



ANALYSIS OF FLOOD CAUSAL FACTORS
AND THEIR POSSIBLE SOLUTION:
THE CASE OF ALMAFUERTE AVENUE

UNIVERSIDAD TECNOLÓGICA
NACIONAL



FACULTAD REGIONAL PARANÁ

CIVIL ENGINEERING DEPARTAMENT,
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2023



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INTRODUCTION

PARANÁ

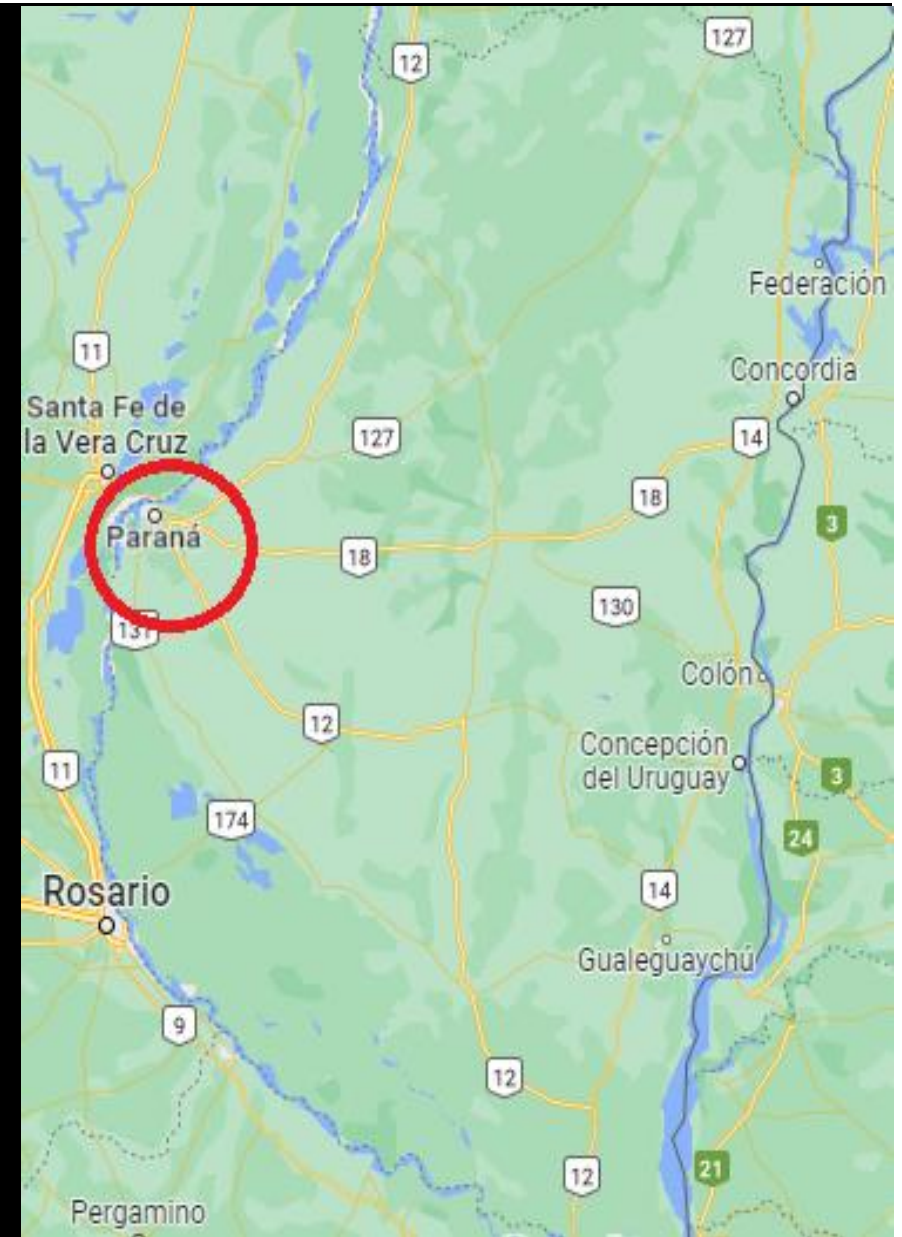
- 270 neighborhoods
- 340,000 inhabitants
- 137 square kilometers
- 120 to 140 rainy days a year



INTRODUCTION

PARANÁ

- Paraná is a coastal city located in the province of Entre Ríos, which borders Santa Fe.
- The Parana River is one of the most important rivers in the region.



INTRODUCTION

PURPOSE

- Study and develop a way to address the problem of pluvial flooding
- Improve the current situation on Avenida Almagro in the city
- Promote the importance of keeping the streets clean
- Propose a simple solution



DESCRIPTION OF THE CONTEXT

LOCATION OF THE AFFECTED PLACE

- One specific area where a pluvial flood problem has been identified is the Almafuerite Av. area, delimited by Juan del Campillo and Division de los Andes streets.
- This area is important for commercial and residential activities.



PROBLEM STATEMENT



- In the previously mentioned area of Almafuerte Av. floods are generated due to medium magnitude rains.
- This area is recurrently affected by pluvial floods
- These rainwater floods result in the accumulation of rainwater in the study area.

DESCRIPTION OF SCENES THAT HELP PICTURE THE PROBLEMATIC SITUATION

The photo shows the level that the water can reach and the seriousness of the problem.

- Traffic complications
- Difficulty for stores



IDENTIFICATION AND ANALYSIS OF CAUSES OR FACTORS THAT GIVE RISE TO THE PROBLEM

- Inadequate topography and drainage
- Unplanned urban growth of the city
- Changes in land use



A. IDENTIFICATION AND DESCRIPTION OF THE CONSEQUENCES

- Damage to homes, infrastructure and vehicles
- Mosquito-borne diseases like dengue and Zika
- Quality of the drinking water supply
- Risk of gastrointestinal illnesses
- Soil erosion, degradation of green areas and loss of natural habitats



PROBLEM APPROACH

- Install green absorptive spaces to prevent flooding
- Raise public awareness about clean spaces
- Prevent clogging of storm drains
- Educate on proper waste disposal
- Implement early warning systems
- Improve quality of life



WEAKNESSES

- Design and maintenance costs
- Time and effort in education
- Limitations in extreme events
- Coordination between authorities and community

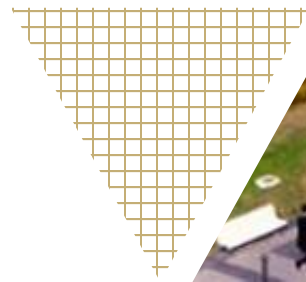


STRENGTHS

- Sustainable and environmental focus
- Reduction of flood risk
- Citizen awareness and participation

CONCLUSION

With these proposed solutions, the community can look to a future where the recurring threat of pluvial flooding becomes more manageable, ensuring a safer and more resilient environment for both residents and businesses.



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