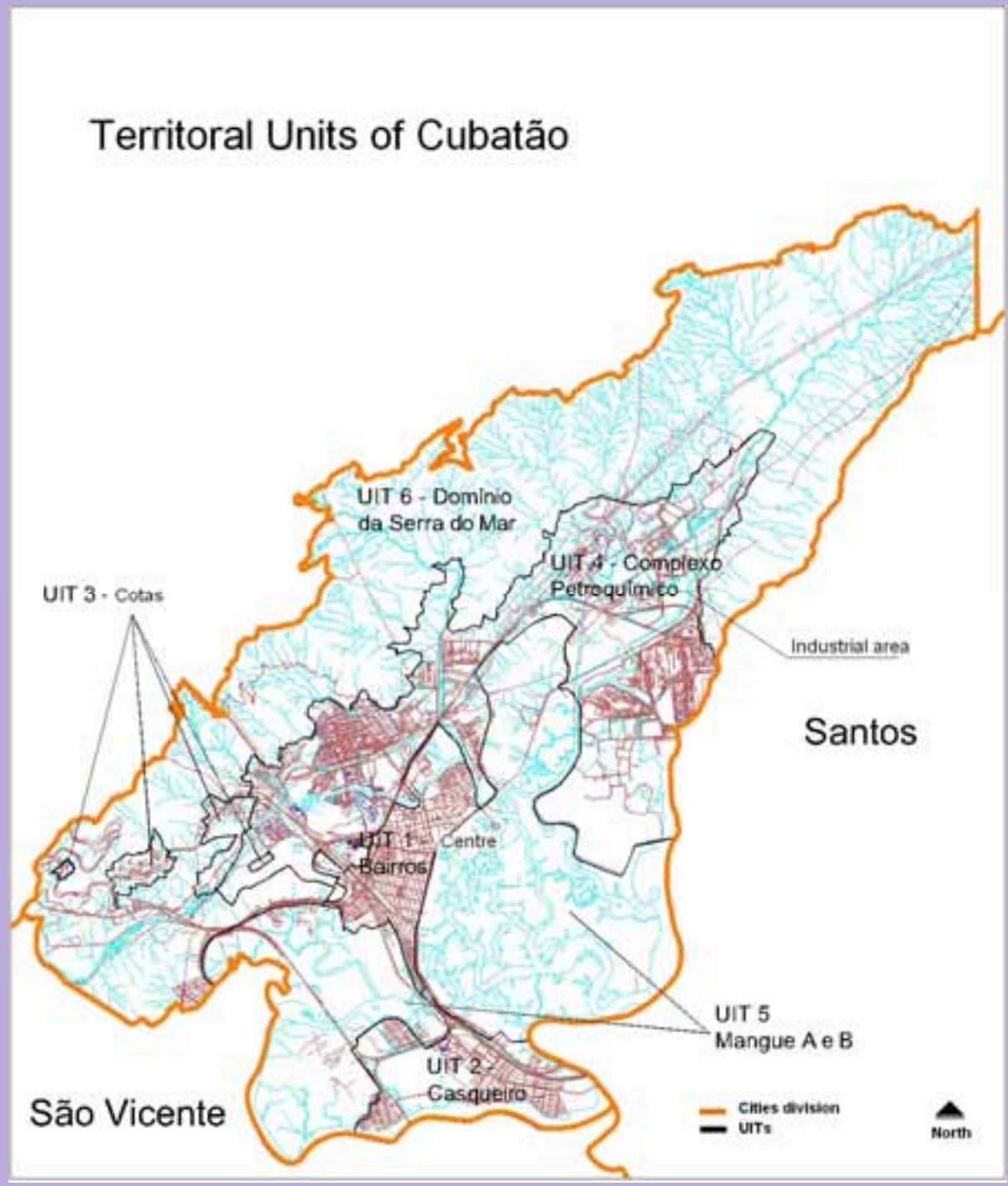
Territorial Units of Santos

Territorial Units of São Vicente

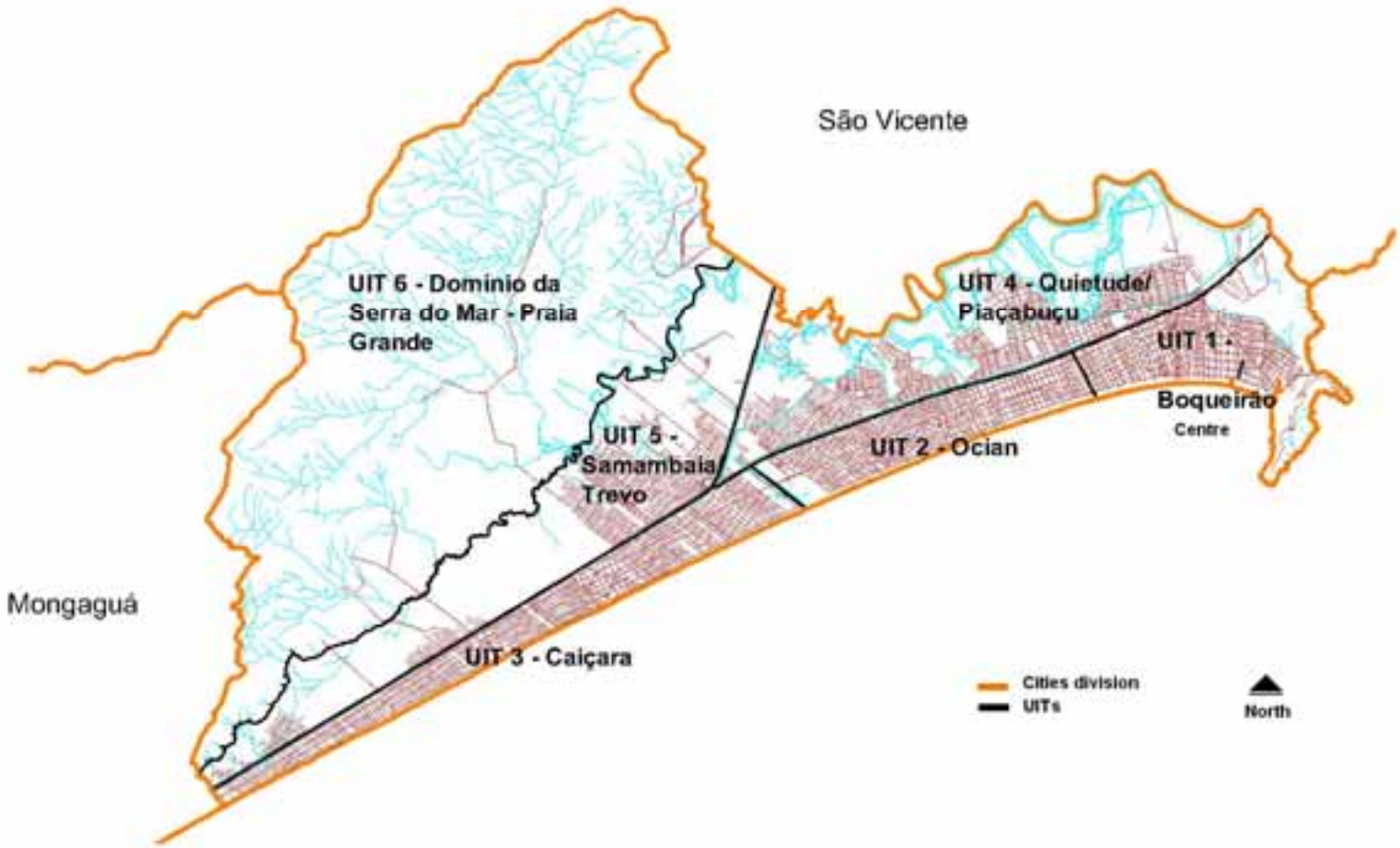


Territorial Units of Guarujá

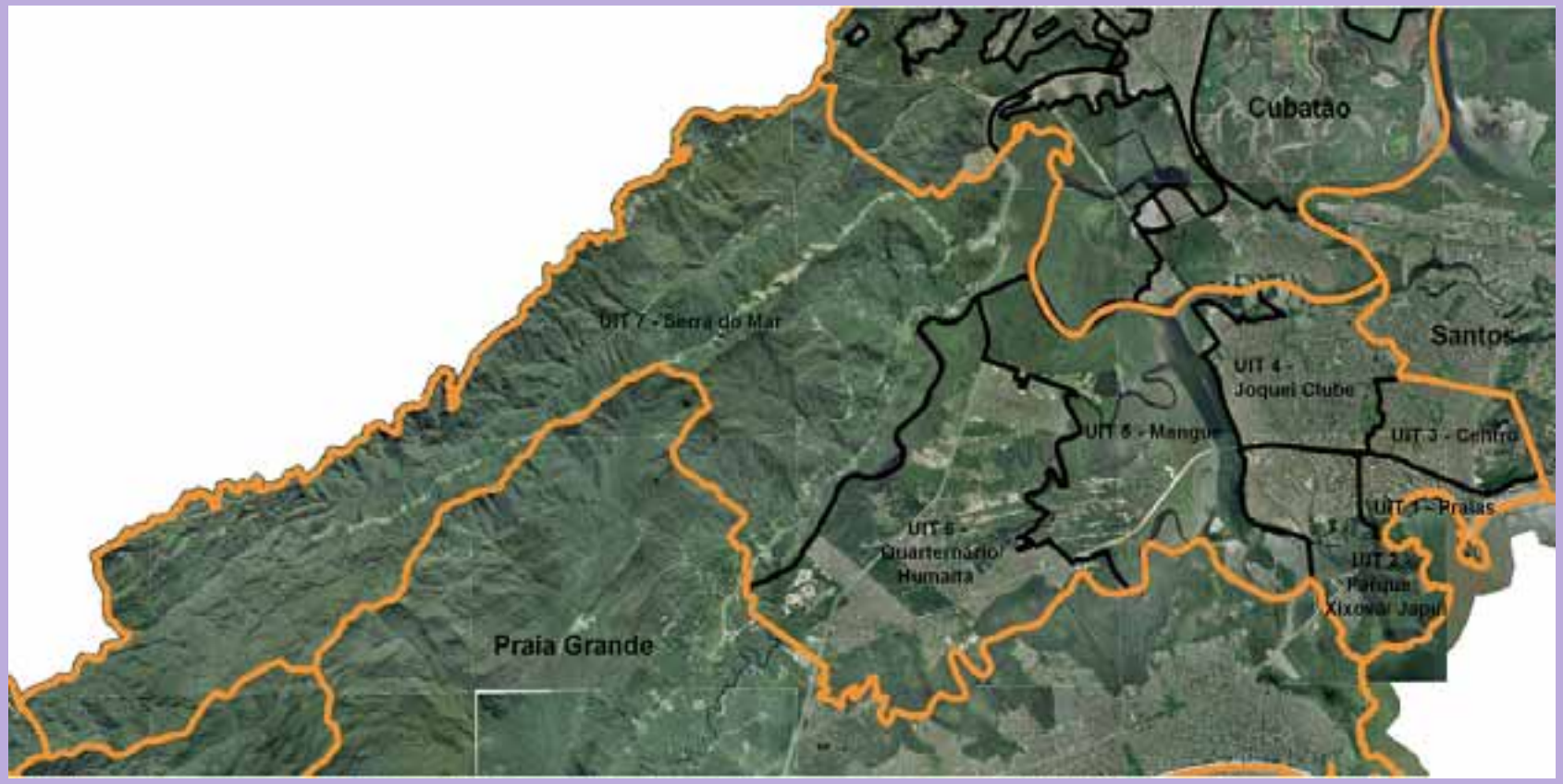



Territoral Units of Cubatão
UIT 6 - Domínio da Serra do Mar
UIT 4 - Complexo Petroquímico
UIT 3 - Cotas
Industrial area
Santos
UIT 1 - Centre Bairros
UIT 5 Mangue A e B
UIT 2 - Casqueiro
São Vicente
Cities division
UITs
North

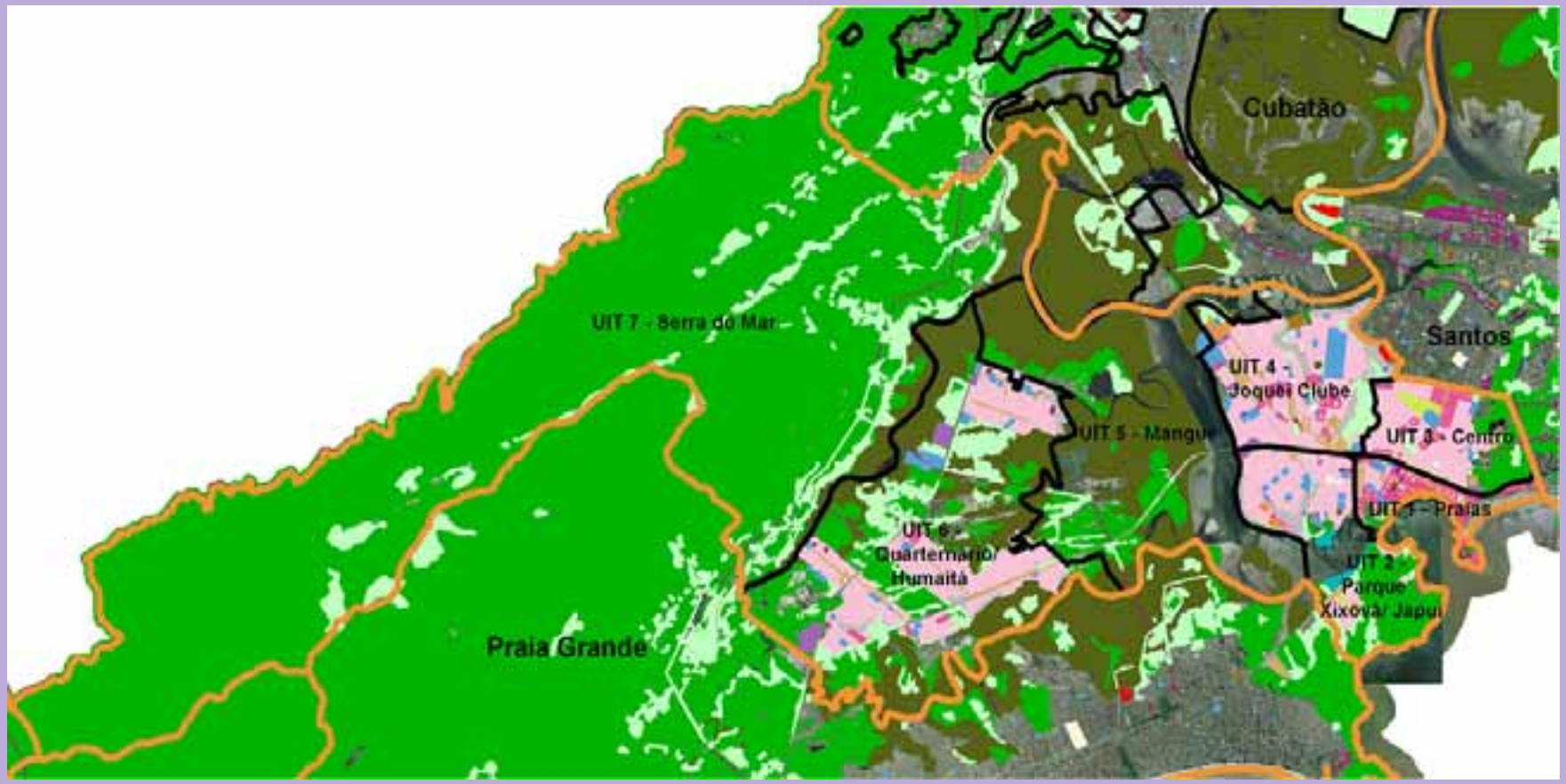
Territorial Units of Praia Grande



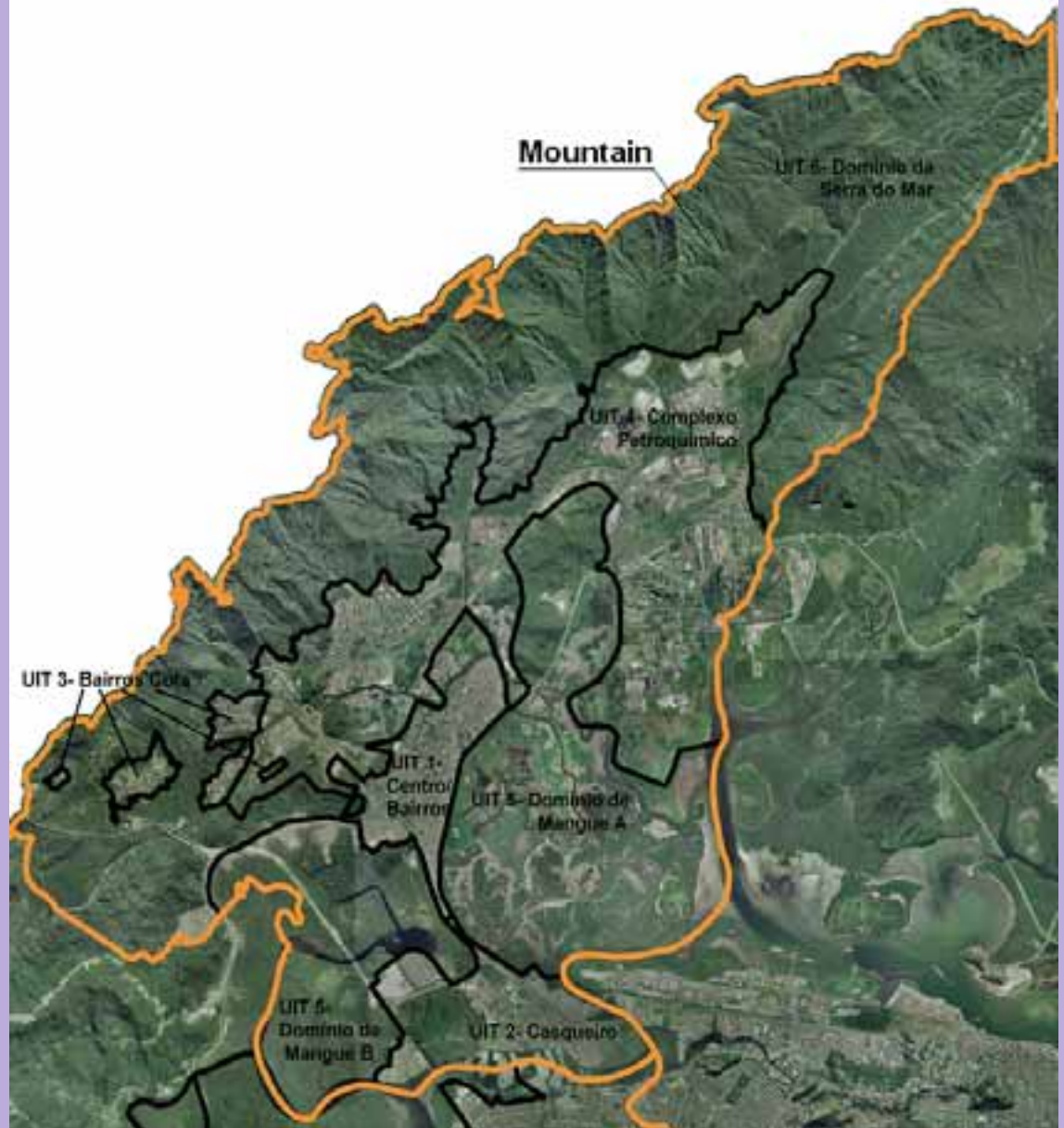
Aerophoto to support L.U. mapping - São Vicente 2003



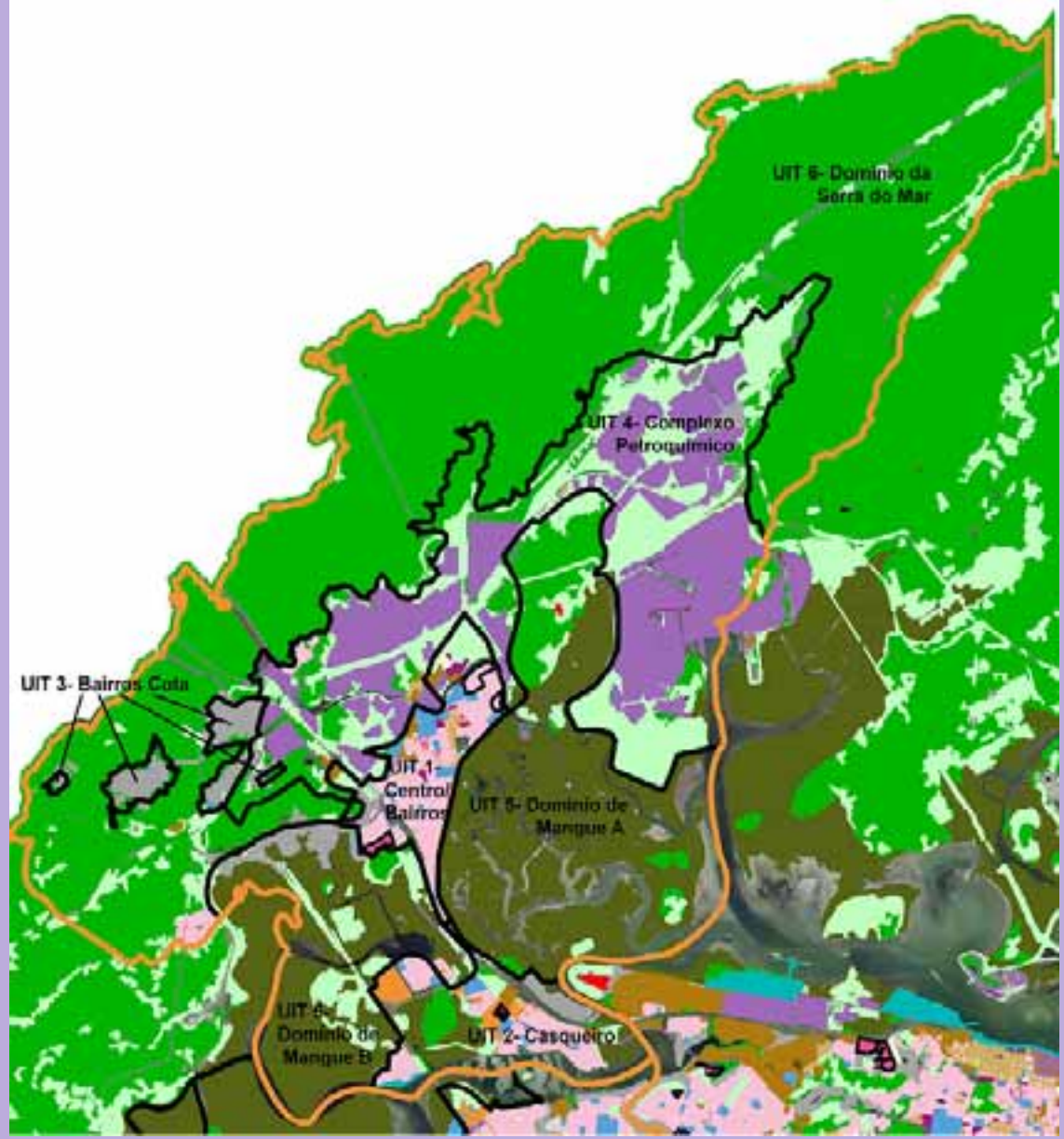
Land Use Mapping

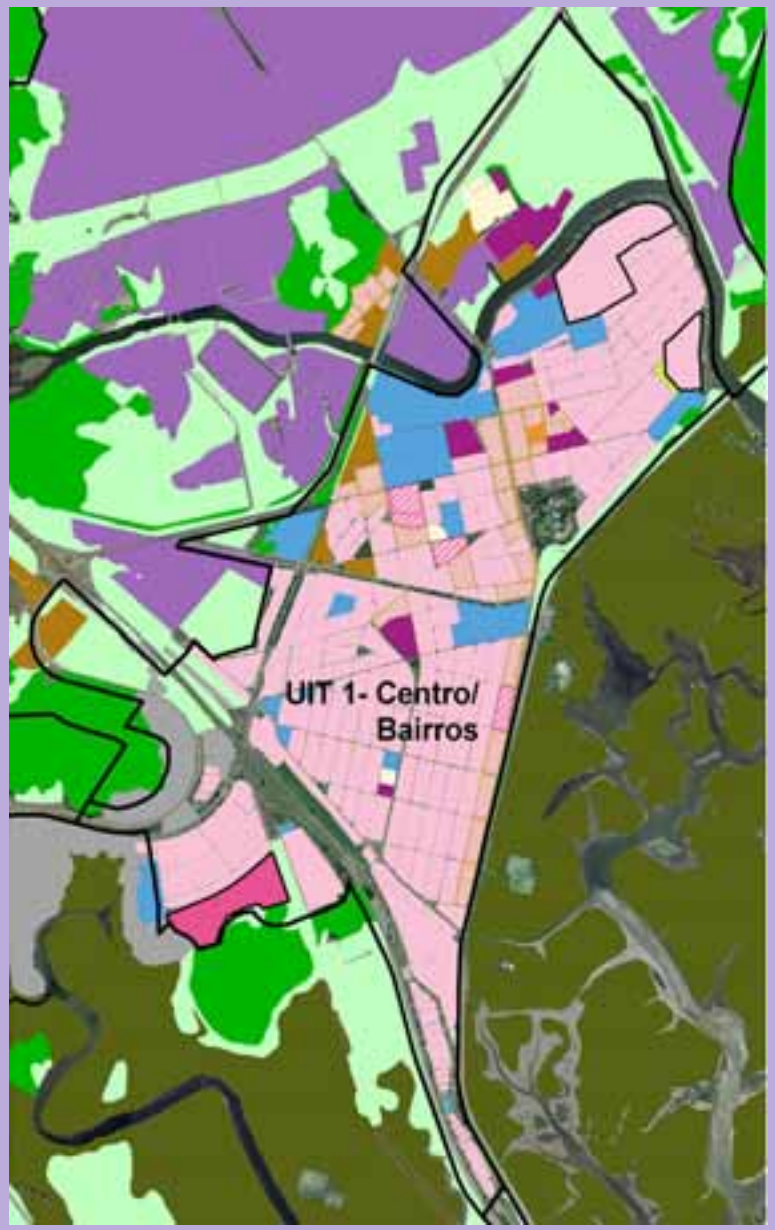


Aerophoto of Cubatão - 2003



Land Use - Cubatão





Land Use - Cubatão

Residential
- Horizontal 1
- Vertical 1
- Horizontal - Vertical
- Horizontal 2
- Vertical 2
- Vertical 3
- Horizontal 3
- Favela 1
- Favela 2

Comercial and Services
- Comercial and Services
- Comercial corridor
- Shoppings centres
- Public Services
- Parking

Industrial
- Industry
- Building Industry
- Road
- Chemical industry

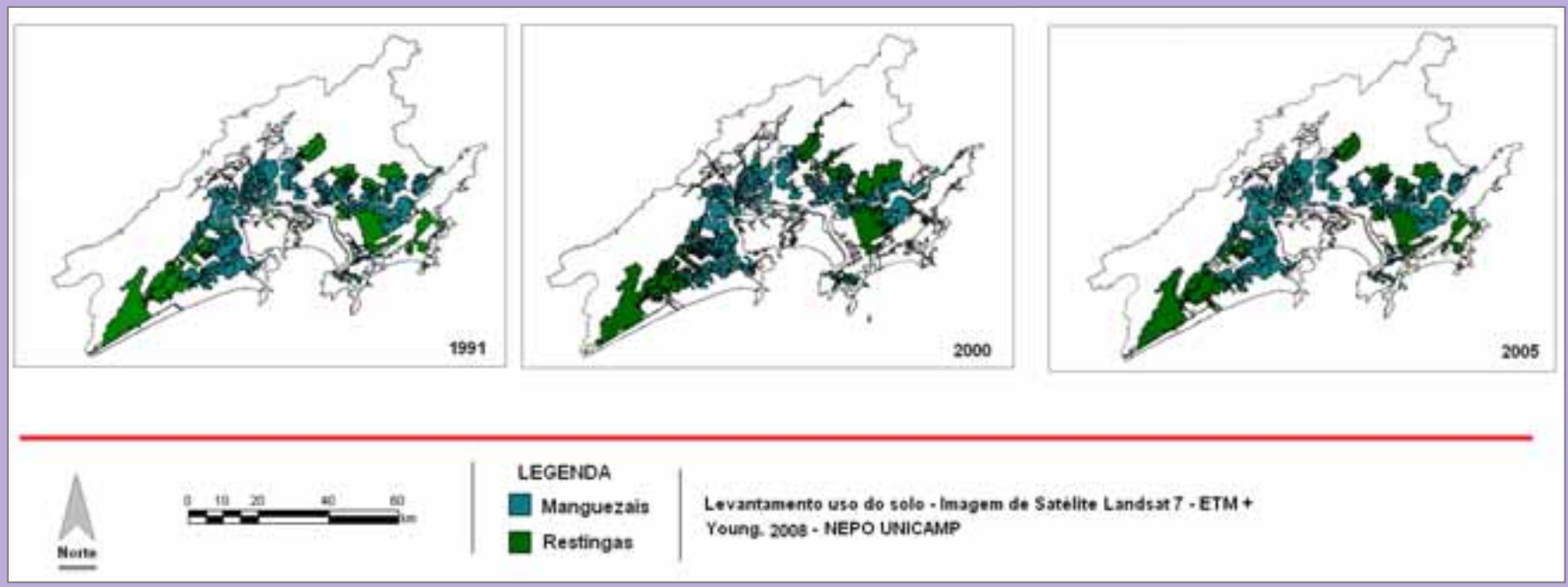
Hybrid uses
- Residential and Comercial
- Residential and Industrial
- Comercial and Industrial

Social Facilities
- Plaza
- Educational Places
- Institutions
- Harbour
- Special Ocupation
- Sewage Works

Vegetation categories
- Forest
- Mangue/ Restinga
- Agriculture
- Areas of Preservation

City hall decisions – urban zoning

Vegetation Mapping



This region has experienced a significant destruction of its wetlands, Atlantic Coast forests and restinga (type of coastal tropical and subtropical moist broadleaf forest) occupied mainly by residential and industrial expansion.

Risk mapping

Forested areas were converted in non-forest land for urban and industrial use without any ecological criteria.

Risk mapping

SÃO VICENTE – JARDIM QUARENTENÁRIO

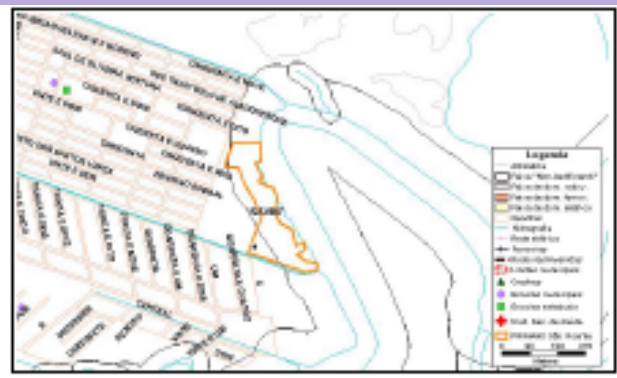
This region is facing an important social challenge caused by an urbanization process with a significant population growth and the increase of pressures on the environment

AGEM, 2005

Risk mapping

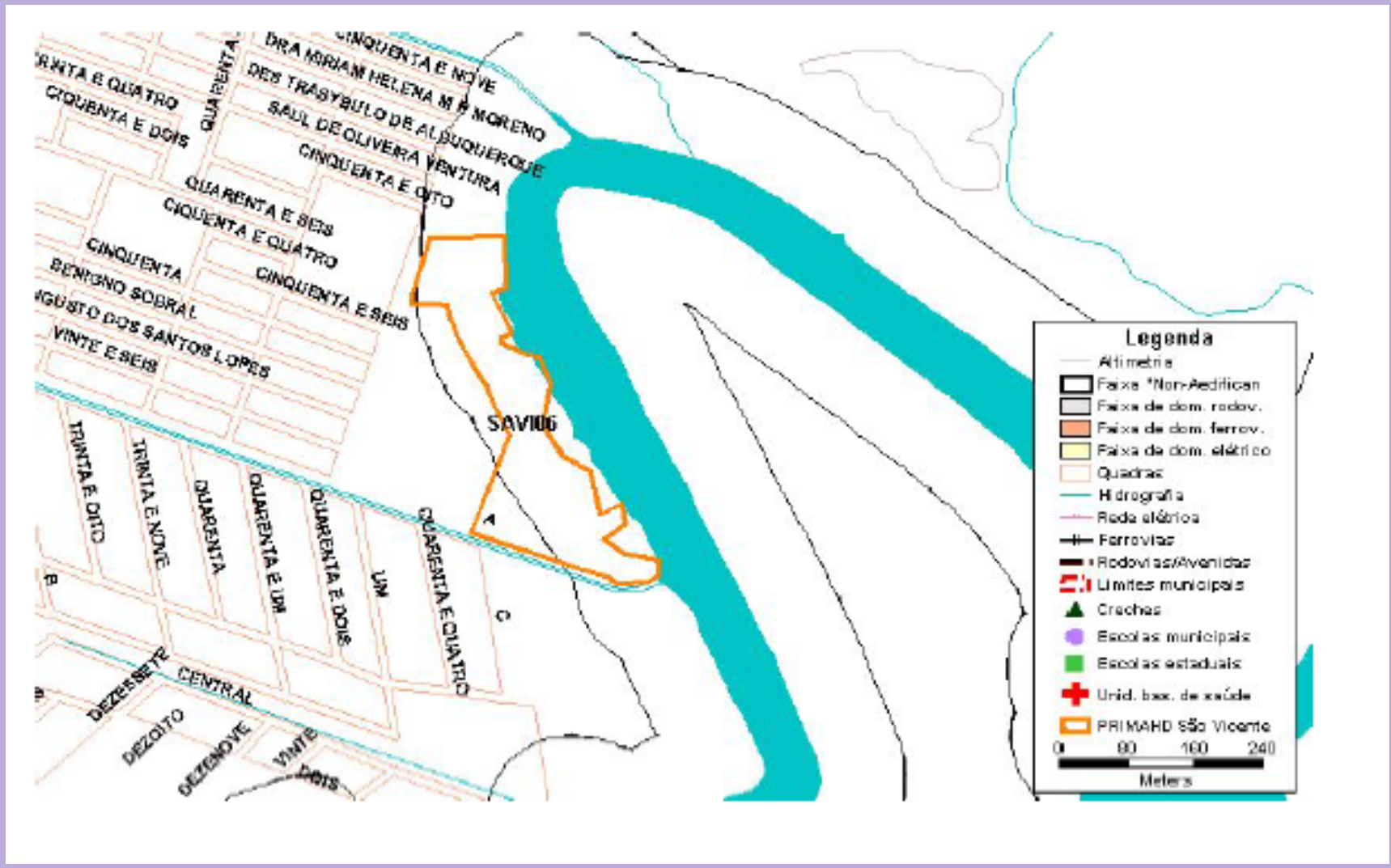
SÃO VICENTE – HUMAITÁ

The idea was to identify spaces of vulnerability through the environmental risk mapping, for example, people living in areas of flooding or landslide



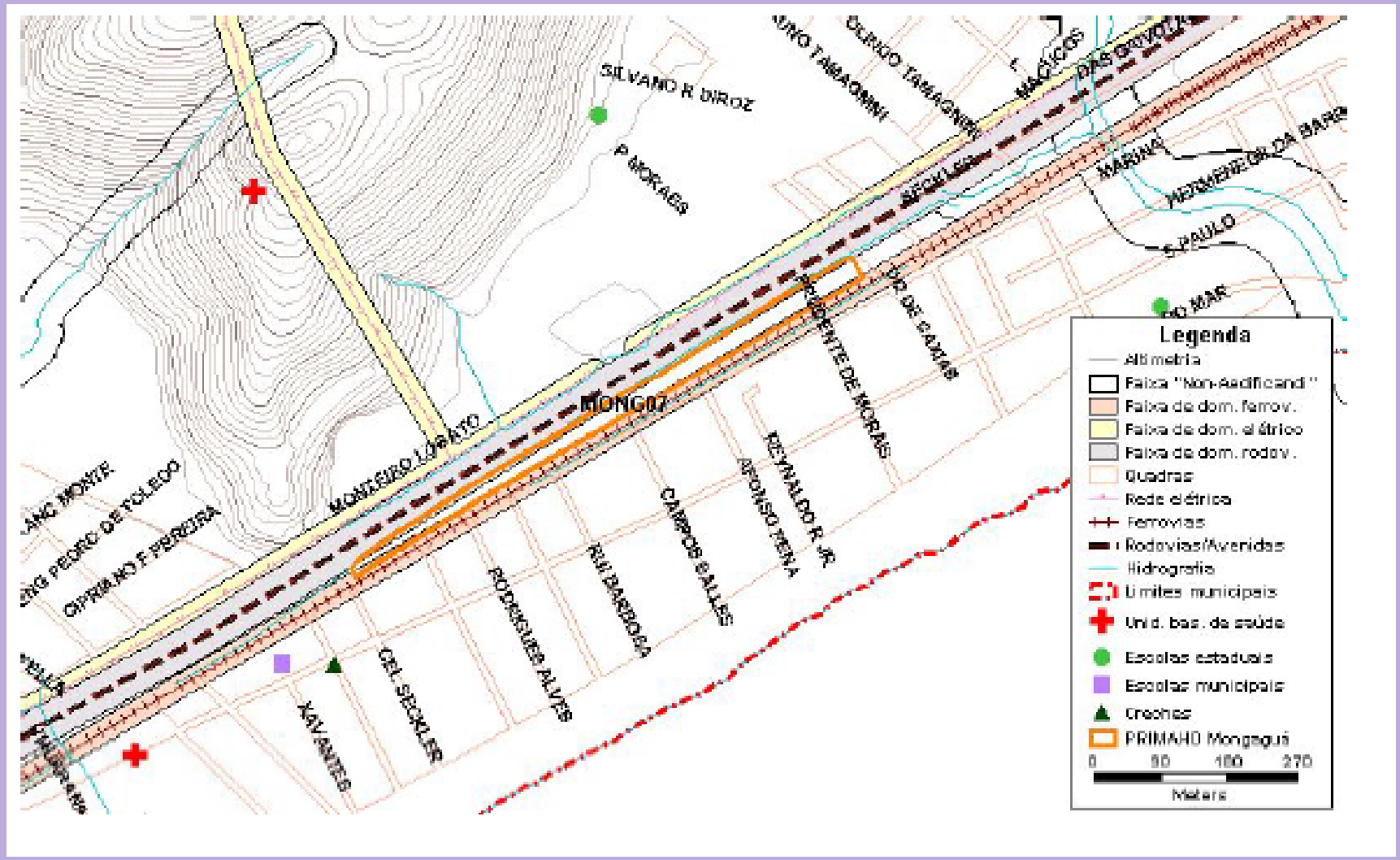
AGEM, 2005

Risk mapping



Risk mapping in areas of Road and Railway

Risk mapping in areas of Road and Railway



People Living in areas of Mangue (wetland)

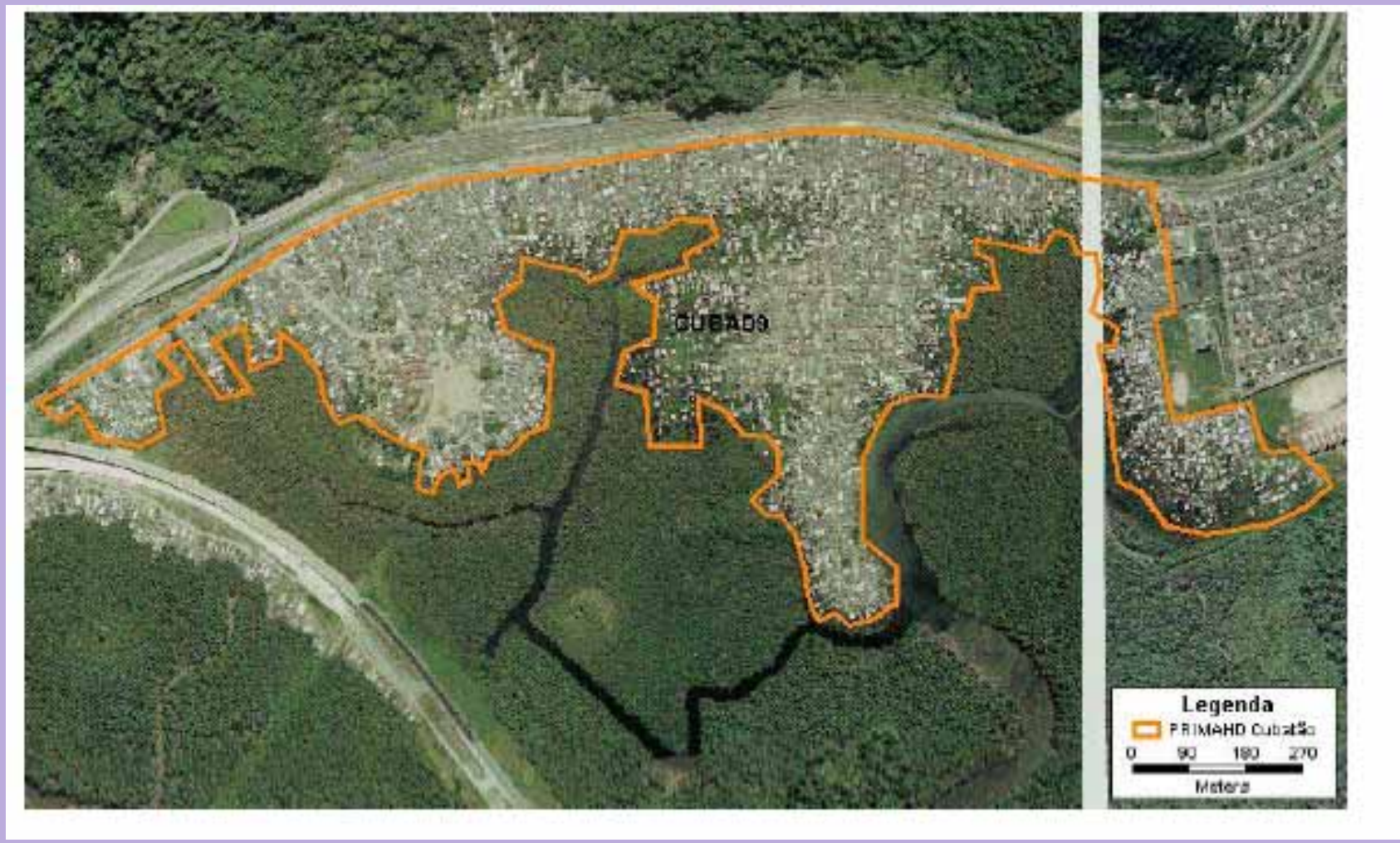
It becomes urgent the establishment of strategies for a more efficient occupation of the territory and use of the natural resources seeking to reduce environmental threats that put the coastal population at risk.


UIT 1 -
Centro/
Boqueirão

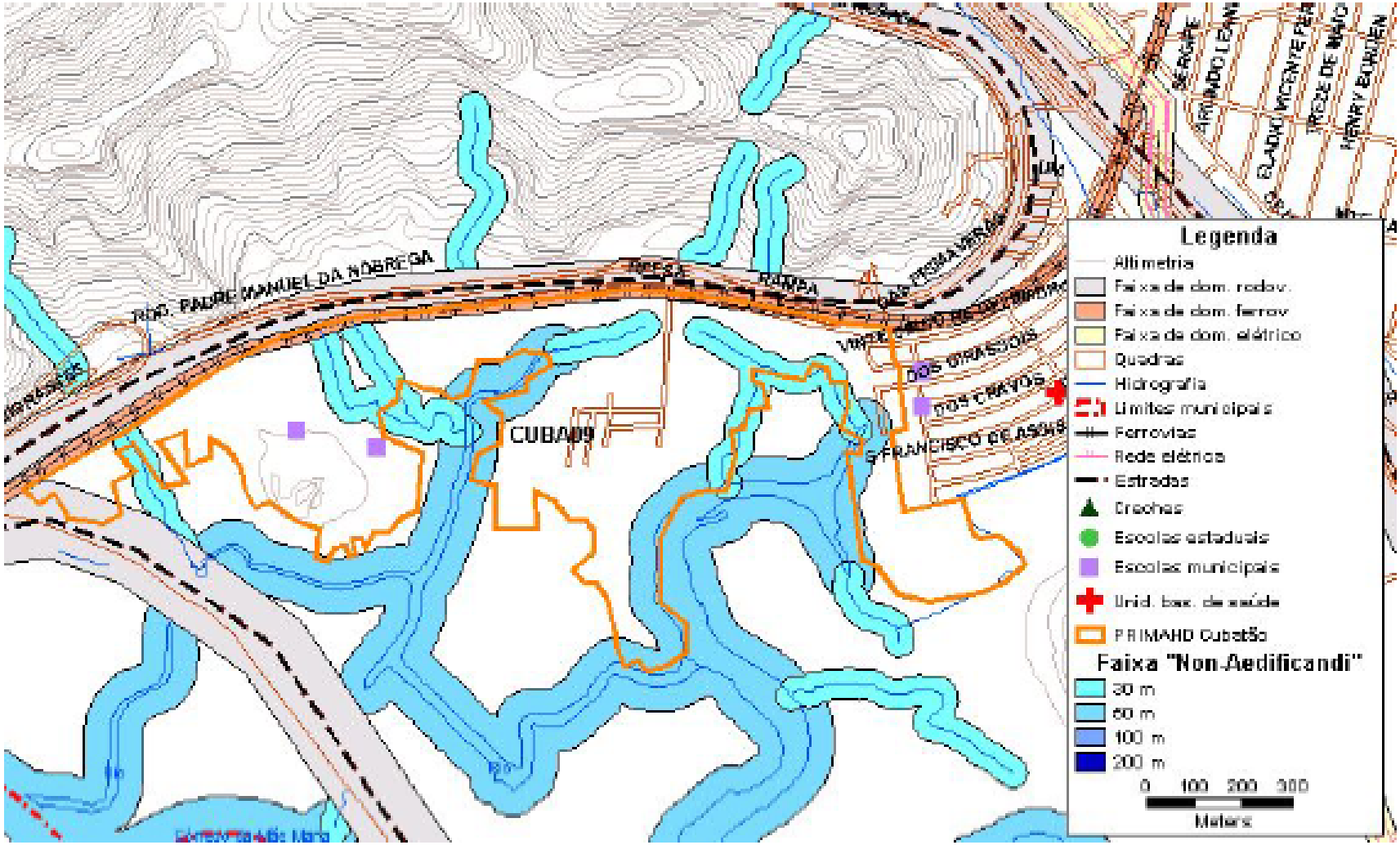
Different patterns of occupation – income reasons

Social Dissimilarities: People living in inadequate areas

People Living in areas of landslide (areas of drainage)



People Living in areas of landslide (areas of drainage)



Panoramic View of Manguezal behind of Mountain

Cota Neighborhood at Mountain

People Living in Areas of Landslide