MAPPING PRIORITY AREAS FOR FOREST COVER RESTORATION TO SUPPORT PUBLIC POLICIES FOR WATER RESOURCES PROTECTION

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BACKGROUND

BRAZIL: water in abundance, but unevenly distributed. In regions highly populated, water (in terms of quantity and quality) is already a problem.

Source: A.N.A.
BACKGROUND

PIRACICABA AND REGION: suffering with the pollution of the Piracicaba River since the 1970’s (industry, alcohol/sugar mills and domestic sewage).
BACKGROUND

Two well-defined seasons:

RAINY SEASON (October through March)
BACKGROUND

DRY SEASON (April through September)
BACKGROUND

Water treatment became economically unfeasible (concentration of pollution).

Consequence to Piracicaba: transfer of water withdrawal for public supplying from the Piracicaba River to the Corumbataí River (2000).
BACKGROUND
Corumbataí River Basin (1700 km²) is also highly impacted, mainly by agriculture and cattle ranching activities, that occupy areas originally covered by Atlantic Rain Forest and savannas.
1. INTRODUCTION

The loss of forest cover in a river basin has an important influence on water quality and quantity so, in 1999 it was established a 3-year agreement between the Water Department of Piracicaba (SEMAE) and the Forest Research Institute/University of São Paulo (IPEF/USP) for the development of a Director Plan for the Corumbataí River Basin, aiming at forest restoration and conservation.
1. INTRODUCTION
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**Project Branches:**

1. Geospatial technologies: definition of priority areas for forest planting and conservation;

2. Tropical forestry: definition of native species, appropriate to each different local condition and development of related technology;

3. Hydrology: relationship forest cover / water
2. DEFINITION OF PRIORITY AREAS

2.1. Generalities

**Digital Thematic Cartography**

- Remote Sensing
- Satellite Positioning System
- Geographic Information System

**Definition of priority areas:**

Pilot Project x River Basin
2. DEFINITION OF PRIORITY AREAS

2.1. Generalities

**APPROACH**: MULTI-CRITERIA / SINGLE OBJECTIVE

**CRITERIA**: FACTORS AND CONSTRAINTS

**DEFINITION OF FACTORS**: PARTICIPATORY TECHNIQUE

**WEIGHTS OF THE FACTORS**: PAIRWISE COMPARISON MATRIX

**PRIORITY AREAS MAP GENERATION**: WEIGHTED LINEAR COMBINATION (GIS)

**RESULTS CHECKS**: FIELD INSPECTION
2. DEFINITION OF PRIORITY AREAS

2.3. Steps

- **Satellite Images**
- **Topo Maps**
- **Land Use/Land Cover**
- **Roads**
- **Drainage Network**
- **Soils Map**
- **Meteorological Data Base**

- **Proximity to Roads**
- **Proximity to Headwaters**
- **Proximity to Forest Cover**
- **Proximity to Forest Cover**
- **Erodibility**
- **Erosivity**

- **Priority Areas for Forest Restoration and Conservation**
2.4. Factor Maps (Criteria)

An Example: Erodibility
2.5. Map of Priority Areas
2.6. Field Inspection
2.6. Field Inspection
3. PARTNERS

Water Department of Piracicaba (SEMAE)

Director Plan:
University of São Paulo (USP)
Forest Research Institute (IPEF)

Selection of Appropriate Tree Species:
State of São Paulo Forest Institute
3. PARTNERS

Seedlings Production and Environmental Education:
Piracicaba Municipal Secretariat of Environment and Planning

Selection of Interested Land Owners, Planting and Monitoring:
Intermunicipal Consortium of the Piracicaba, Jundiaí e Capivarí River Basins.
3. FUNDING

Director Plan:
Water Department of Piracicaba (SEMAE)

Planting and Monitoring:
Intermunicipal Consortium of the Piracicaba, Jundiaí e Capivarí River Basins
4. MAIN OBSTACLES

A. DIFFICULT COMMUNICATION BETWEEN: AGRONOMISTS/FORESTERS AND CIVIL ENGINEERS AGRONOMISTS/FORESTERS AND ADMINISTRATORS;

B. DIFFICULTIES WITH THE CHANGE OF THE MUNICIPAL ADMINISTRATION;

C. LACK OF A REGIONAL DIGITAL DATABASE.

D. RESTORATION IS AT A VERY SLOW PACE
5. CONSEQUENCES

A. DIGITAL DATABASE OF THE RIVER BASIN AVAILABLE (TO SCIENTISTS, STUDENTS, DECISION/ POLICY MAKERS ETC.);

B. INCREASINGLY LOCAL AWARENESS ON THE IMPORTANCE OF REMOTE SENSING AND GIS FOR ENVIRONMENTAL PLANNING;

C. SIMILAR PROJECTS TO OTHER AREAS HAVE BEEN REQUESTED;

ETC.
5. CONSEQUENCES

NEXT GENERATION OF DECISION MAKERS...EDUCATION
5. CONSEQUENCES

FARMERS INTERESTED IN RESTORING FOREST AREAS
5. CONSEQUENCES

FARMERS RESTORING FOREST AREAS
MAPPING PRIORITY AREAS FOR FOREST COVER RESTORATION TO SUPPORT PUBLIC POLICIES FOR WATER RESOURCES PROTECTION

OUR TEAM

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THANK YOU!