



**ZEE-SP**

**(EEZ-SP) ECOLOGICAL-ECONOMIC ZONING**

**2022**



# Characterization of São Paulo\*

\*Source: RQA 2021 – Environmental Quality Report 2021



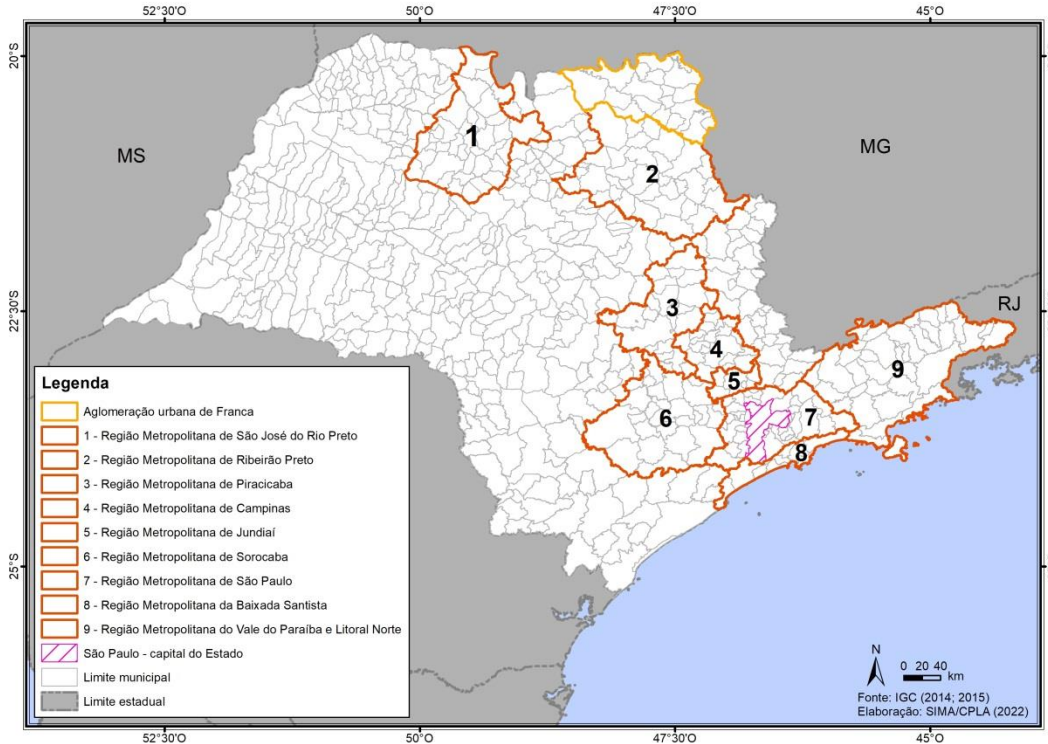
# BRAZIL - POLITICAL-ADMINISTRATIVE ORGANIZATION



- Presidential Federative Republic, composed of the union of 26 states, the Federal District and 5,570 municipalities;
- São Paulo is one of the 26 states, located at the Southeast Region of Brazil;
- The state has about 44.6 million inhabitants and is managed by a governor. It comprises 645 municipalities, managed by mayors;
- The Metropolitan Regions (MR) and Urban Agglomerations (UA) constitute political-spatial cutouts that aggregate contiguous municipalities, without a specific regional governance structure;



# THE STATE OF SÃO PAULO

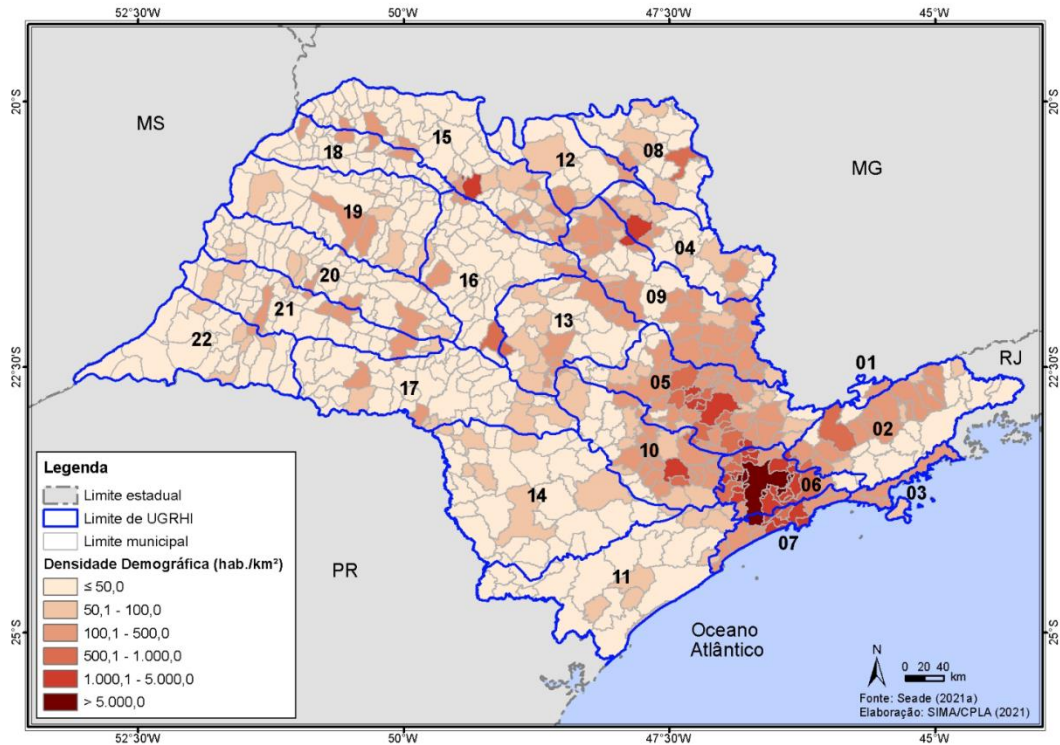


- 2.9% of the Brazilian territory, with 248,219.481 km<sup>2</sup> (almost the same size as the United Kingdom – 243610 km<sup>2</sup>);
- Population in 2020: 44.6 million inhabitants (21.1% of the Brazilian population). England has nearly 56 million;
- Largest economy of the country;
- GDP: 31.6% of the national wealth (R\$ 2.210 trillion / US\$ 435 billion / £ 358 billion);
- In the State of São Paulo, there are 9 Metropolitan Regions (MR) and 1 Urban Agglomeration (UA). One of them is the MR of São Paulo, made up of 39 municipalities, with 22 million inhabitants;
- There is also the city of São Paulo, capital of the state, with about 12.3 million inhabitants.



# SOCIAL AND DEMOGRAPHIC DYNAMICS

## Population density



Population density (pop/km <sup>2</sup> )	N. of municipalities
< 50.0	368
50.1 – 100.0	100
100.1 – 500.0	118
500.1 – 1,000.0	21
1,000.0 – 5,000.0	28
> 5,000.0	10

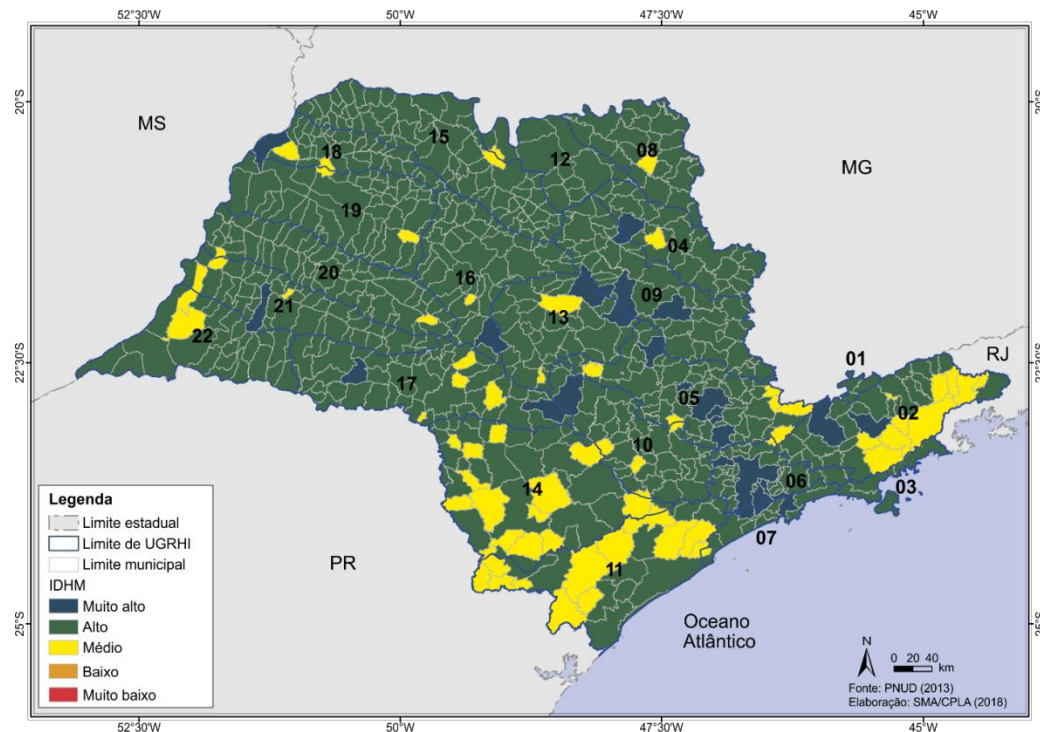






# SOCIAL AND DEMOGRAPHIC DYNAMICS

## Municipal Human Development Index (MHDI)

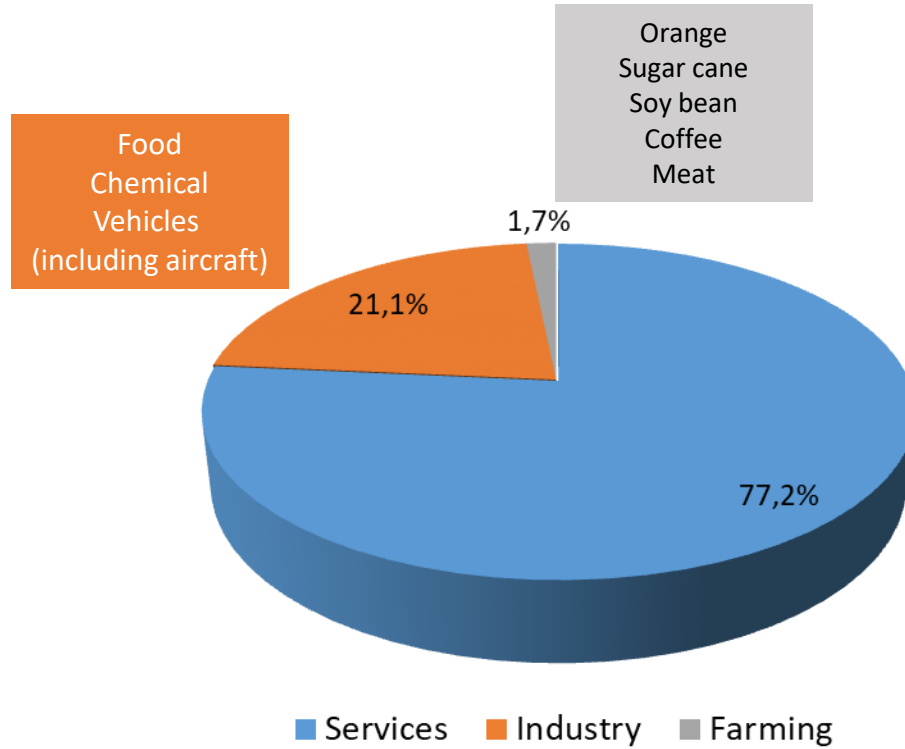


MHDI (2010)	N. of Municipalities
Very high	24
High	559
Medium	62

**State HDI: 0.826**  
**(UK: 0.932)**

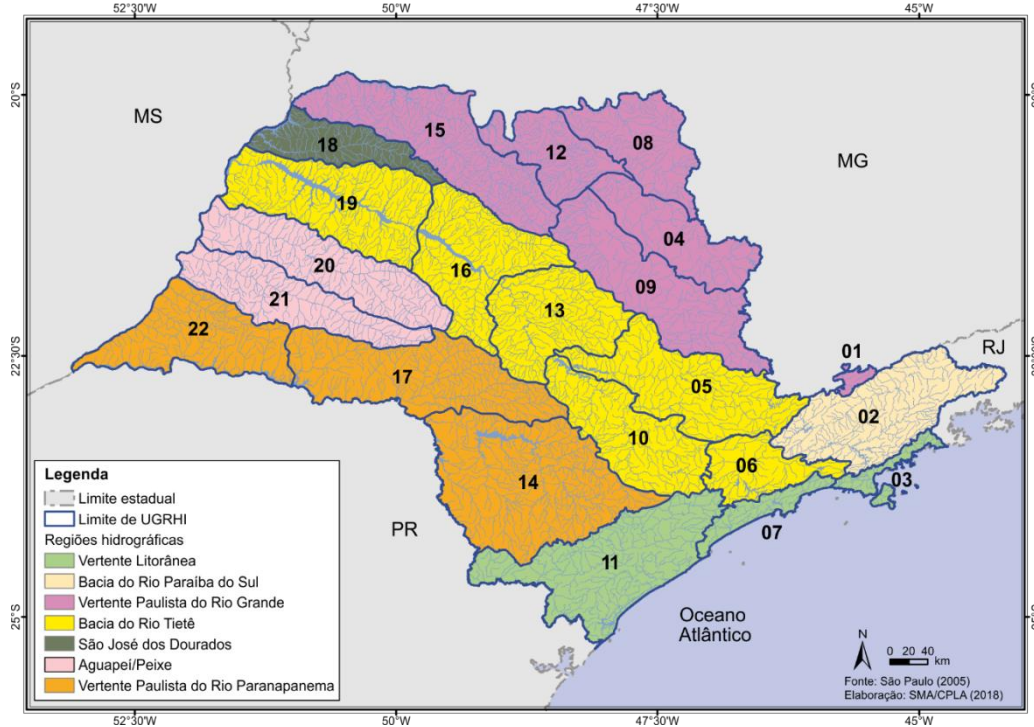


# ECONOMY





# GEOGRAPHIC DIVISION

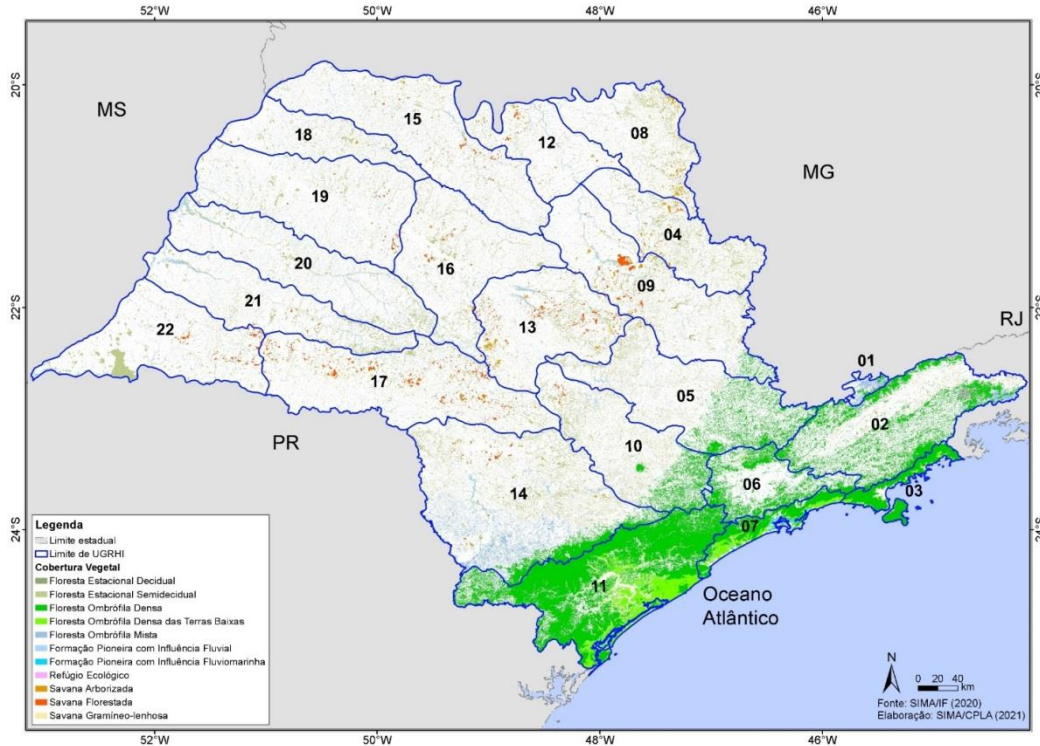


**Unit of Water Resources Management – UGRHI** (State Policy of Water Resources (State Law nº 7,663/91))

The watersheds are the unities of management and planning.



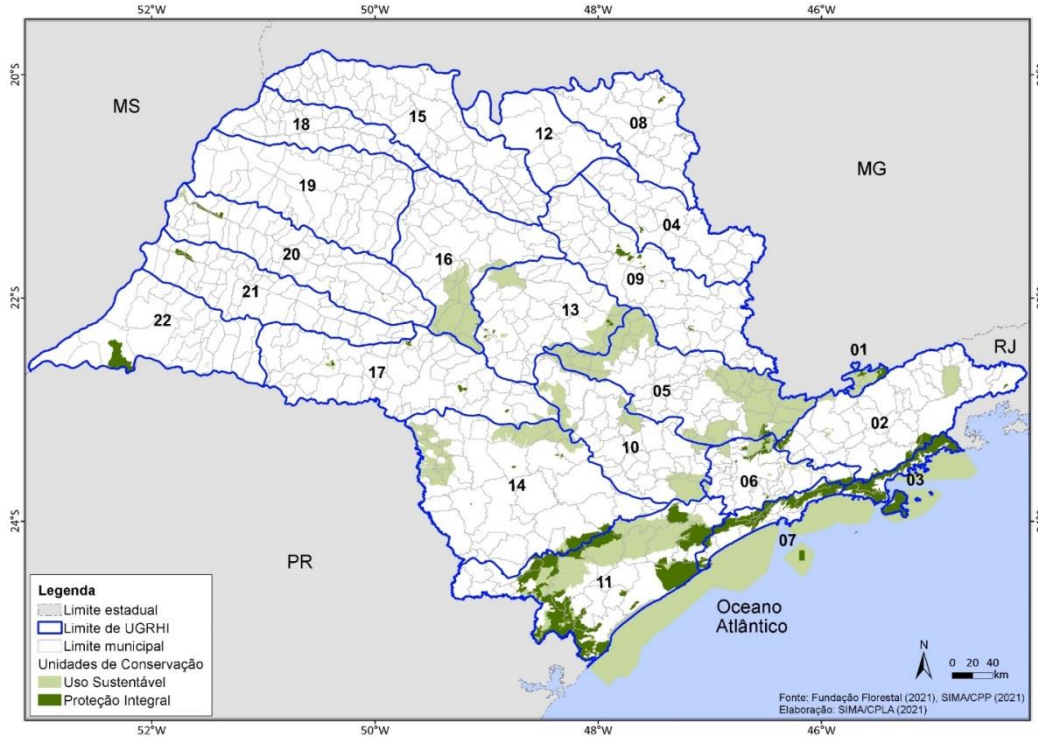
# BIODIVERSITY



- Native vegetation: 22.9% of the state (5,670,532 hectares)
- Biomes Cerrado and Atlantic Forest



# PROTECTED AREAS



177 protected areas under the administration of the Secretariat for Infrastructure and Environment / Foundation for Forest Conservation and Production of the State of São Paulo .



# Let's talk about SIMA...



# GOVERNMENT STRUCTURE – 24 Secretariats

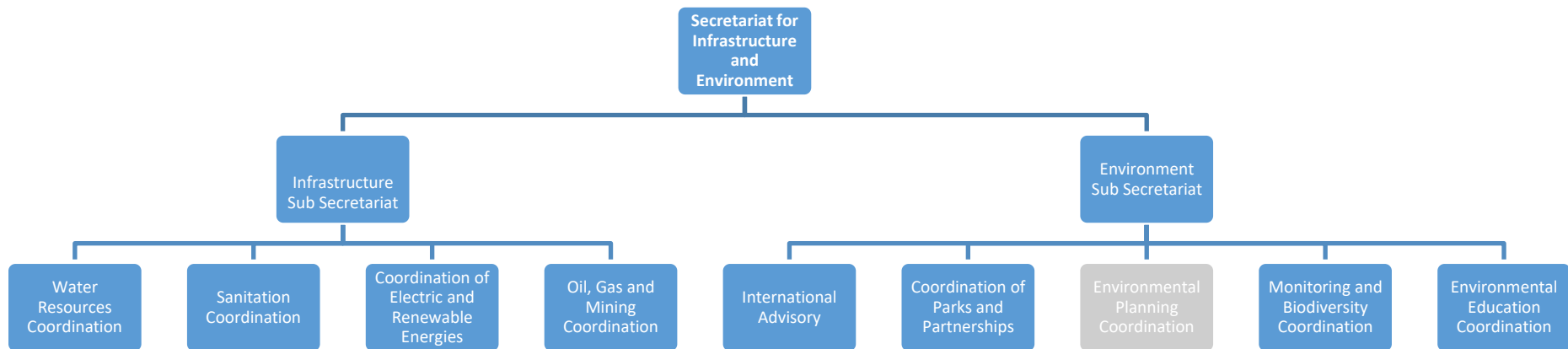
Government of the State of São Paulo

Prison Administration  
Agriculture and Supply  
Civil Office  
Military Office and Civil Defense  
Communication  
Culture and Creative Economy  
Economic Development  
Regional Development  
Social Development  
Rights of the Person with Disability  
Education  
Sports  
Treasury and Planning  
Government  
Habitation  
Justice and Citizenship  
Infrastructure and Environment (SIMA)  
Logistics and Transportation  
General State Attorney  
International Relations  
Health  
Public Security  
Metropolitan Transport  
Tourism





# SIMA STRUCTURE



## LINKED ENTITIES:

- DAEE – Water and Electric Energy Department
- EMAE – Metropolitan Company of Waters and Energy
- Basic Sanitation Company of the State of São Paulo – SABESP
- Foundation for Forest Conservation and Production of the State of São Paulo – Fundação Florestal
- São Paulo Zoo Park Foundation
- CETESB – São Paulo State Environmental Company





# OUR TEAM



# EEZ - Assertions and objectives



# ASSERTIONS

- Legal basis (PEMC – Climate Change State Law – State Law n. 13,798/2009 and State Decree 66,002/2021);
- Strategic territorial planning for sustainable development;
- Focus on shared management (multi-scale and multi-theme);
  - Importance of municipal management – constitutional attributions of territorial management – 645 municipalities in the State of São Paulo + 23 State secretariats
- Geotechnologies – monitoring, access to information and tracking;





# APPLICATION

1. To merge vision, objectives and management of the sustainable development.
2. To indicate the environmental and socioeconomic **POTENTIALITIES** and the **VULNERABILITIES** of the territory, contributing to:
  - **STRATEGICALLY GUIDING** public and private **INVESTMENTS**;
  - **SUPPORTING** licensing, compensation, recovery and environmental inspection;
  - Influencing the **INTEGRATED DEVELOPMENT** of public policies (elaboration, implementation and updating).
3. To provide environmental, social and economic **INDICATORS**, with constant updating, in order to keep up with the social, economic and environmental dynamics of the State.
4. To provide more efficiency in the decision-making processes and transparency of the Public Administration.



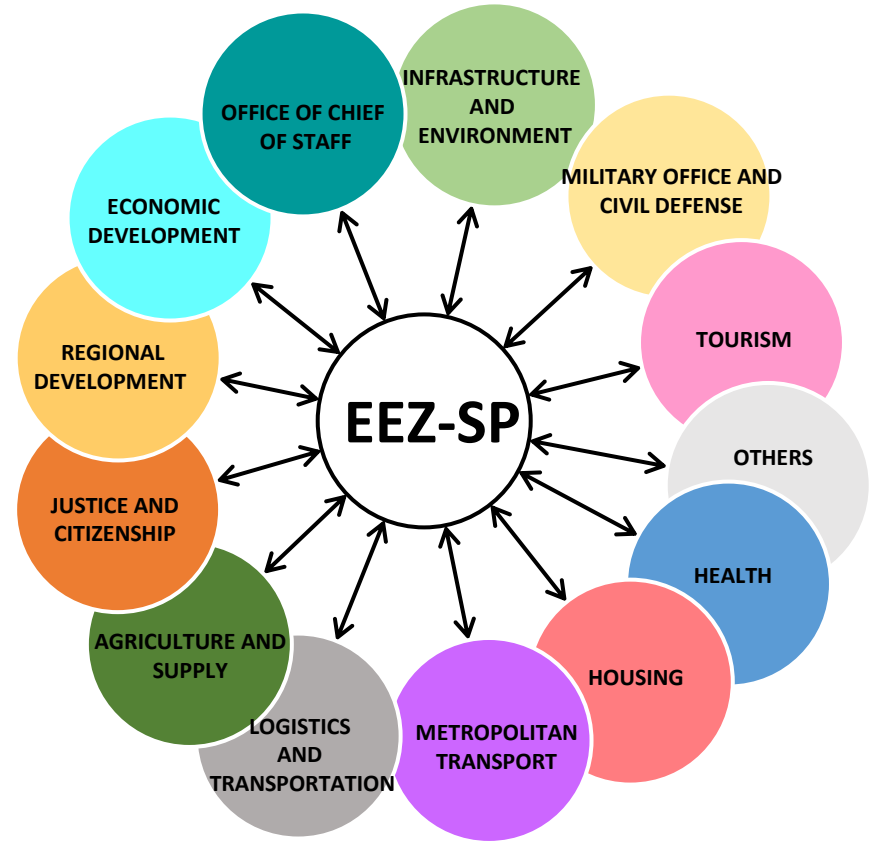
# INSTITUTIONAL ARTICULATION

**Legal basis** - Decree n. 64,526/2019

## **Attributions:**

- To assist the elaboration of EEZ-SP and to collaborate with technical subsidies;
- To appreciate and validate the ZEE-SP proposal;
- To assist its implementation.

**Composition:** 12 secretariats



# EEZ - Elaboration of the proposal - products



# PUBLIC ROUNDS

## INITIAL STEP – 2018

**Sensibilization and identification of territorial vulnerabilities and potentialities**

12 regional workshops with the watershed committees (CBHs) in 2018

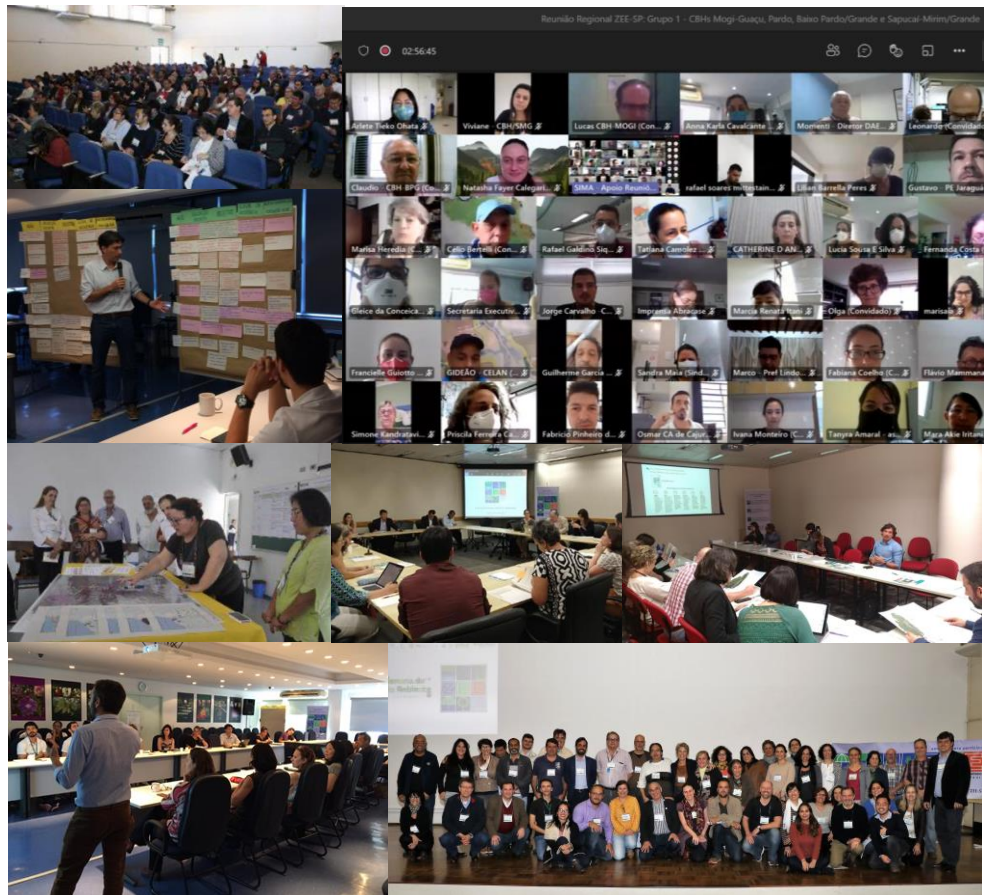
+ Dialogue Tables with: **NGOs; Universities and research institutes; Sectors**

## SECOND STEP – 2022

**Presentation of the products and of the zoning proposal to collect contributions**

9 regional meetings with the watershed committees (CBHs) in 2022

+ Dialogue Tables with: NGOs, Universities and research institutes, Sectors; ANAMMA (National Association of the Municipalities Environmental Institutions); Participe!; etc.



# A EEZ FOR WHICH SÃO PAULO STATE?



RESILIENT TO CLIMATE CHANGE



WITH WATER SECURITY



SAFEGUARDING BIODIVERSITY



SUSTAINABLE AND ECONOMICALLY COMPETITIVE

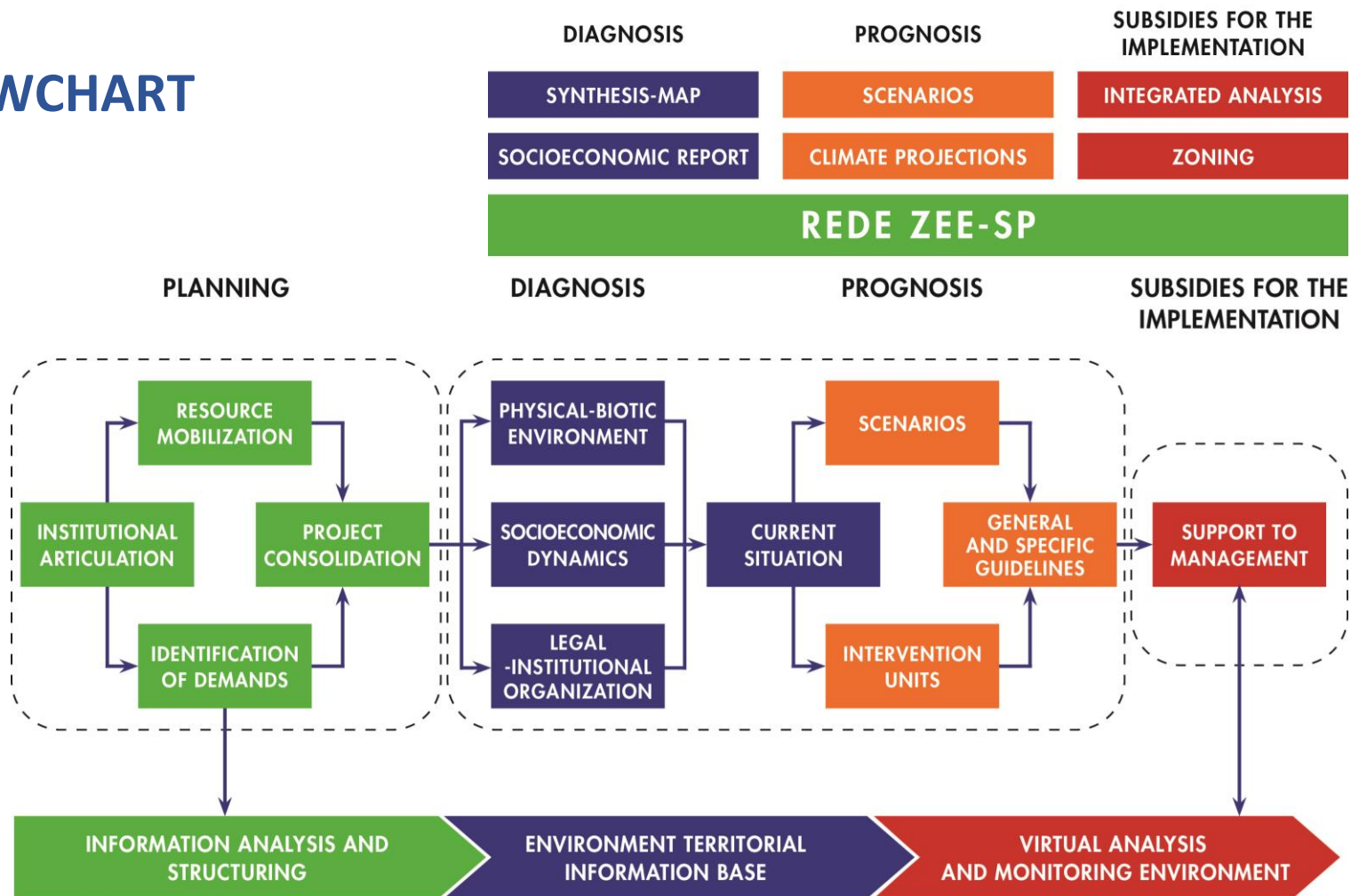


CAPABLE OF REDUCING REGIONAL INEQUALITIES





# FLOWCHART

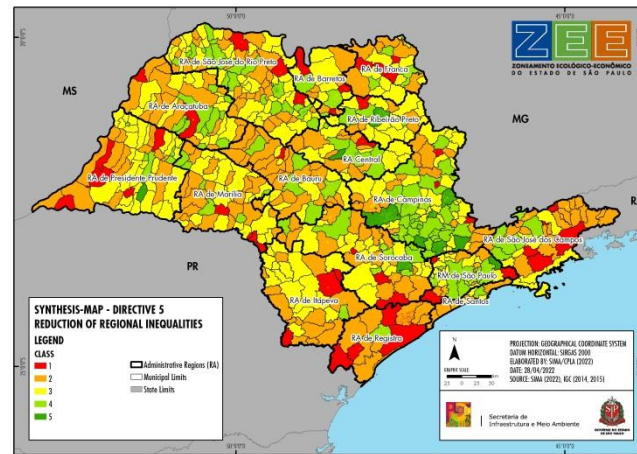
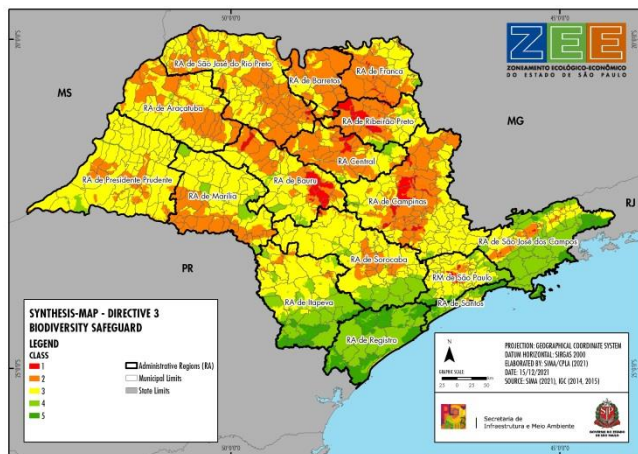
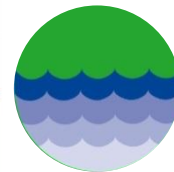
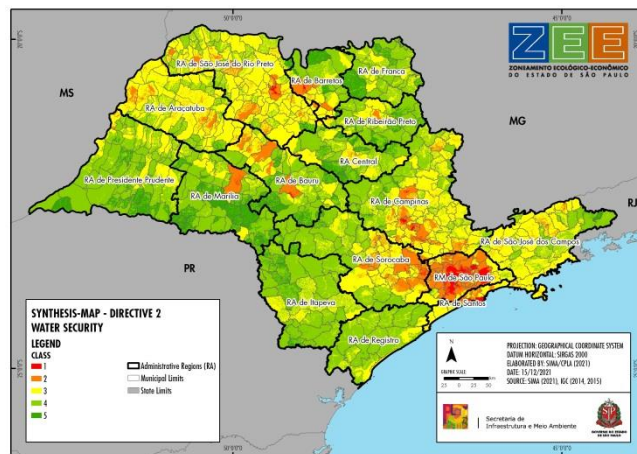
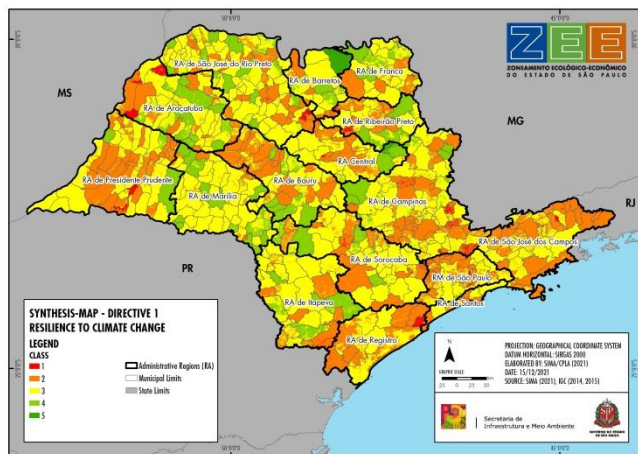


# SYNTHESIS-MAP

- OBJECTIVE: to express the situation of the state regarding the scope of each strategic directive;
- Representation in 5 classes, from the most critical (1 - red) to the most favorable (5 – dark green);
- Around 30 indicators per map with analysis in 200 x 200 m grid.

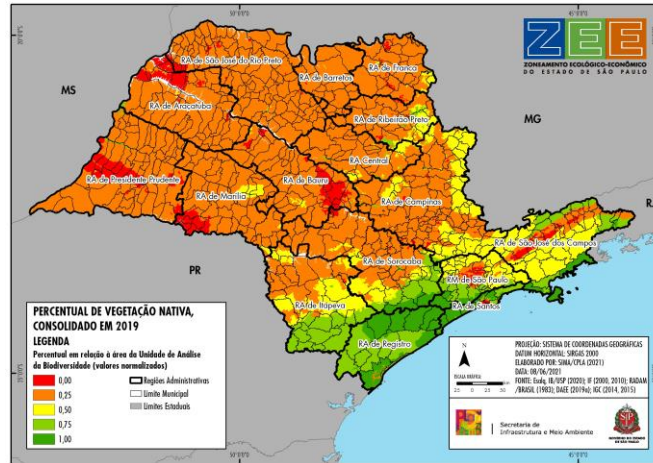


# SYNTHESIS-MAP

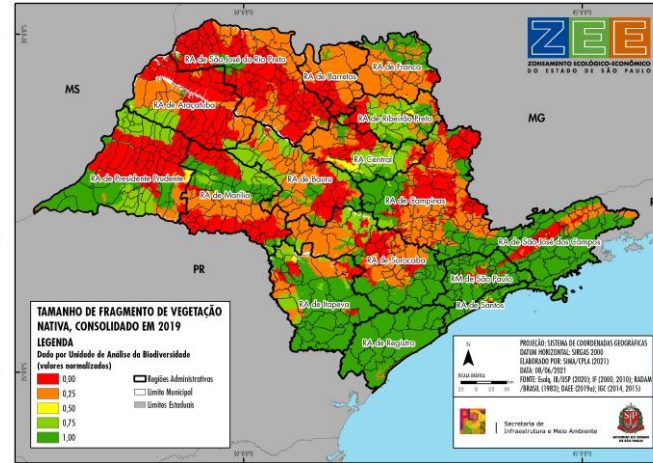


# SAFEGUARDING BIODIVERSITY – SITUATION INDICATORS (ex.)

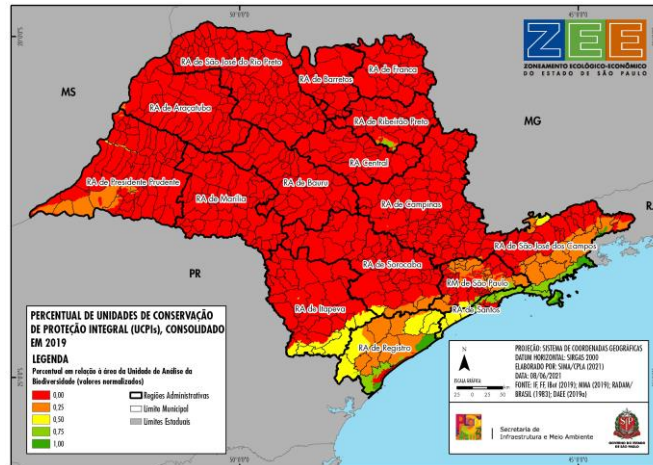
PERCENTAGE  
OF NATIVE  
VEGETATION



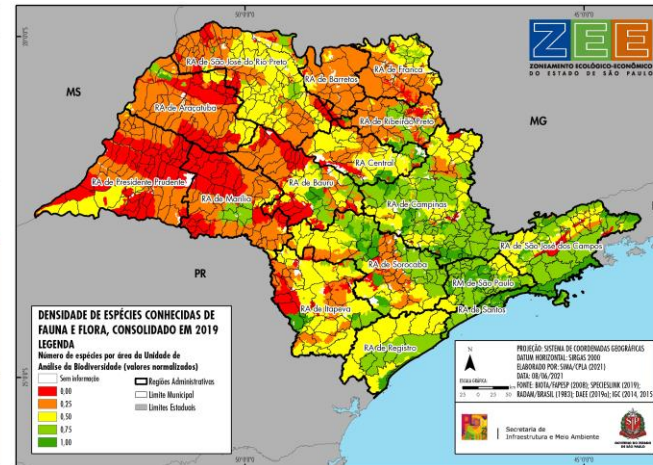
SIZE OF NATIVE  
VEGETATION  
FRAGMENT



PERCENTAGE  
OF INTEGRAL  
PROTECTION  
UNITS



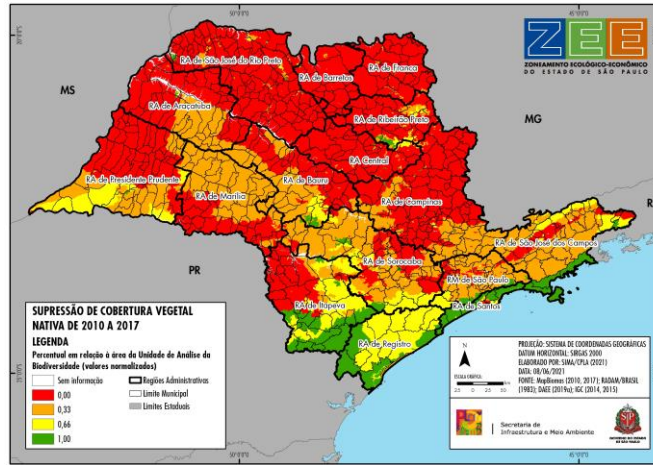
DENSITY OF  
KNOWN  
SPECIES OF  
FAUNA AND  
FLORA



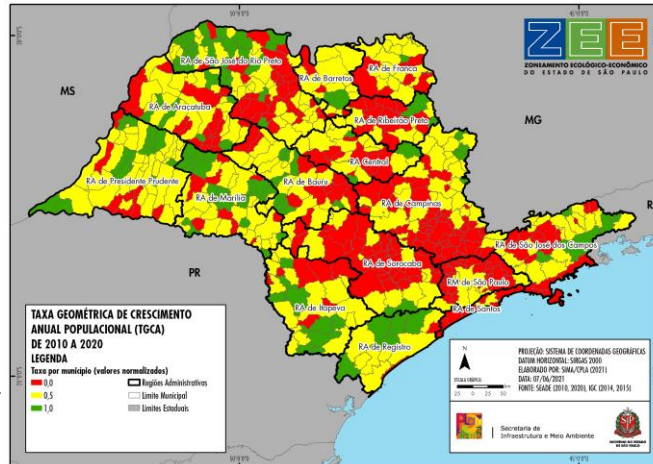


# SAFEGUARDING BIODIVERSITY – INDICATORS OF PRESSURE (ex.)

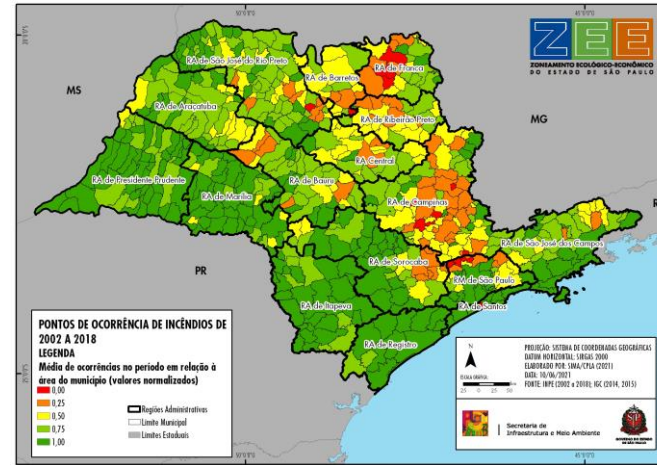
SUPPRESSION OF  
NATIVE  
VEGETATION  
COVER



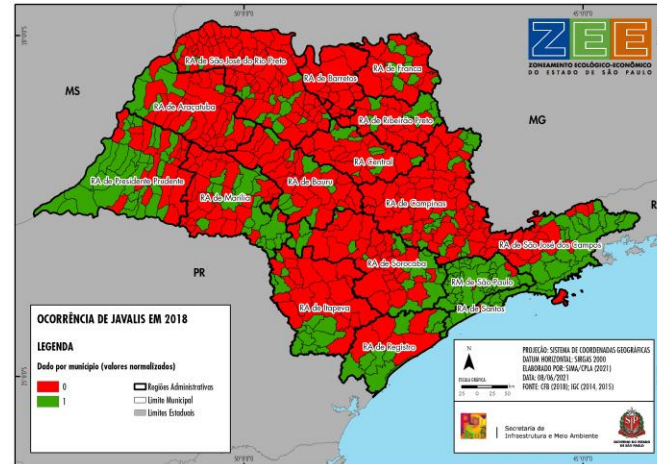
GEOMETRIC  
RATE OF ANNUAL  
POPULATION  
GROWTH



FIRE  
OCCURRENCE  
POINTS



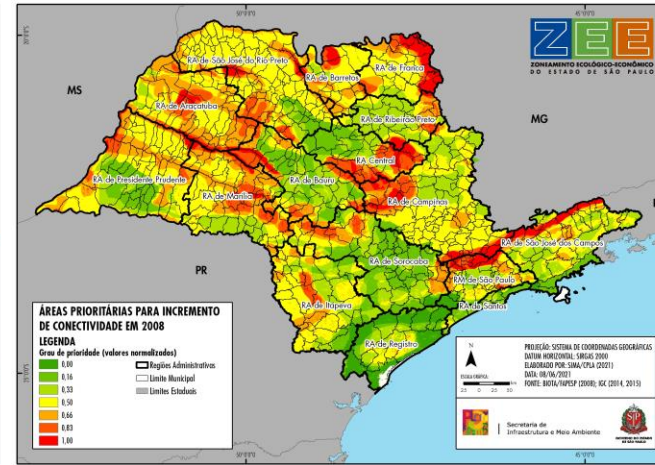
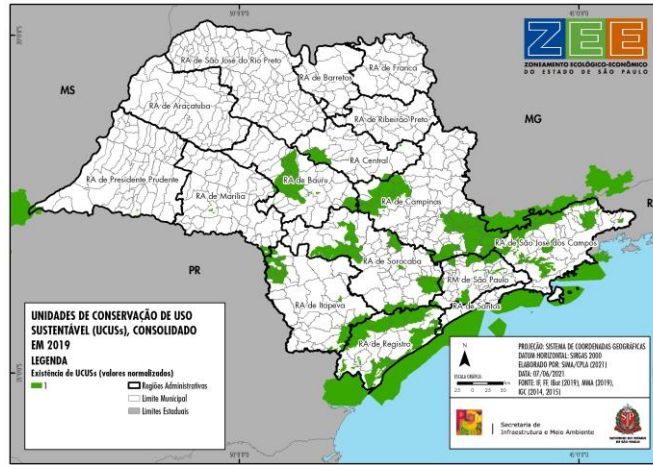
OCCURRENCE  
OF BOARS





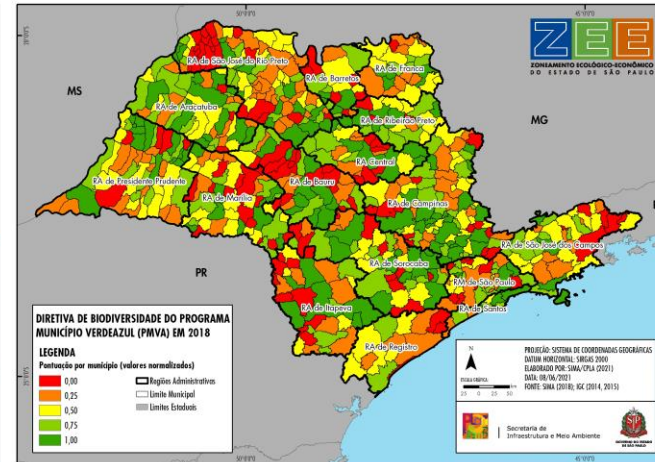
# SAFEGUARDING BIODIVERSITY – INDICATORS OF ANSWER (ex.)

SUSTAINABLE  
USE  
CONSERVATION  
UNITS



PRIORITY AREAS  
TO INCREASE  
CONNECTIVITY

SPRING  
PROTECTION  
AND RECOVERY  
AREAS



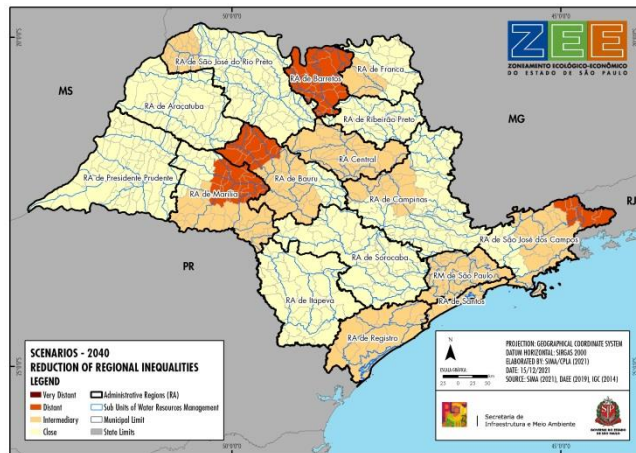
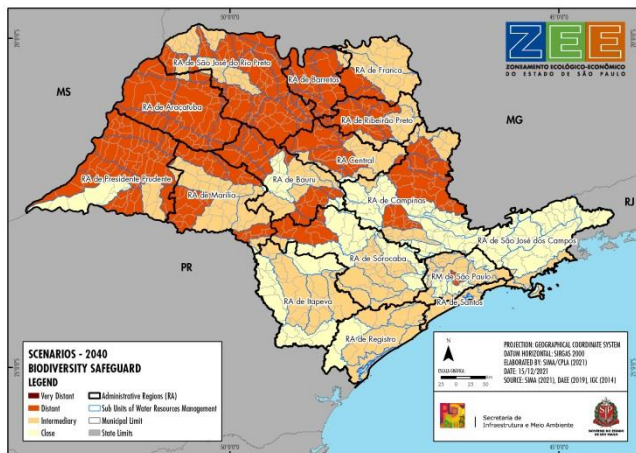
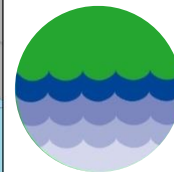
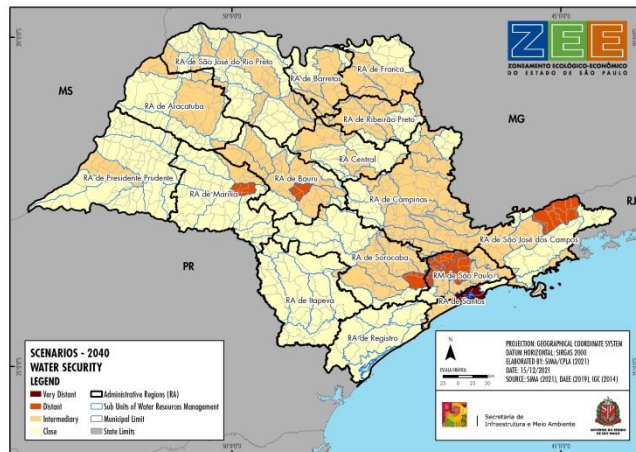
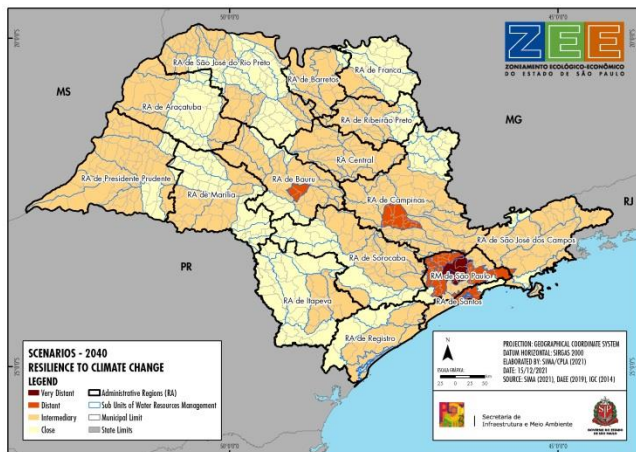
BIODIVERSITY  
DIRECTIVE OF  
MUNICÍPIO  
VERDEAZUL  
PROGRAM

# SCENARIOS

- OBJECTIVE: Situation of the state regarding the achievement of each strategic directive on the **2040 horizon**;
- Representation in 4 classes, from the furthest (dark brown) to the less distant (yellow);
- Around 10 analyzed variables per directive, with analyses by SUBUGRHI or Government Region.



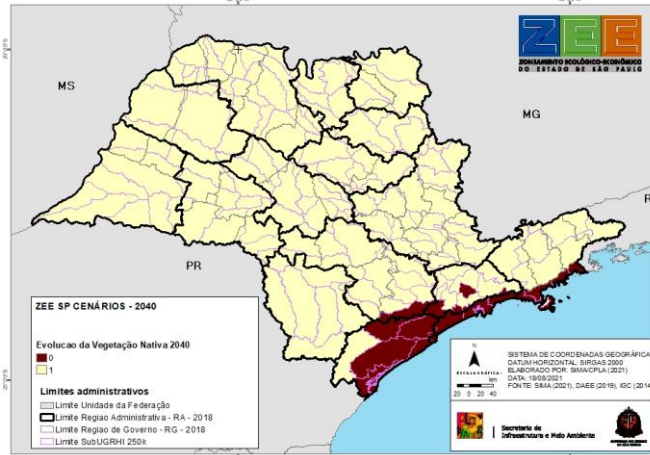
# SCENARIOS



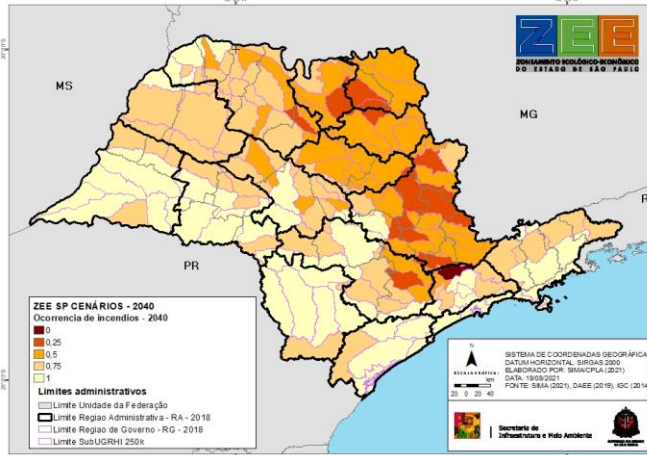


# SAFEGUARDING BIODIVERSITY – INDICATORS OF SCENARIOS (ex.)

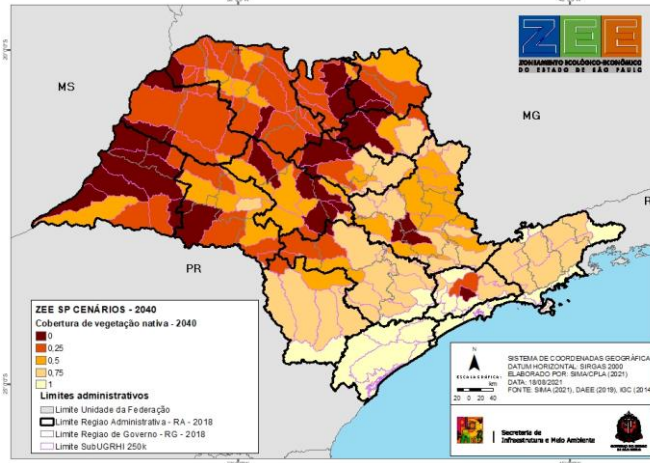
EVOLUTION OF  
NATIVE  
VEGETATION



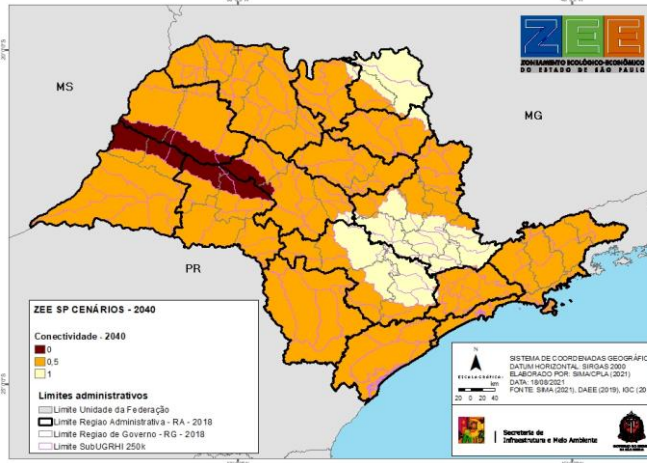
OCCURRENCE OF  
FIRE



PERCENTAGE OF  
NATIVE  
VEGETATION  
COVER



EVOLUTION OF  
CONNECTIVITY OF  
VEGETATION  
FRAGMENTS



# CLIMATE PROJECTIONS 2020-2050

**OBJECTIVES:** Climate characterization  
in horizon **2020-2050**;

**Comparations** related to the cl1961-1990;

**Scale approximation** of 4 global climatic models (MIROC5, HadGEM2-ES, BESM, CanESM2);

Scenario **RCP 8.5**;

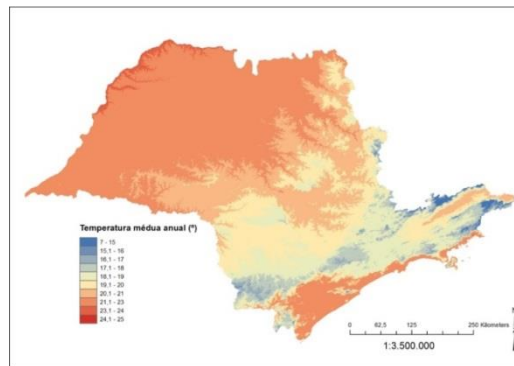
Analyses of **10 climatic elements** associated to temperature and precipitation;

Partnership with  
INPE/CPTEC (orientation of Dr. Sin Chan Chou e Dr. André Lyra;

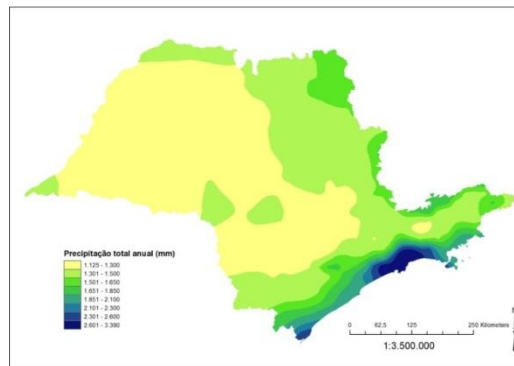
Grid 20km

climatological normal

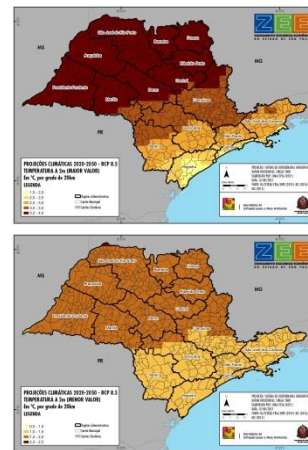
**Average air temperature (1961 – 1990)**  
Armani (2008)



**Total annual rainfall of wet days (mm)**  
Armani (2008)



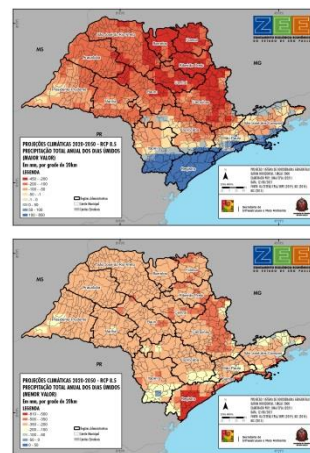
Deviation in relation to  
the historic period



➤ Projections:  
Warming signal in all  
the state and all  
the analysis

➤ Scenario RCP 8.5:  
From 1°C to 4°C higher  
than the current

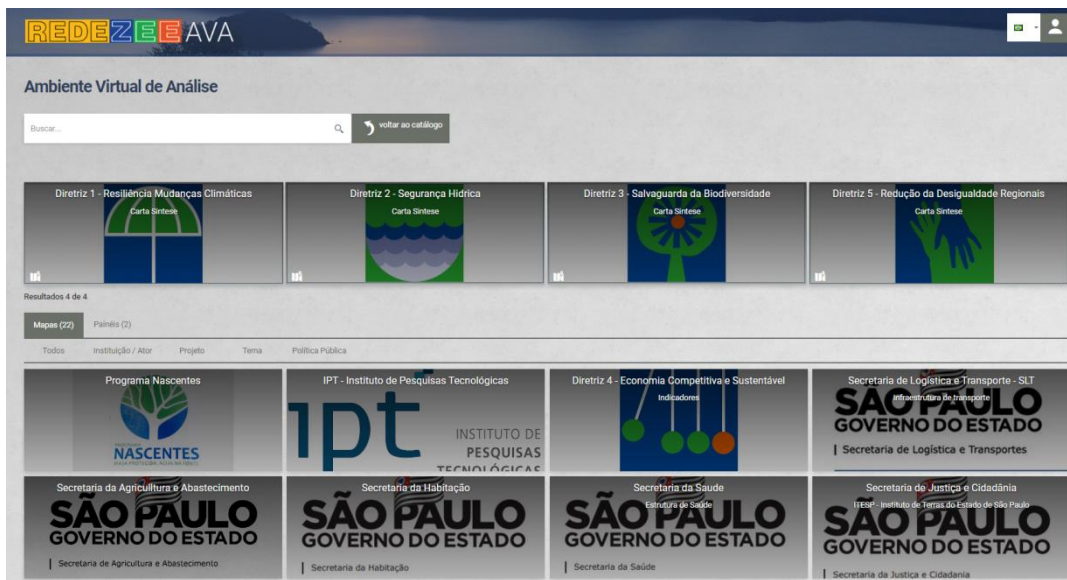
Deviation in relation to  
the historic period



➤ Shows the accumulated  
rainfall during the year

**INOVATION: CLIMATIC LENS  
ON THE STATE TERRITORIAL  
PLANNING**

# REDE ZEE-SP



- Interactivity, updating and sharing of strategic information
- Subsidies for decision making

Virtual Environment for Analysis and Dialogue – AVA: maps and panels platform for territorial analysis

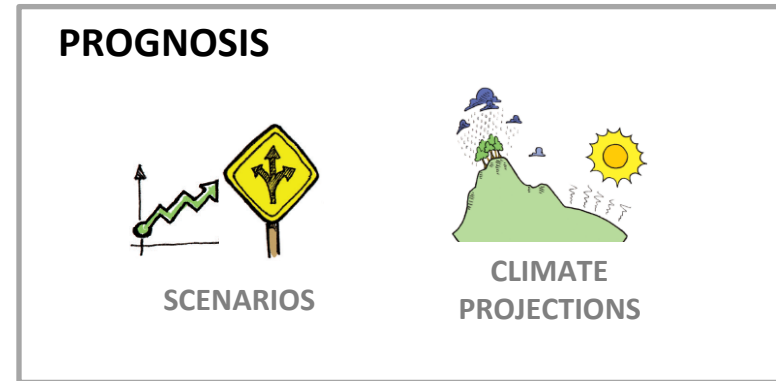
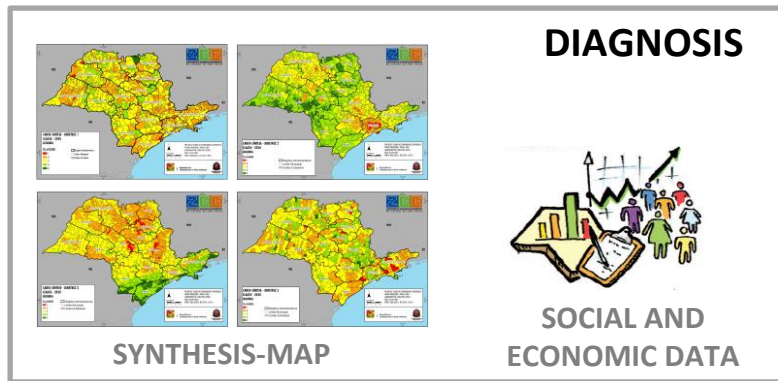




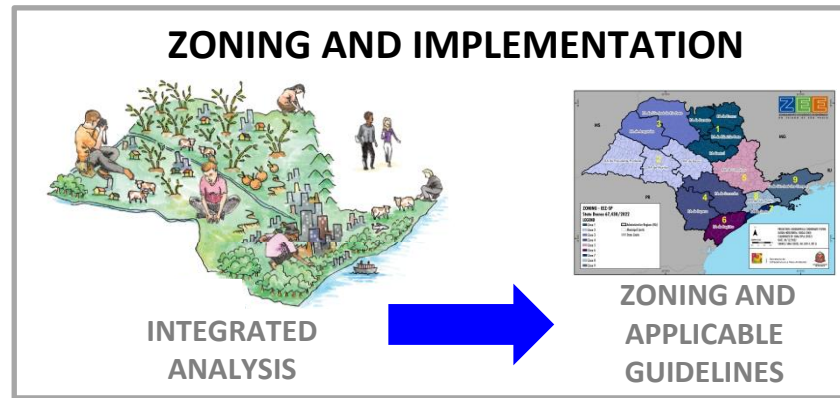
# EEZ – Zones and applicable guidelines



# INTEGRATED ANALYSIS



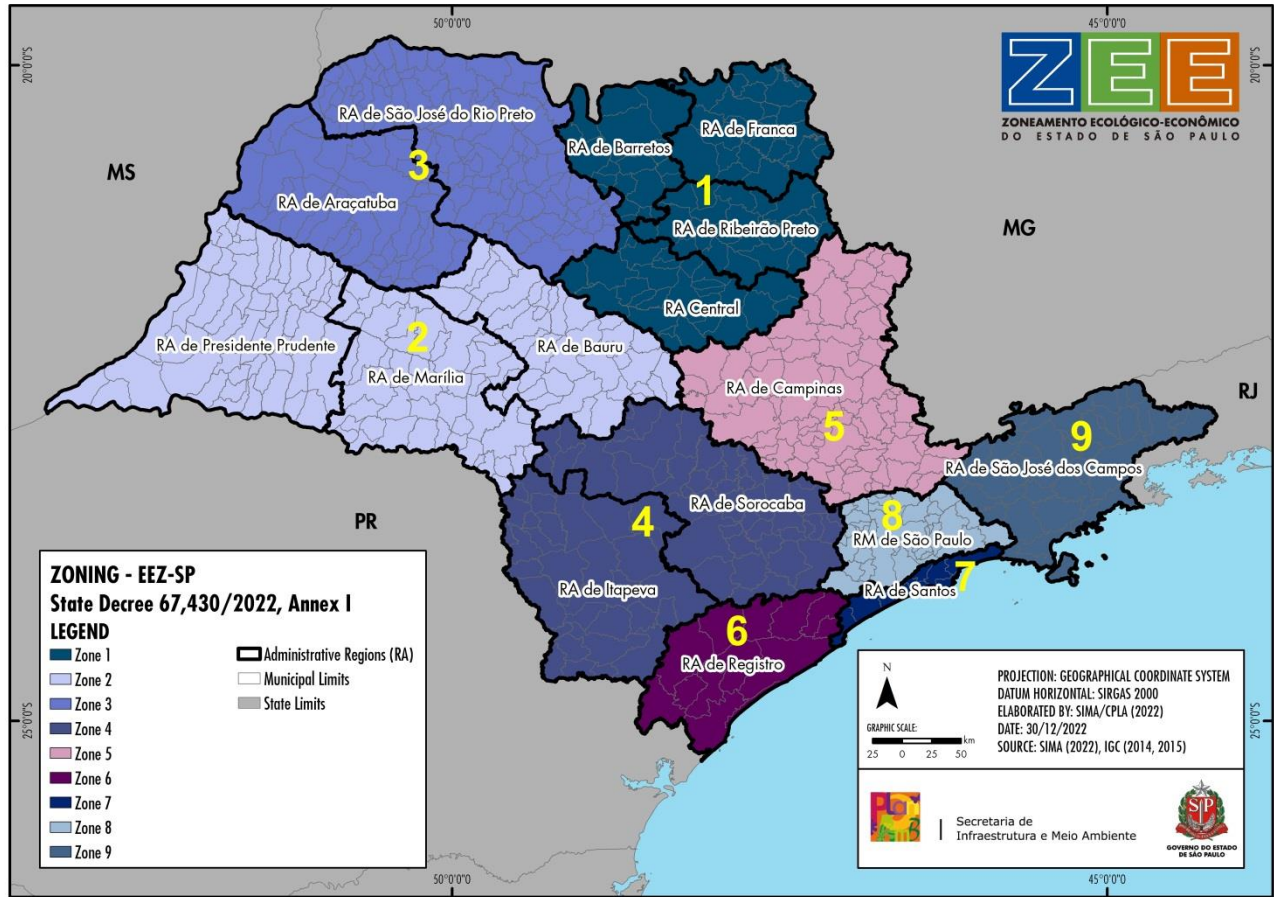
Agreements for defining zones and applicable guidelines



Applicable guidelines focused on the strategic guidelines of ZEE-SP



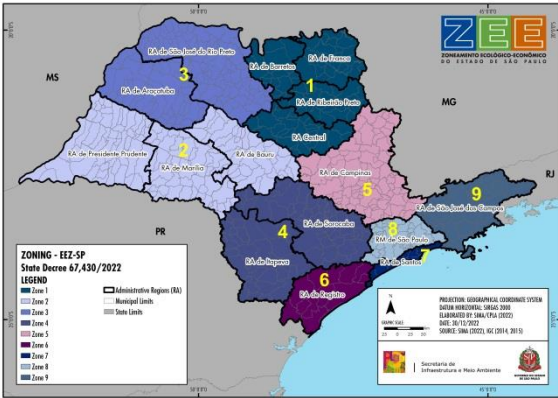
# Zoning – EEZ-SP: Management Zones



**State Decree nº 67,430/2022**  
Establishes the  
Ecological-Economic Zoning of  
the State of São Paulo – EEZ-SP

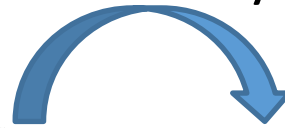


## Zoning: Management Zones and Applicable Guidelines



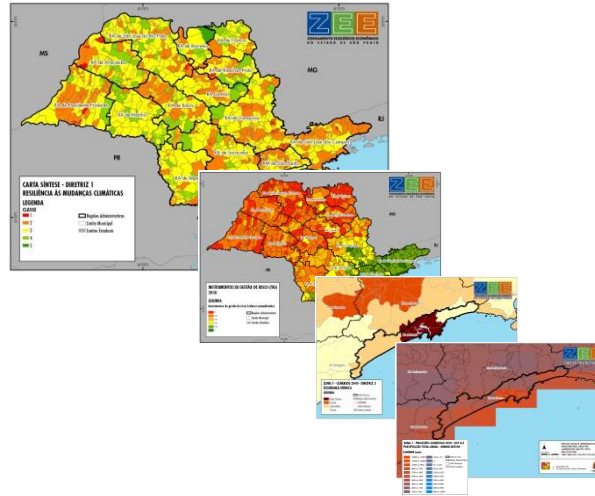
## 9 Management Zones

## Zones with Applicable Guidelines based on key-issues (current and criticality projected)



## Key questions:

- Critical condition
- Scenarios



### Applicable guidelines:

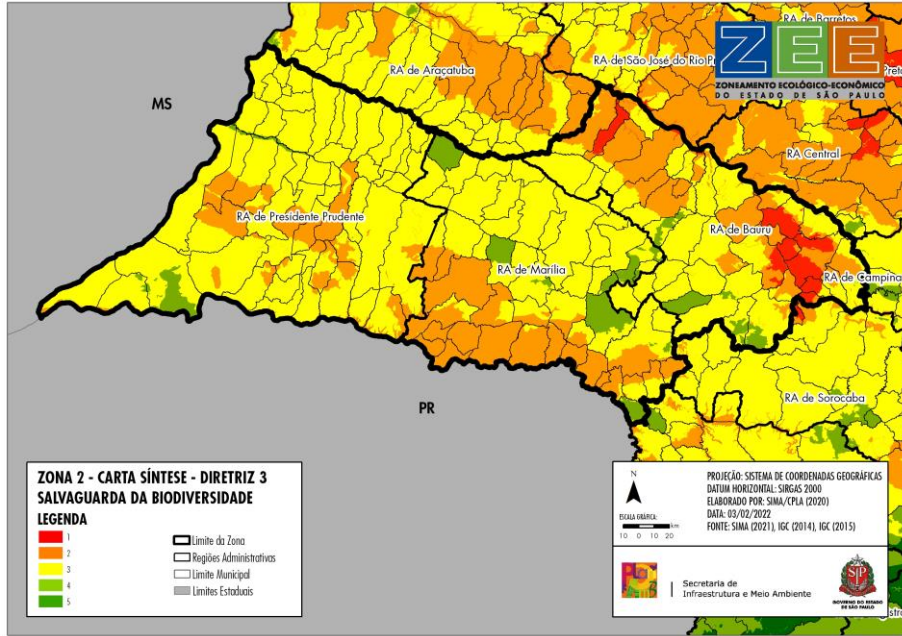
- Flora and fauna;
- Conservation units and protected areas;
- monitoring and management of biodiversity;
- Quality and quantity of water;
- Management and sanitation infrastructure;
- Risk and disaster management;
- Socioeconomic dynamics;
- Agriculture and livestock;
- Communication and transport infrastructure;
- Housing;
- Land cover;
- Energy;
- Traditional peoples and communities.



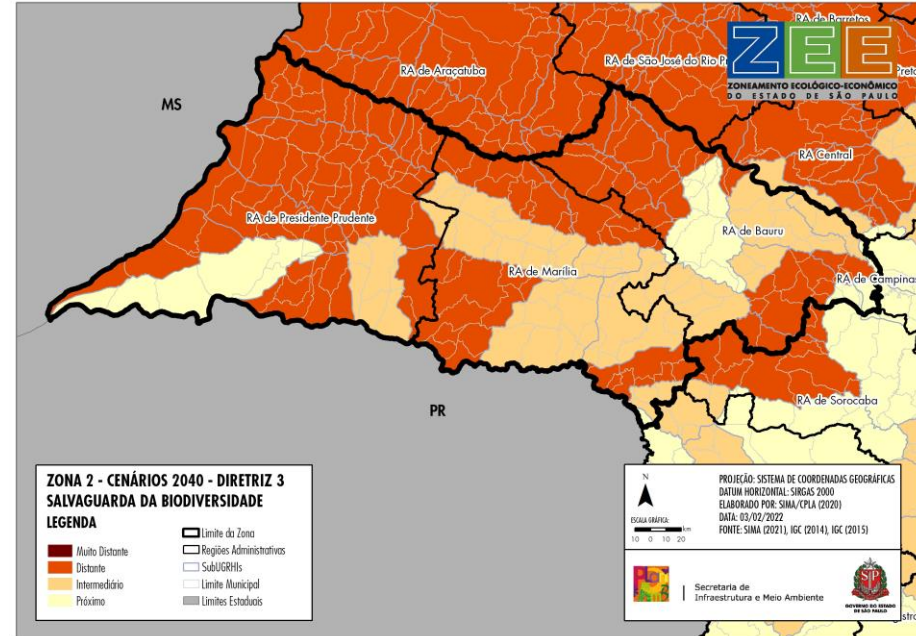


# SAFEGUARDING BIODIVERSITY- ZOOM – ZONE 2

## RAs Bauru, Marília and Presidente Prudente



Intermediate class predominance (yellow)

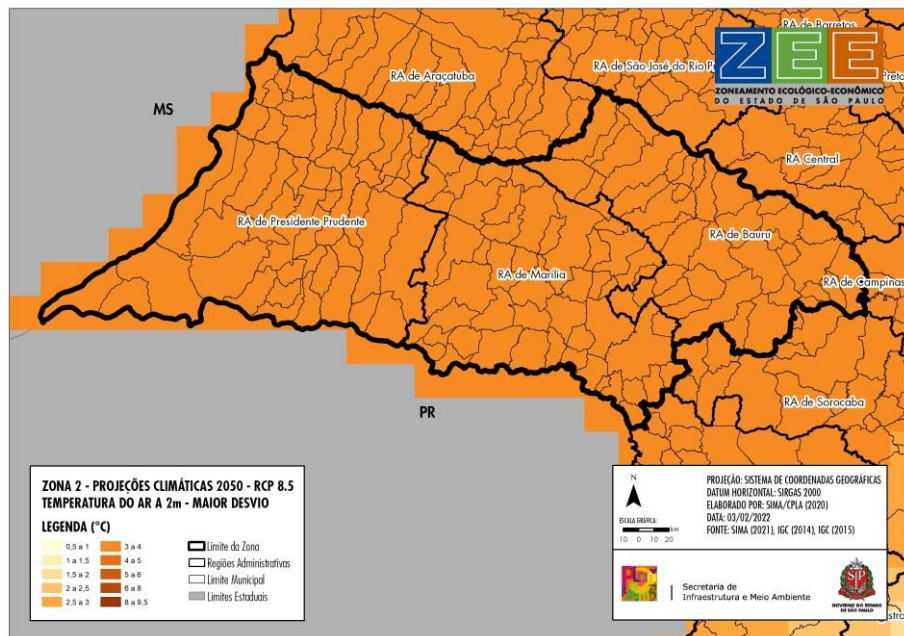


Near, intermediate and far classes

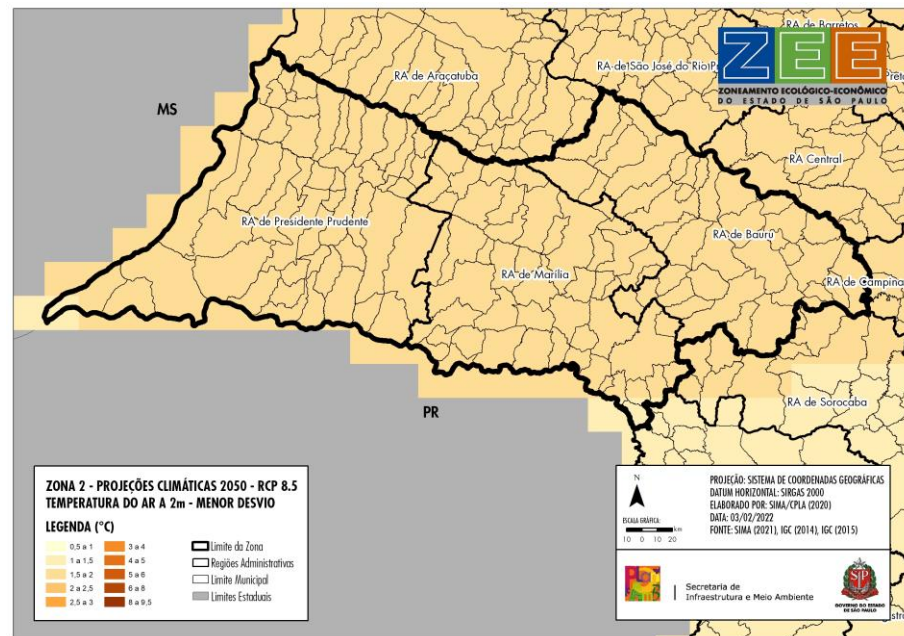


# ZONE 2 - CLIMATE PROJECTIONS - TEMPERATURE

## TEMPERATURE INCREASE SCENARIOS



Range of values in the Zone (largest deviation):  
from **3,29 to 3,75°C**



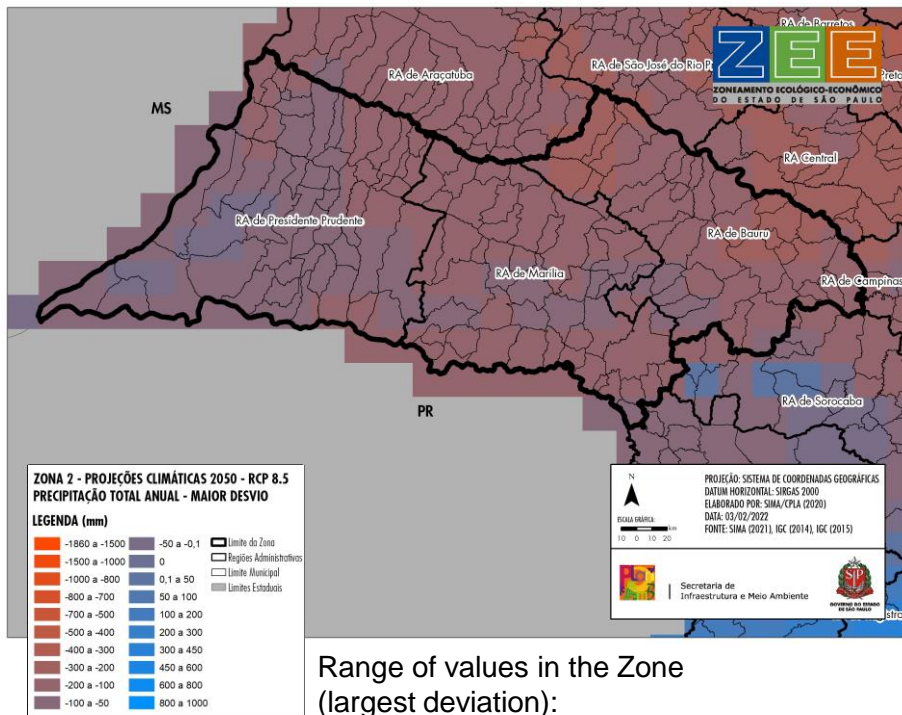
Range of values in the Zone (smallest deviation):  
from **1,47 to 1,70°C**



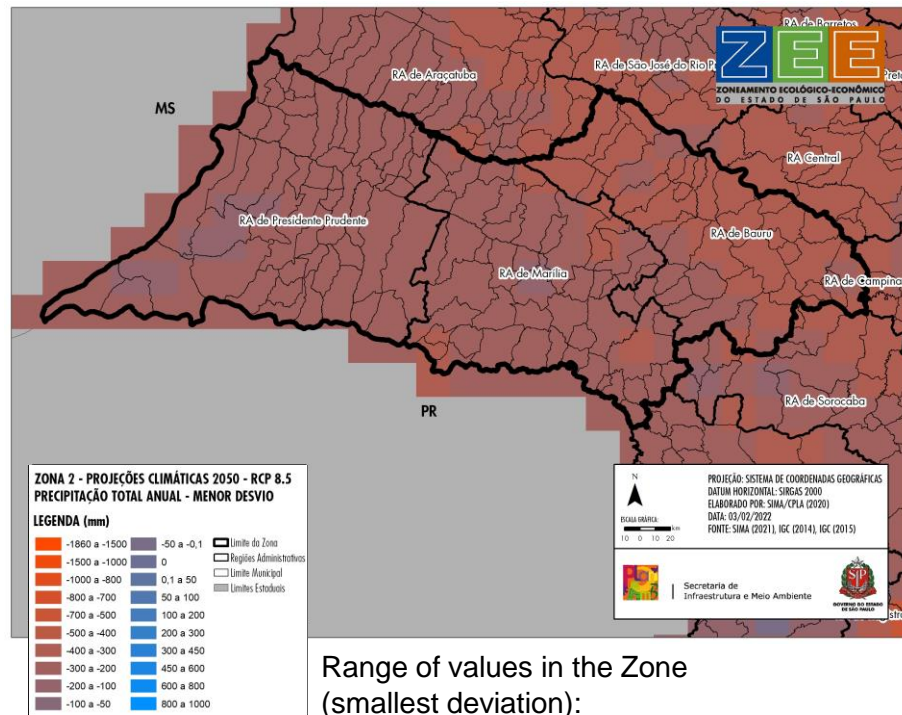


# ZONE 2 - CLIMATE PROJECTIONS - PRECIPITATION

## SCENARIOS OF TOTAL ANNUAL PRECIPITATION REDUCTION



Range of values in the Zone  
(largest deviation):  
from **-285 to 2 mm**



Range of values in the Zone  
(smallest deviation):  
from **- 374 to - 159 mm**



# SAFEGUARDING BIODIVERSITY – APPLICABLE GUIDELINES - ZONE 2

DIRECTLY RELATED (FLORA AND FAUNA; CONSERVATION UNITS AND PROTECTED AREAS; MONITORING AND BIODIVERSITY MANAGEMENT)

- Technical/financial support for environmental recovery and/or compensation actions;
- Initiatives for guidance/restriction of native vegetation suppression;
- Payment for Environmental Services Projects (PES);
- Implementation of native forest poles;
- Expansion of the network of protected areas through: conservation units (UCs), private conservation units (RPPNs), ecological corridors, updating the indication (mapping) of priority areas for the creation of UCs, etc;
- Elaboration of diagnosis, proposal, communication and monitoring for the protection of wild fauna;
- ...



# SAFEGUARDING BIODIVERSITY – APPLICABLE GUIDELINES - ZONE 2

SYNERGIC (AGRICULTURAL ACTIVITIES; WATER QUALITY AND QUANTITY; RISK AND DISASTER MANAGEMENT)

- To Increase the productivity and sustainability of agricultural activity through the dissemination of new technologies;
- To encourage programs, projects and actions aimed at food security, strengthening family farming and resilience to the effects of climate change;
- To expand the environmental regularization of rural properties through the Rural Environmental Registry (CAR) and the Environmental Regularization Program (PRA) and the Environmental Reserve Quota (CRA);
- To protect and restore spring and aquifer recharge areas;
- To foster research and measures on Nature-Based Solutions (NBs) as a way to improve water quantity and quality;
- To support the maintenance of vegetation cover and the recovery of permanent protected areas (APPs) to minimize erosive processes;
- (...)



# Implementation



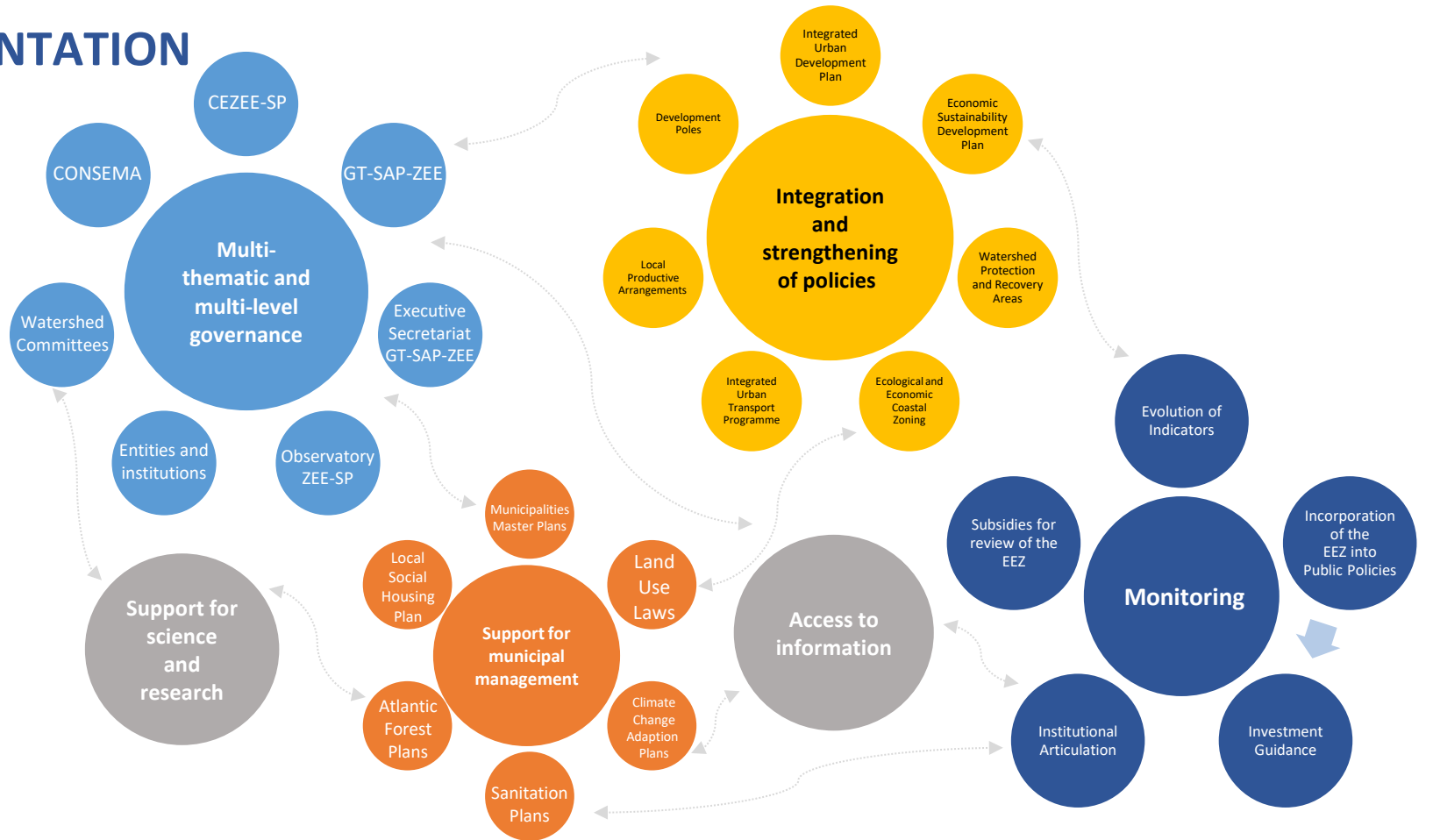
# IMPLEMENTATION

- **Strategic Analyses;**
- **Integration and strengthening of public policies:** coexistence with other instruments (regional development policies);
- **Support for municipal management** (Master Plans, PMMA, Climate Change Adaptation Plans);
- **Guidance for public and private investments** (corrective or proactive actions - criticality and potential);
- **Support for science and research** – information base for projects and research and identification of knowledge gaps (opportunities);
- **Access to information** (social control).

**Multiscalarity: coexistence between the Regional and the Local**



# IMPLEMENTATION





# CHALLENGES

- Dissemination and appropriation of available information and tools;
  - Promotion of technical training, prioritizing municipal management;
- Continuous articulation: institutions, sectors, academia, society;
  - Regional meetings and permanent dialogue tables;
- Regional governance
  - Integration of decision-making structures, multi-purpose consortia, new state regionalization, etc.



# TECHNICAL TEAM

## CEZEE-SP

State Commission for  
Ecological-Economic Zoning  
of São Paulo

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## Executive Secretary:

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## Collaboration of stakeholders from:



**GOVERNO DO ESTADO DE SÃO PAULO**  
Secretaria de Infraestrutura e Meio Ambiente



**IPA**  
INSTITUTO DE  
PESQUISAS AMBIENTAIS



**CETESB**



**ZOOLOGICO DE SÃO PAULO**



**sabesp**



**FUNDAÇÃO FLORESTAL**



**DAEE**





# **GOVERNO DO ESTADO DE SÃO PAULO**

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