

Iván Cárdenas

GIS Analyst

Environmental and Sanitary Engineer

Student MSc Geo-Information Science and Earth Observation

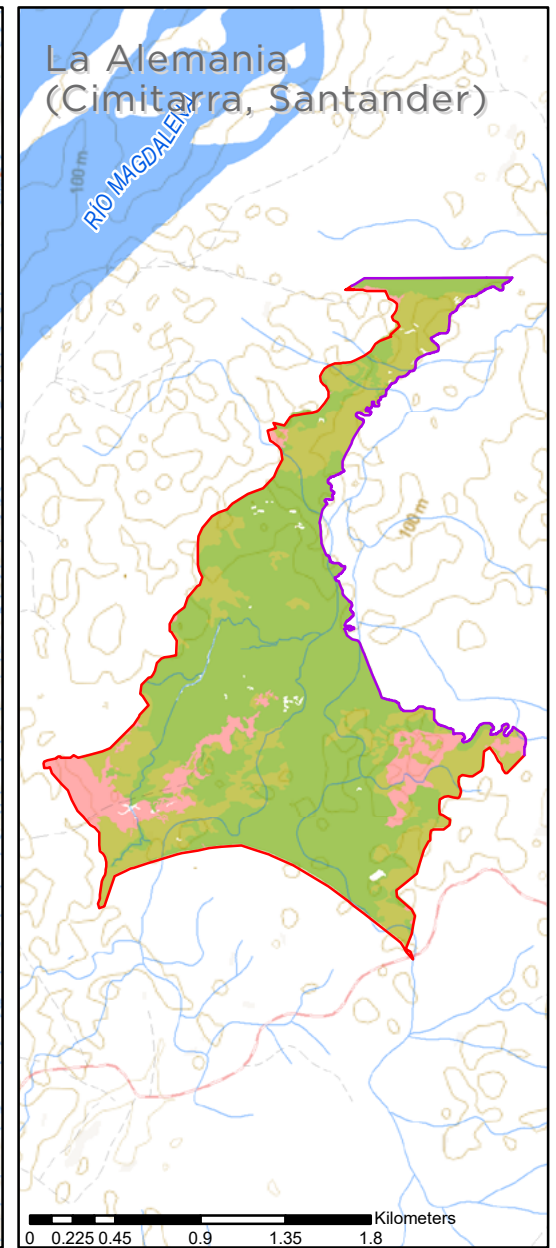
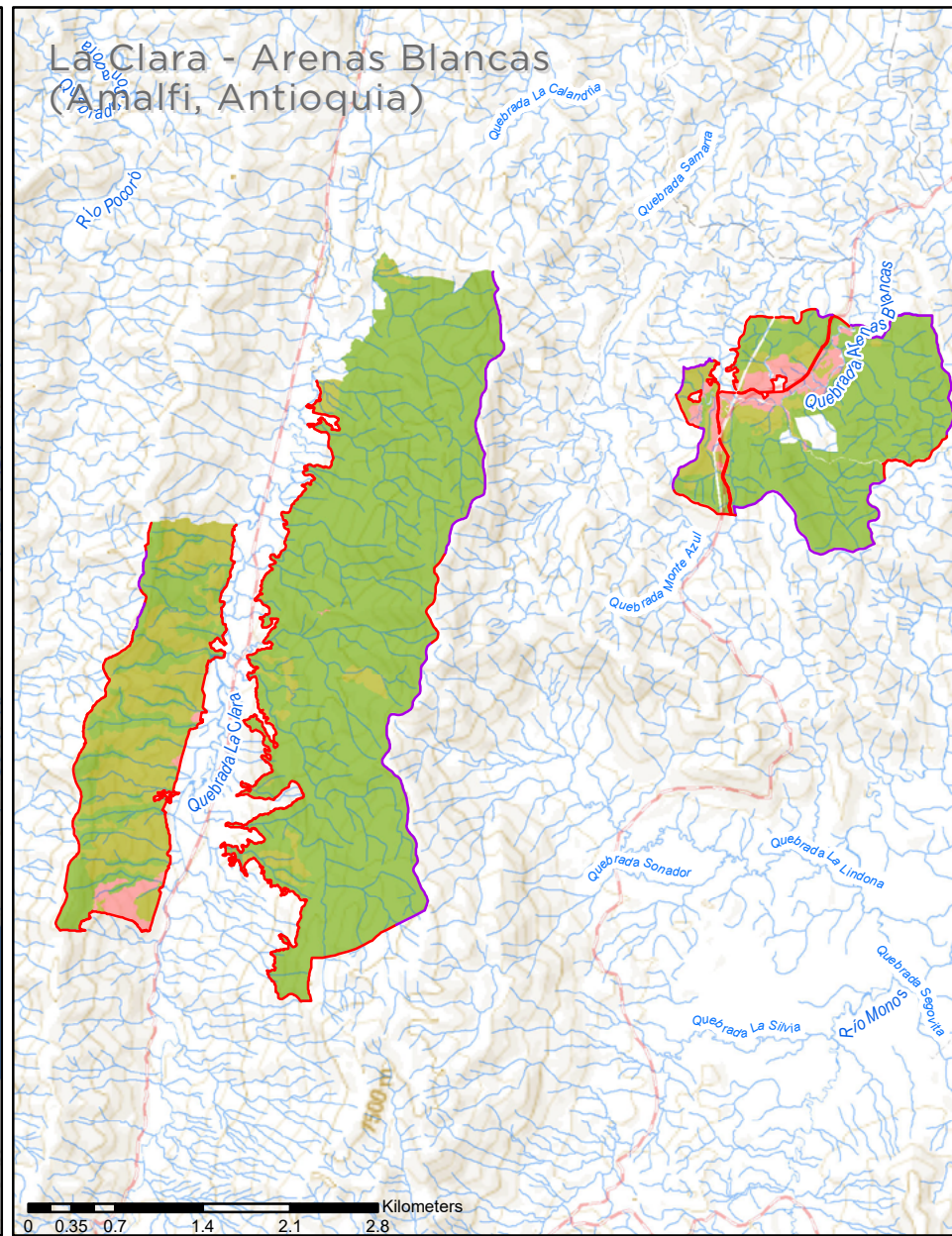
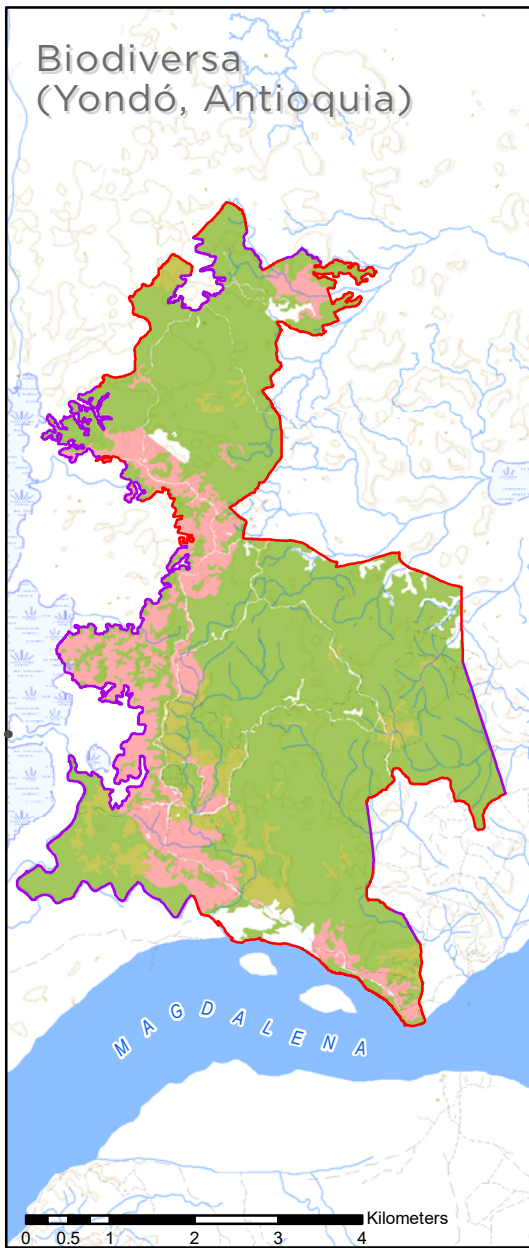


PORTFOLIO

2022

..... *Professional Projects*





The Map shows the planning for environmental compensation using three alternatives: Conservation, Enrichment and Restoration. The analysis was performed using multi-criteria analysis. Software: ArcMap.

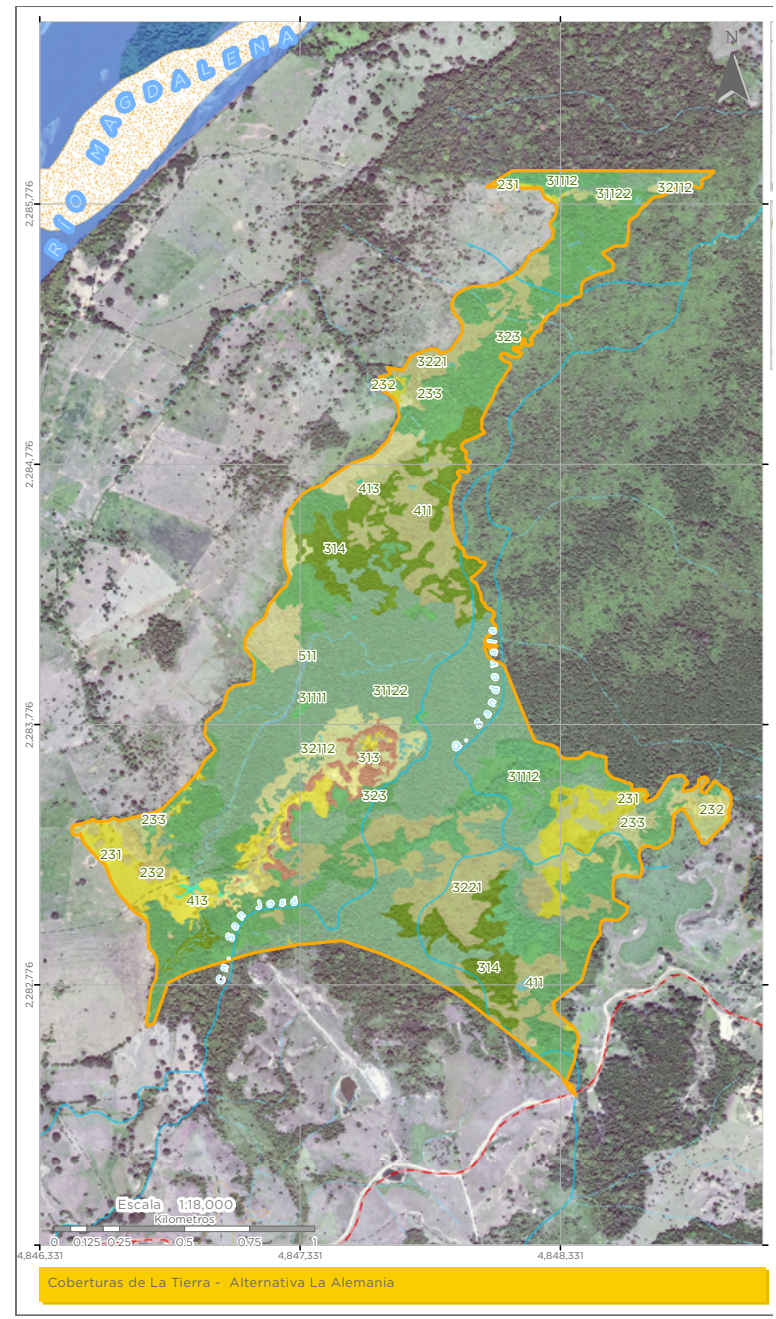
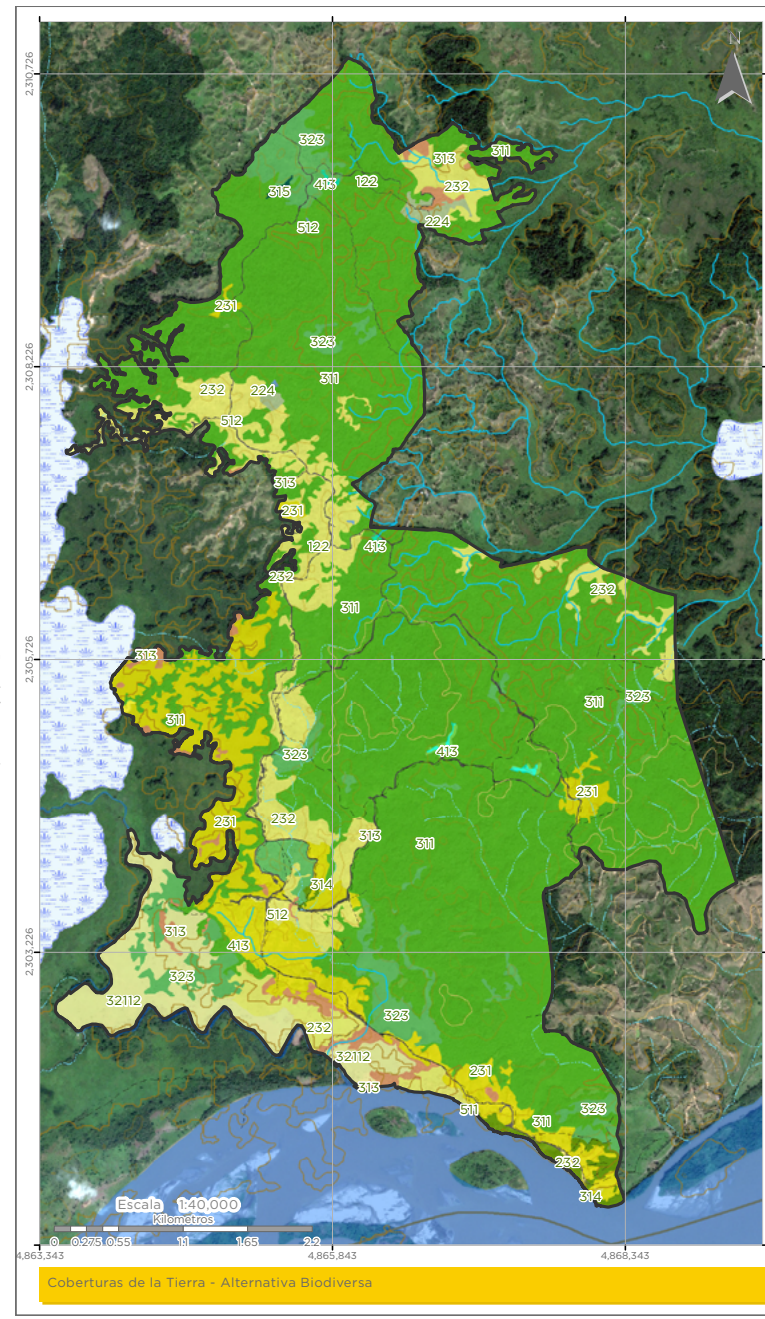
Compensation Alternatives Analysis

2021

Land Cover Interpretation

Land Cover Interpretation using Corine Land Cover method adapted for Colombia.
Software: ArcGIS Map.

The maps show the interpretation of two World View Satellite Images made by object based detection and visual interpretation adjustment, the data was corroborated by forest engineers on the field.

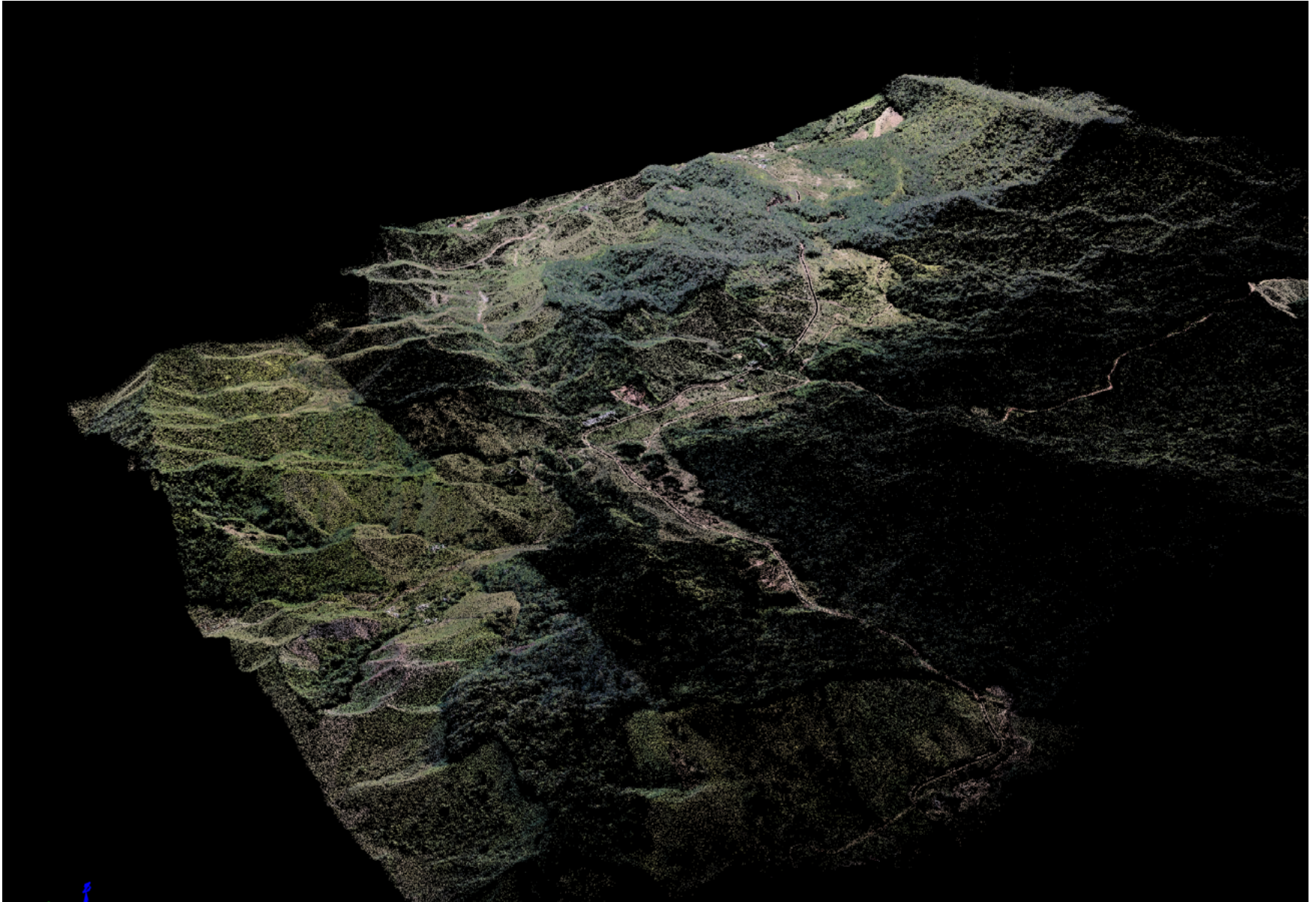


2021

Point cloud from drone
Imagery. Software: Pix4D

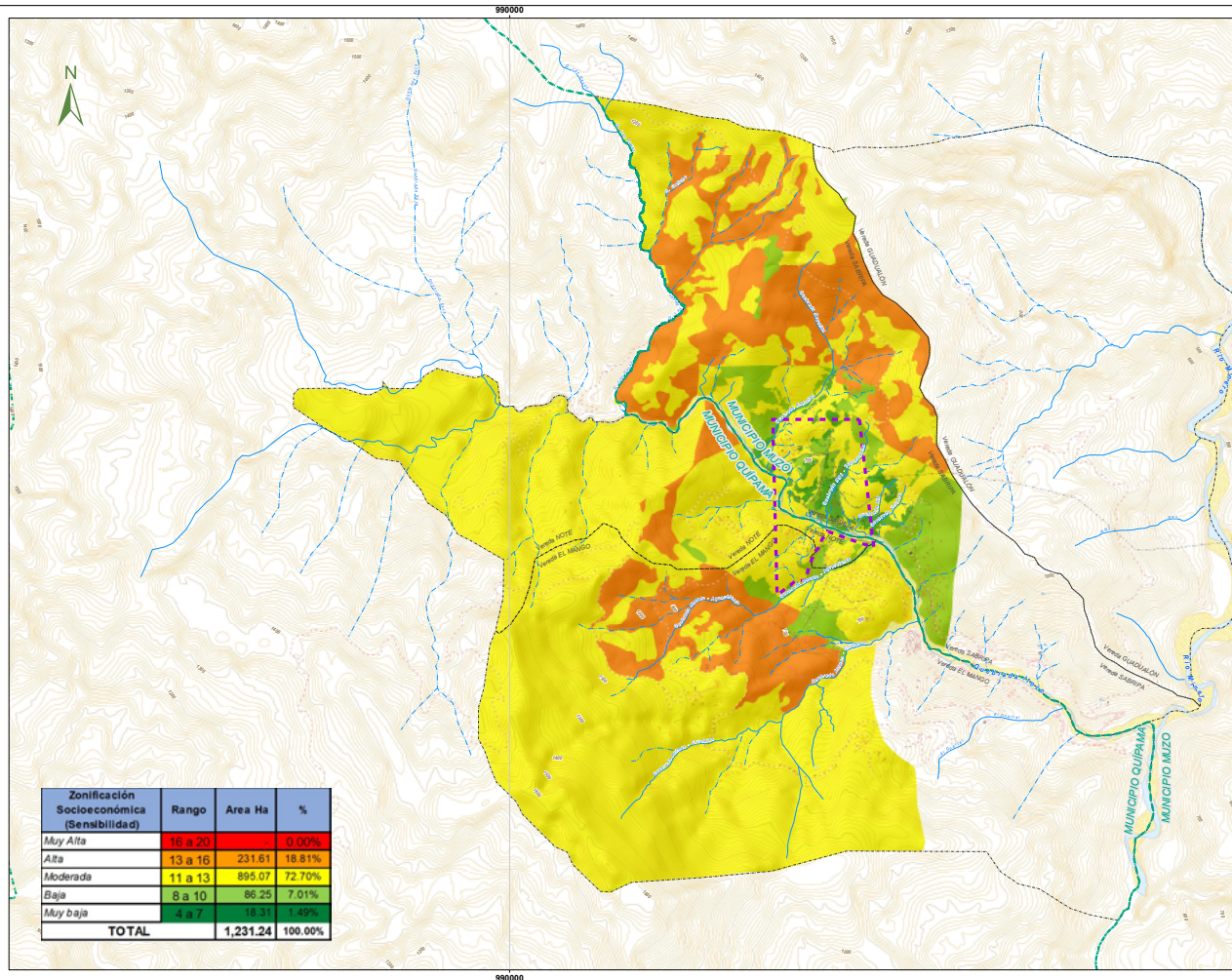
This figure is a screenshot
of a point cloud created
from 890 images captured
by UAV in the region of
Antioquia, Colombia.

From there a
orthophotomosaic, DSM
and DTM was generated



Drone Imagery

Environmental Impact Assessment



Multi-Criteria Analysis. Socio-economical Sensibility. Software: ArcMap.

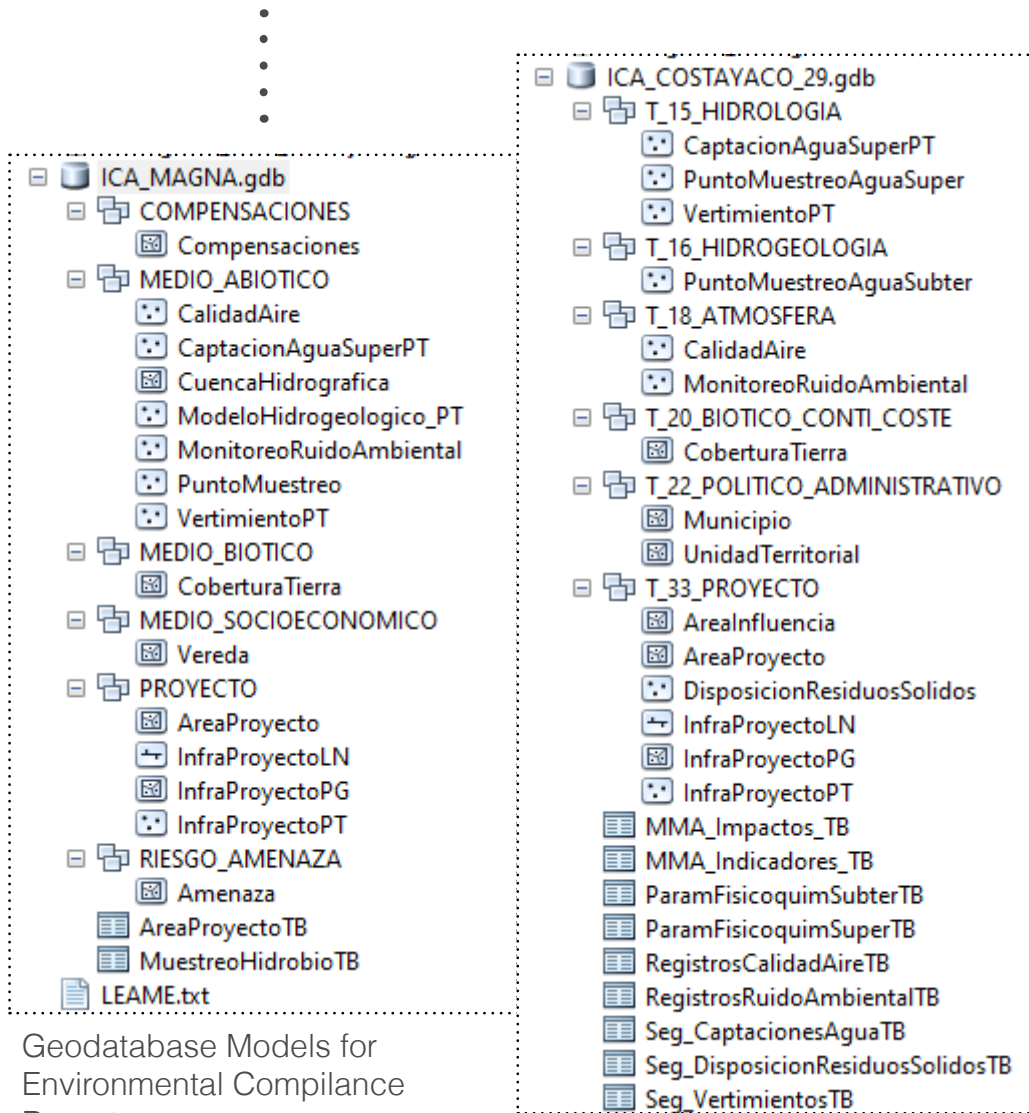


The map shows the overall socioeconomical sensibility based on an experts analysis which gives weights to different elements and characteristics of the rural inhabitants of a municipality in Boyacá, Colombia.

2020

Environmental Compliance Reports Oil Exploration and Production

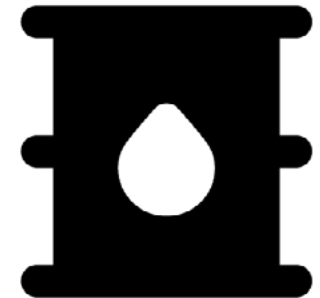
2020



Geodatabase Models for Environmental Compliance Reports

Software: ArcCatalog, ArcMap

12 Oil Fields



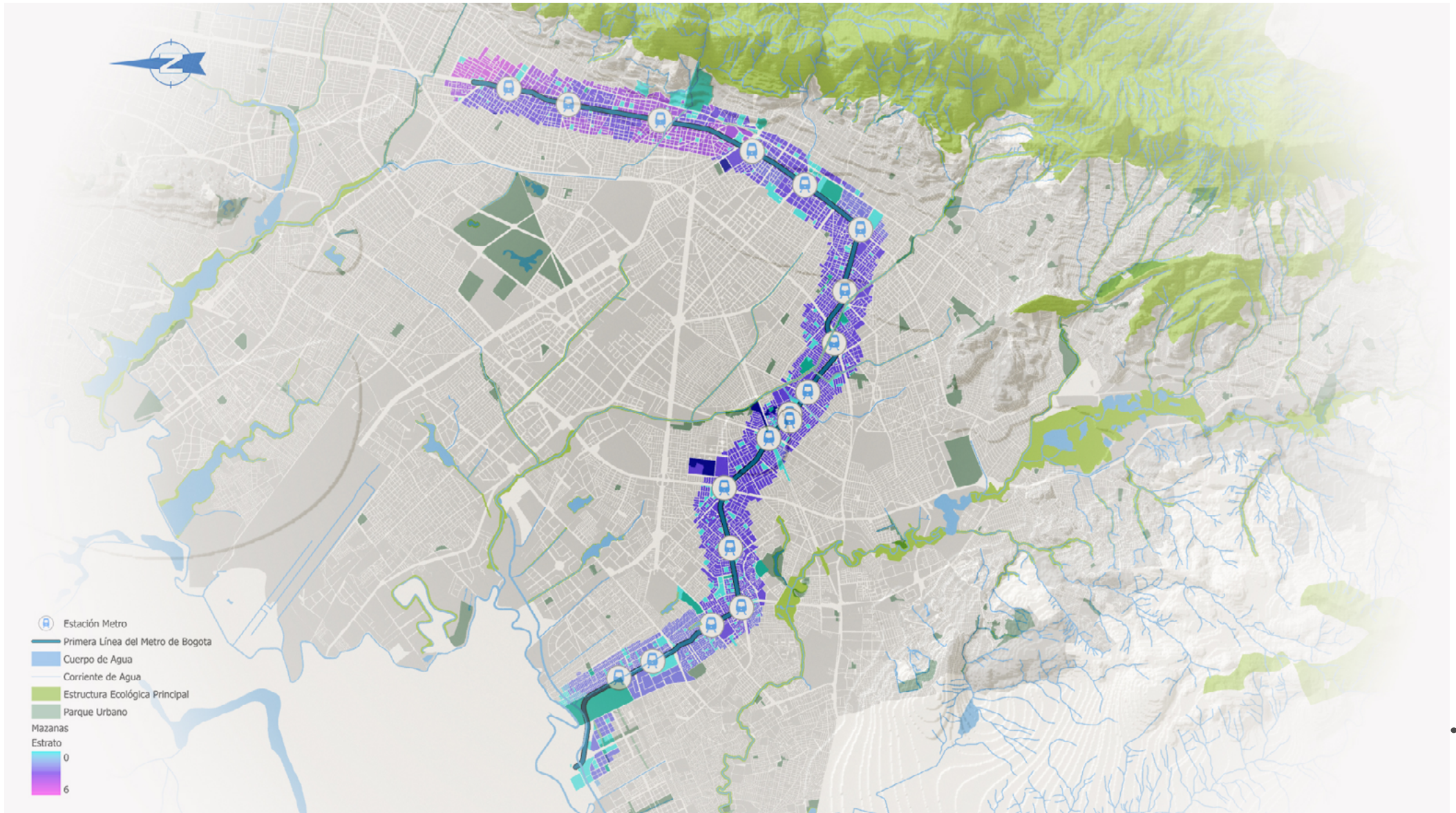
68 Reports



The geodatabase model was based on the National Environmental Licences Agency model and includes datasets, feature classes, feature tables and their metadata. The model is a relational geographical database.

This map show the location of proposed metro stations for Bogotá, Colombia and the neighborhoods around them to identify the people social strata that are being benift with the project.

Software: ArcGIS Pro, Adobe Illustrator, Adobe Photoshop



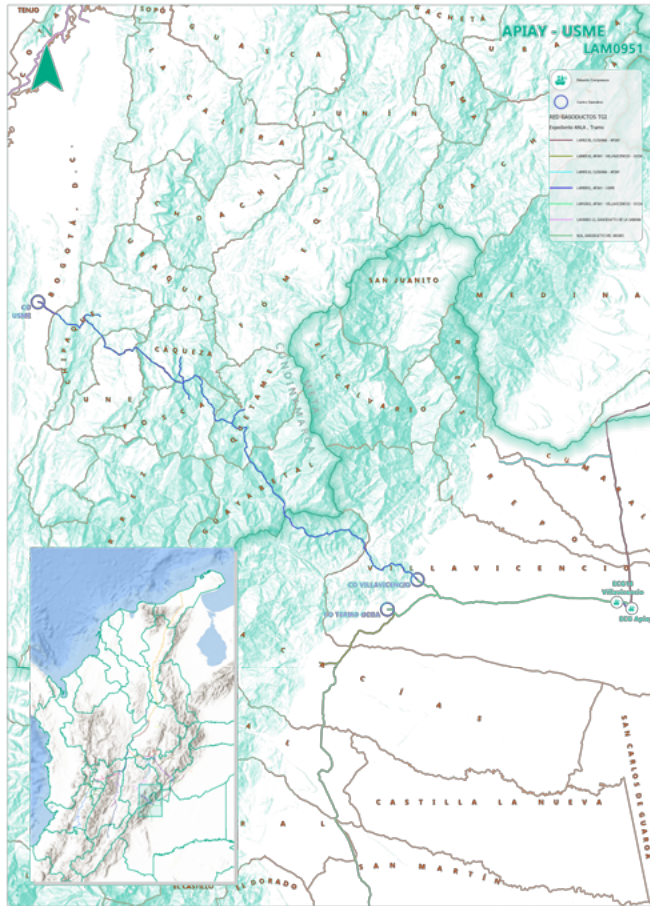
Environmental Compliance Reports National Gas Transport

Topological design of Gas transport network of Colombia. Software: ArcGIS Pro, Adobe Illustrator

Gas network. Tinted Hillshade method. Software: ArcGIS Pro

The maps are the cover and inside pages of an Atlas of **30 pages** showing the gas main Gas network of Colombia.

2019



IC-GIS



ATLAS RED GASODUCTOS
TGI
GrupoEnergíaBogotá

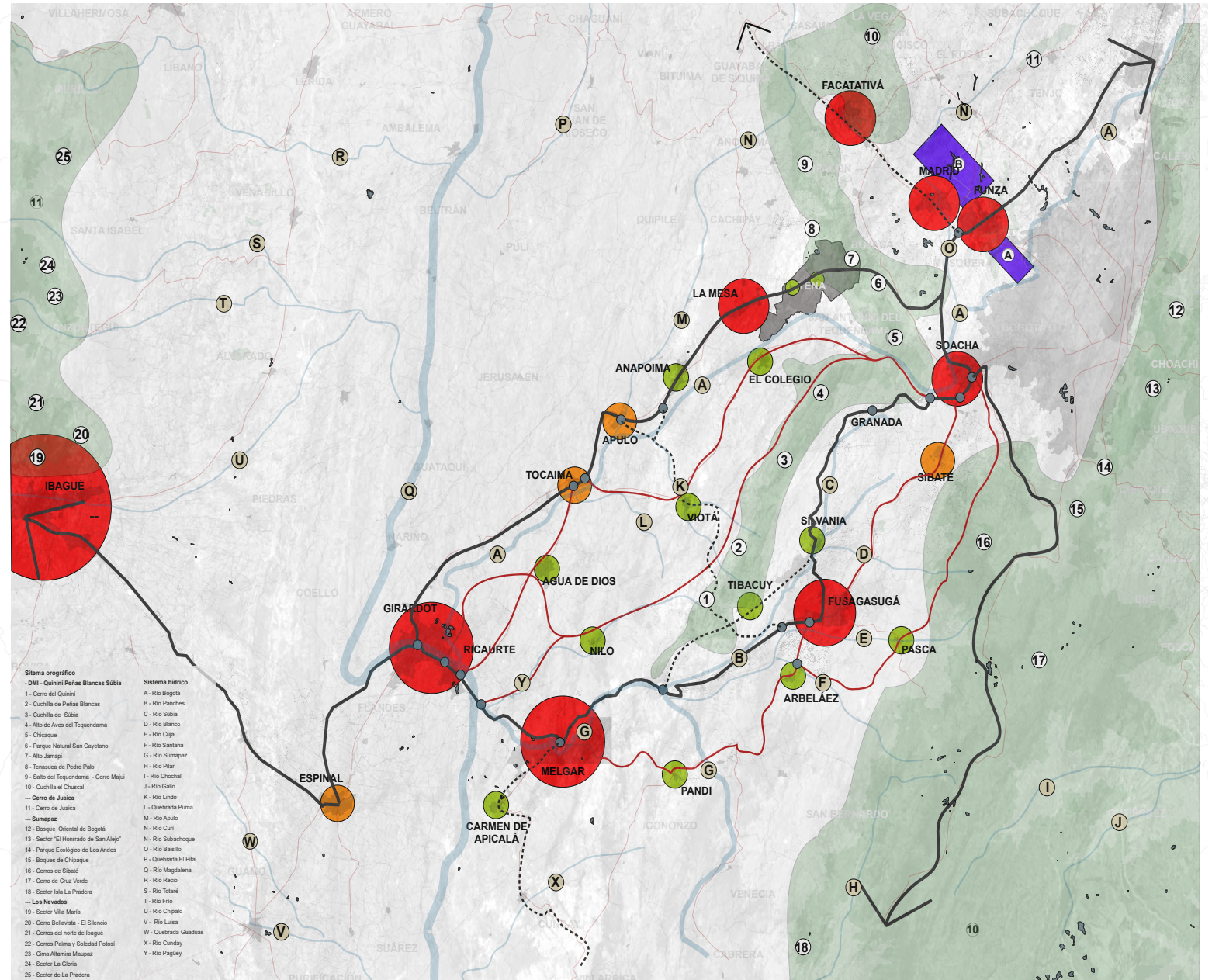


Territorial Ordering Scheme

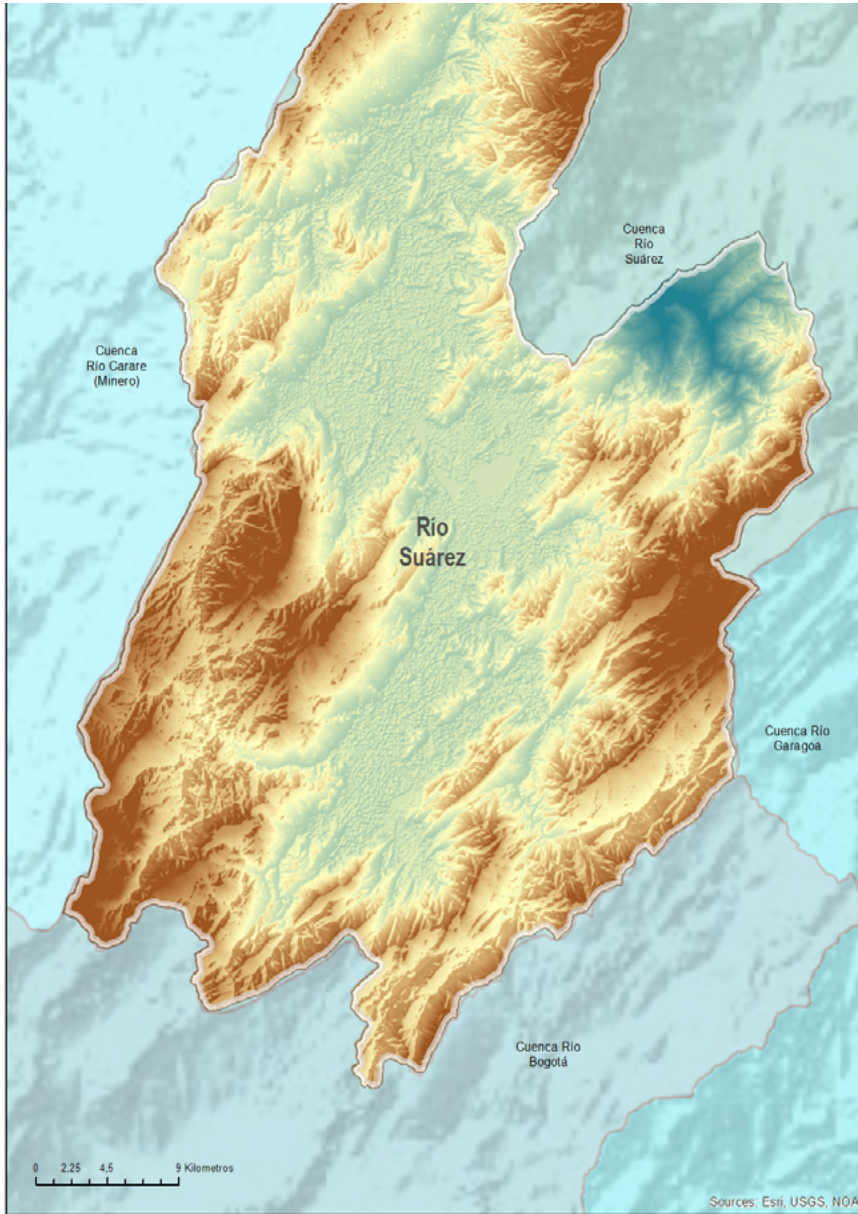
The map shows the Regional Ordering Model and connections of Tena municipality with other cities in the region. Software ArcGIS Pro.

2 Municipalities

This Map is part of a series of 118 maps made for the Territorial Ordering Scheme of a 12 year plan for 2 municipalities in the Region of Cundinamarca, Colombia.



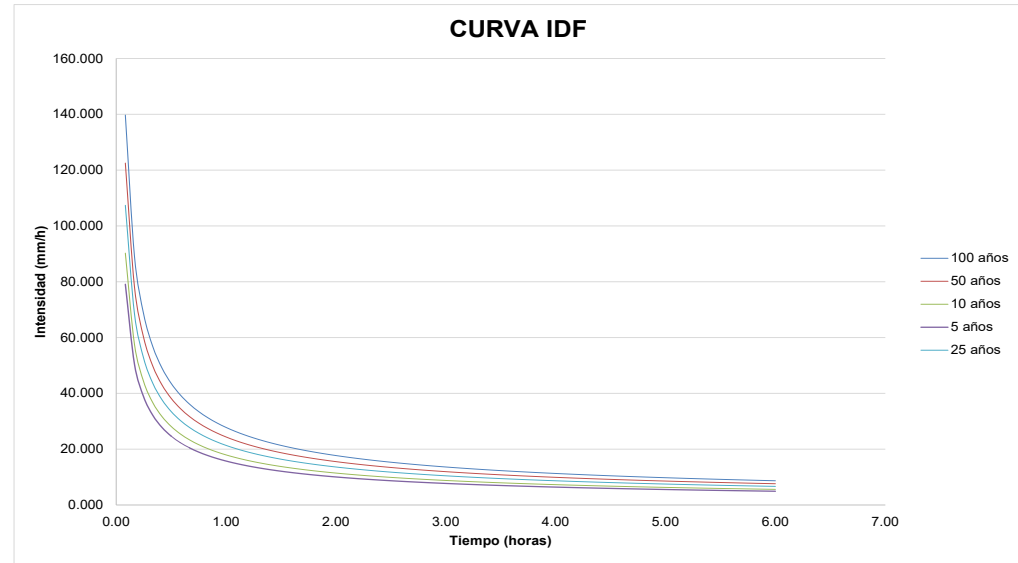
.... 2019



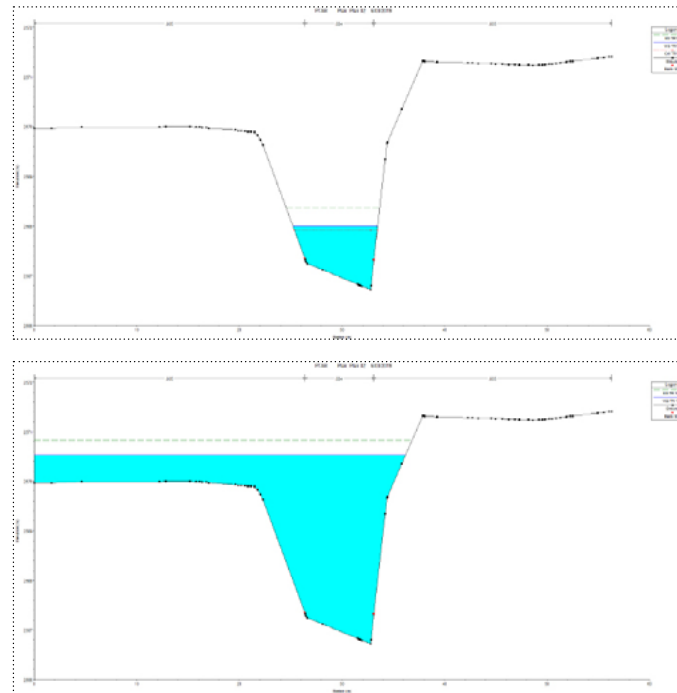
Terrain Model for Flood modeling. Software: ArcMap

Flood Modeling

8 Municipalities - 5 Scenarios



Rainfall Intensity - Duration - Frequency (IDF) Curves



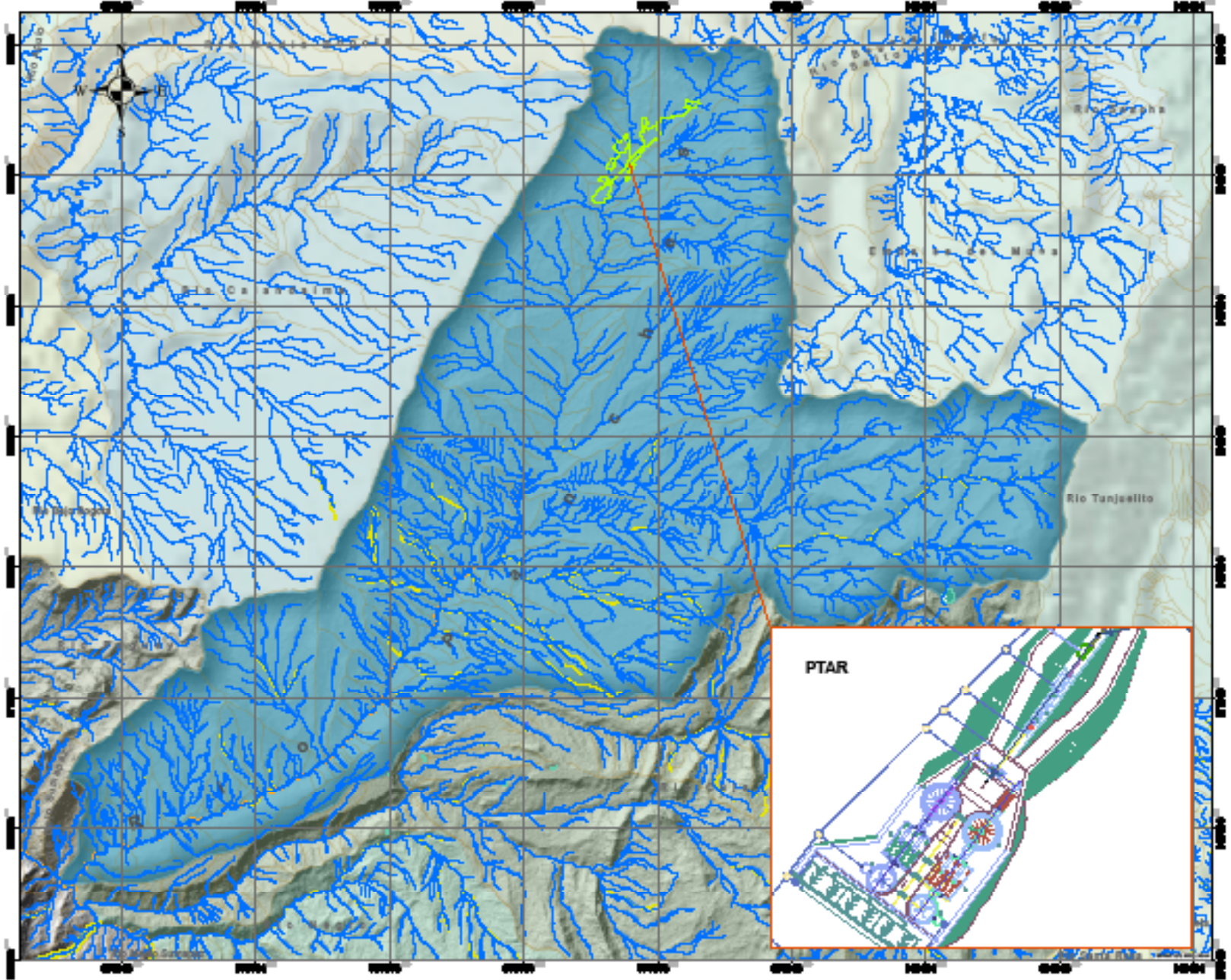
Flood Modeling.
Water sheet at different rain intensities. Software: HEC-HMS

The map shows terrain model of a watershed where precipitation data was used along bathymetric riverbed data to perform a flood modeling simulation.

The project is part of a series made to estimate the discharge placement of a water treatment plant.

8 Municipalities

137 Maps



Thematic Mapping

The map shows the watersheds of the region and highlights the one where a waste water treatment plan was designed to be built. The map is part of a series made for the Studies and Analysis of Discharge Permit and Occupation permit of Riverbed for the Construction of The Wastewater Plants

2018

Duitama Town Hall Development Plan 2016 - 2019

We develop a **planning instrument** for local government for a four year period. The budget for the overall plan was **141 Million Euros**.

We design trough **participatory planning** and stakeholders meetings the objectives, goals and programs to be executed in the city in accordance with the **SDG's**.



*Plan De Desarrollo
Duitama 2016 – 2019*

*La Duitama
que Soñamos
Para que la Perla de Boyacá vuelva a Brillar*

I was in charge of designing programs for Infrastructure, Transport, electricity, Drinking water, sanitation and sewage.

I was responsible for presenting the plan to City Council. Know more [here](#) (in Spanish)

ACADEMIC PROJECTS

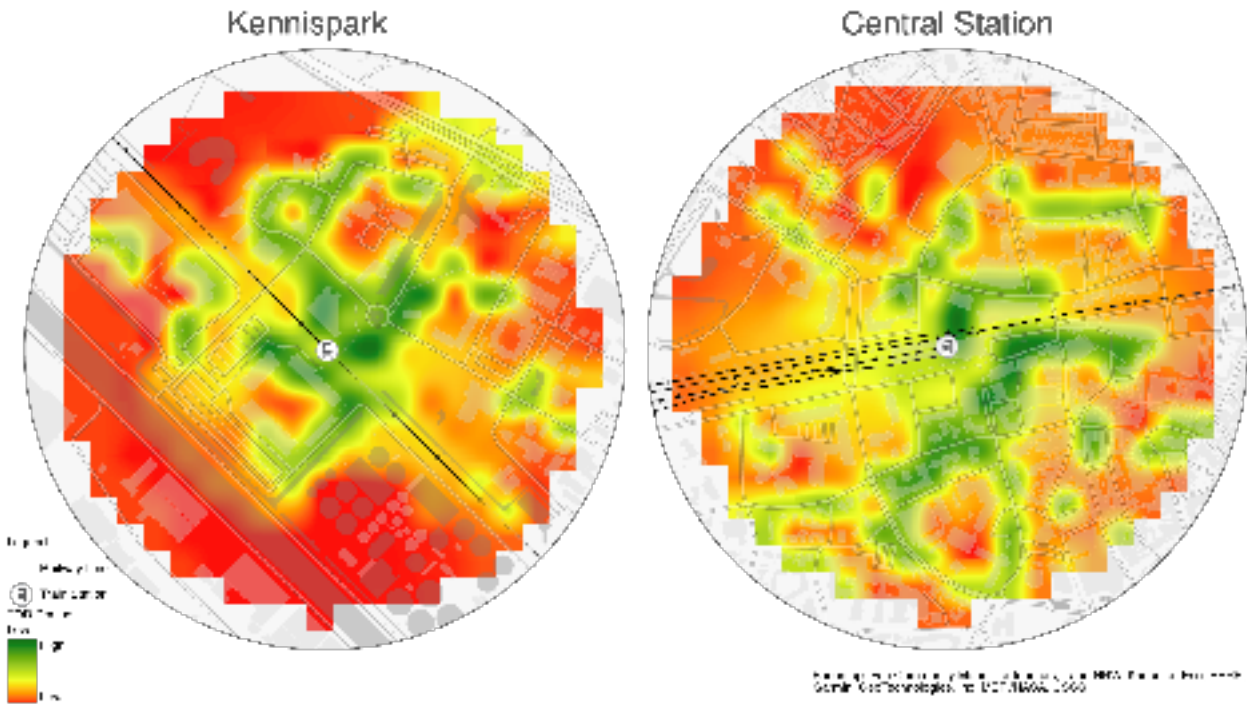
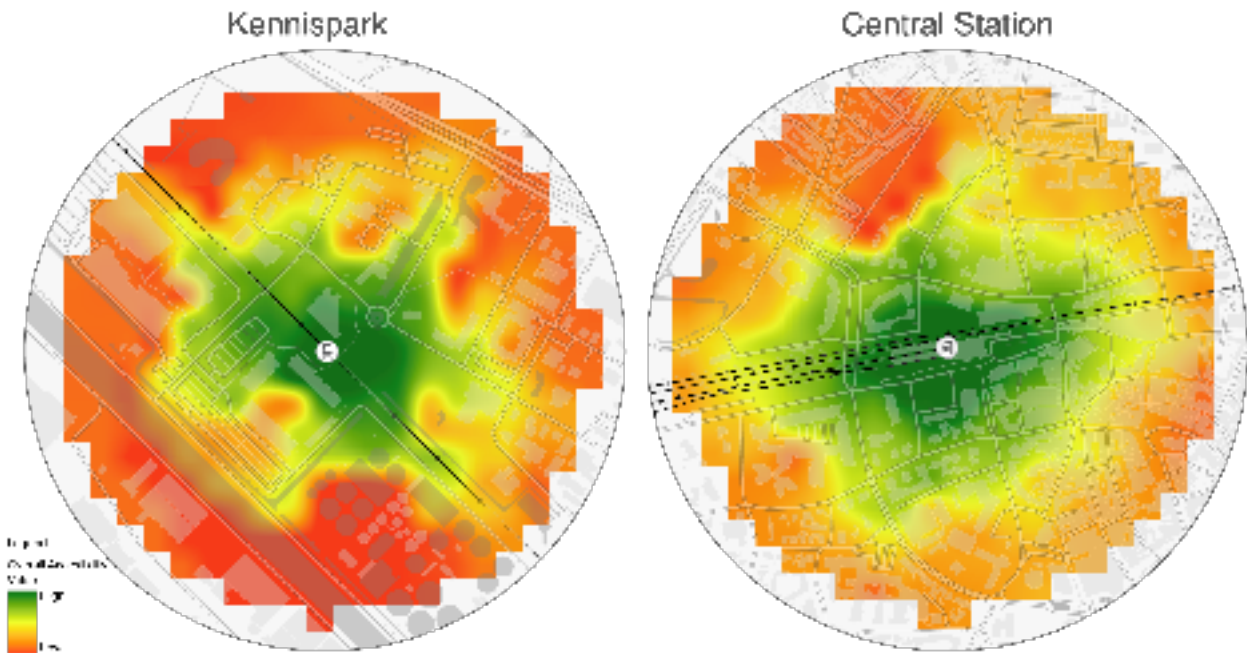


Transport Oriented Development

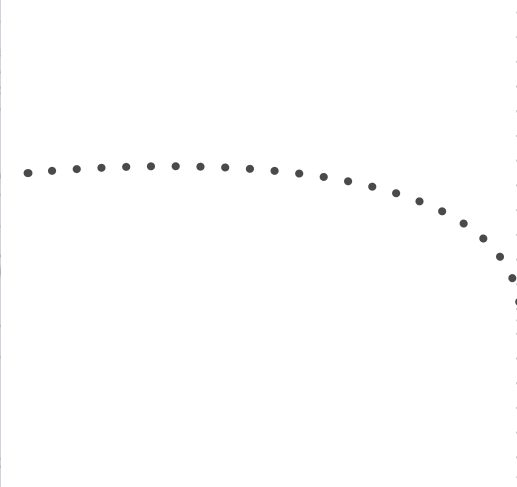
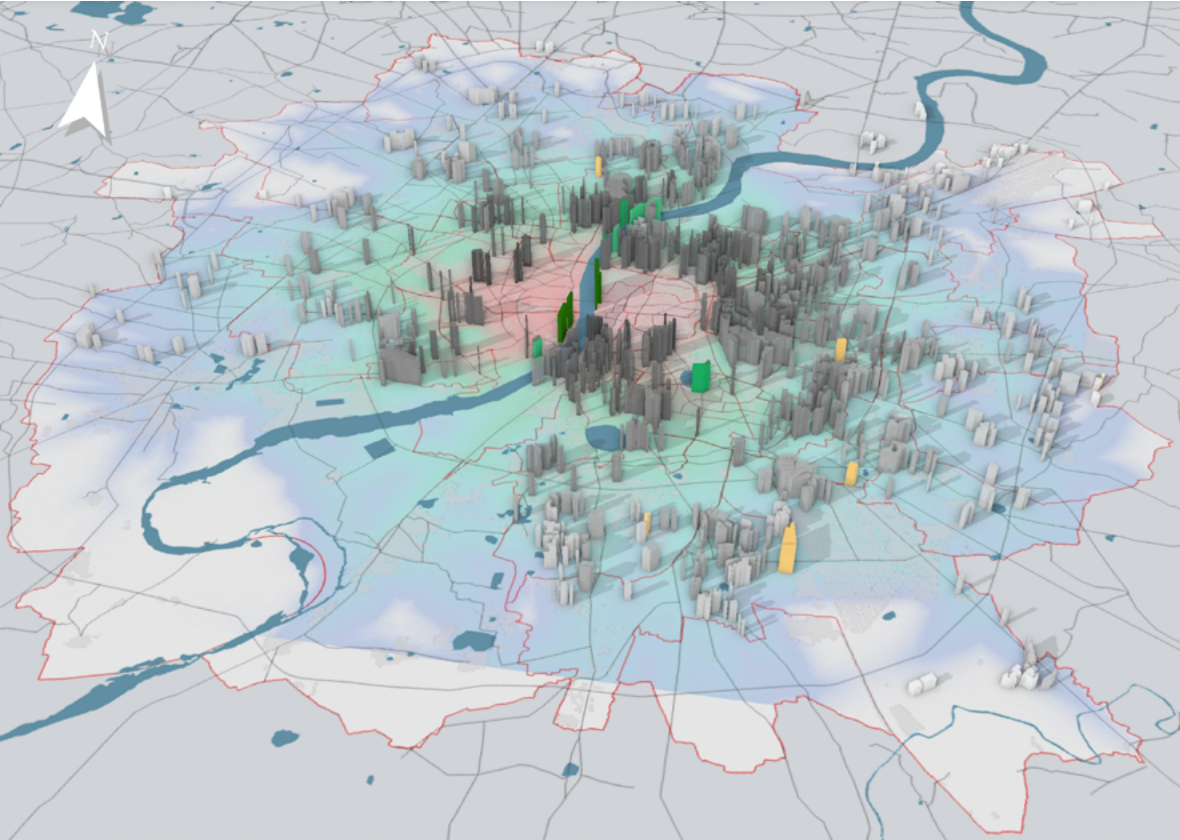
The maps show the accessibility to two train station in the Netherlands and their level of development related to the design of surrounding areas. The analysis was performed by network analysis and on field survey assessing the quality of public space.

Software: ArcGIS Pro

2022

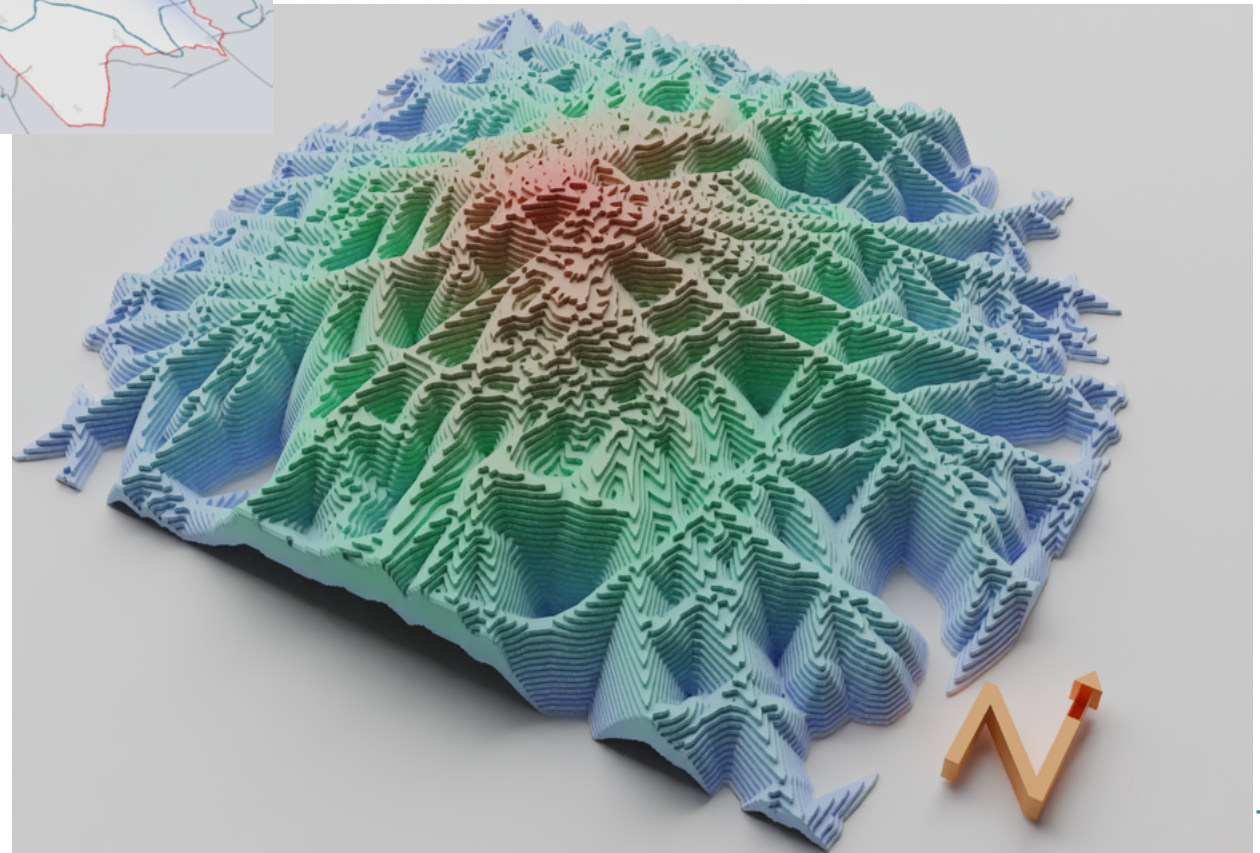


Hedonic Price Modeling 3D View



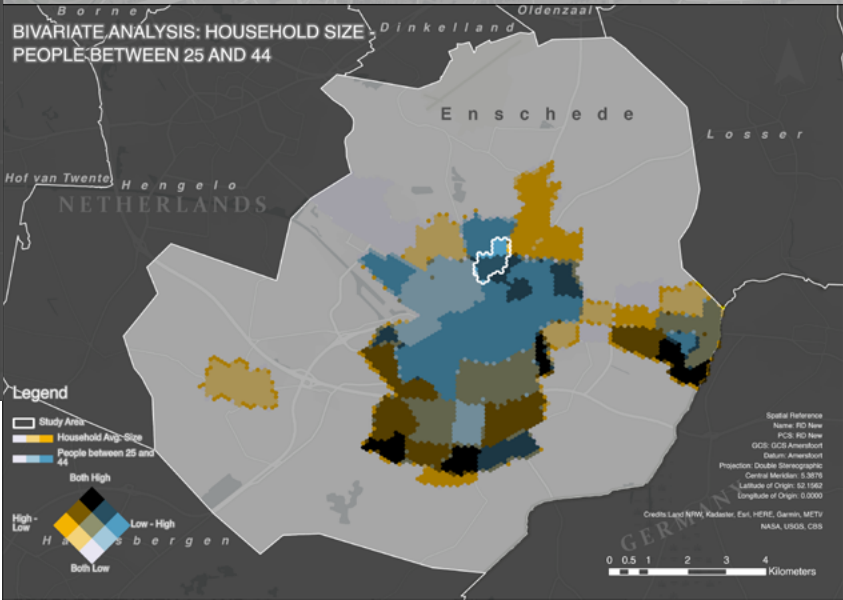
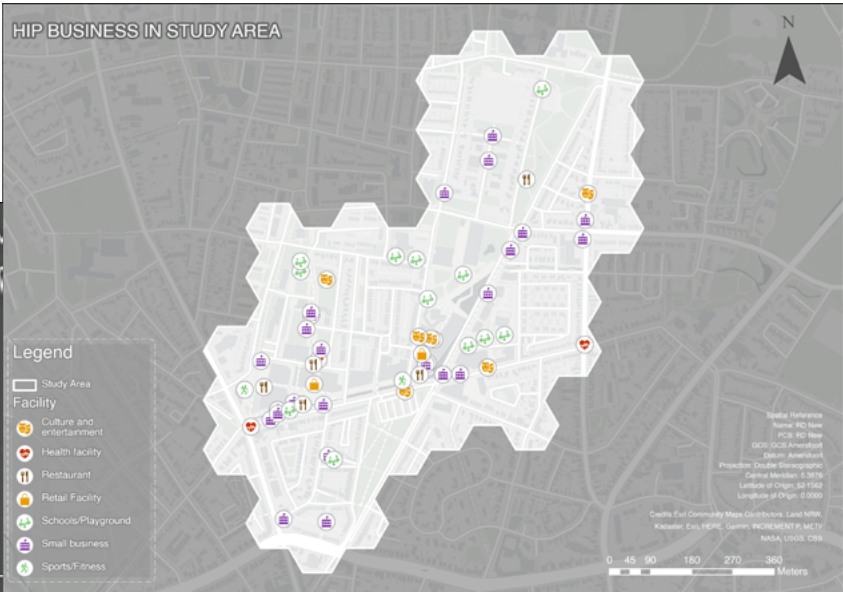
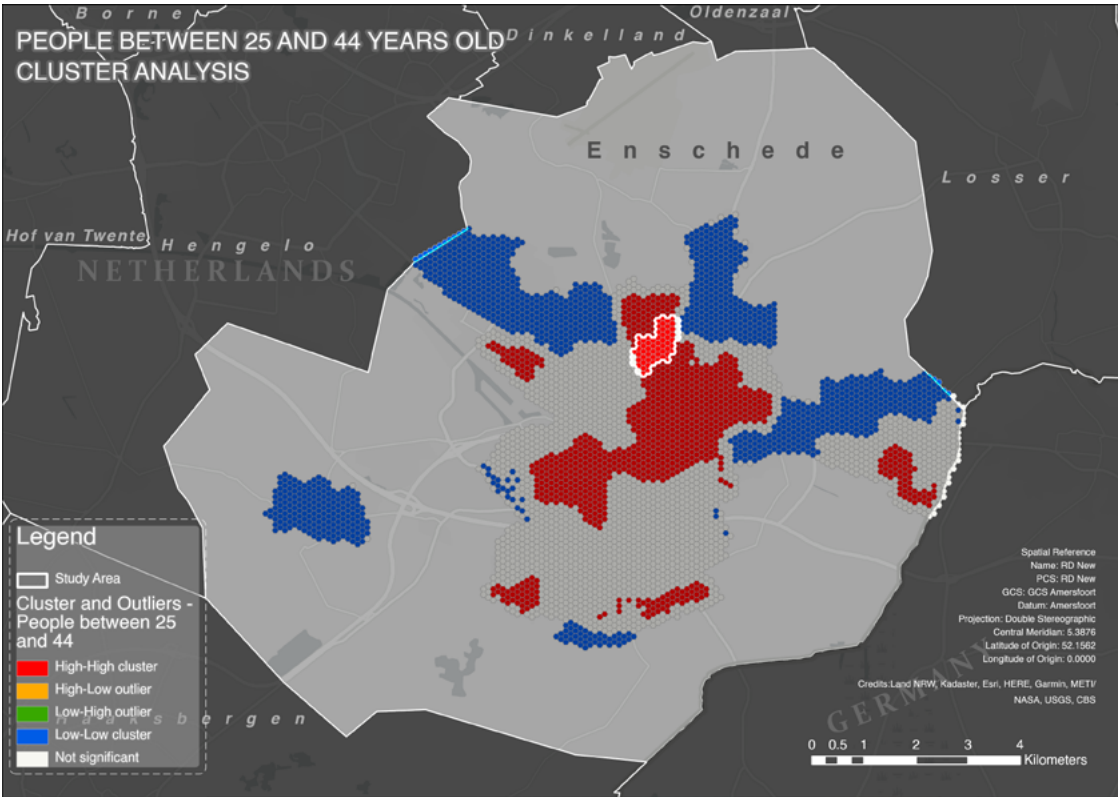
The maps show a predicted land price for the city of Ahmedabad, India. The map from the top shows a 3D representation of the land price in slum areas. The map on the right is a 3D extrusion of the resulting price model using Tanaka contours styles.

Software: ArcGIS Pro, Blender 3D.



2022

Gentrification Analysis

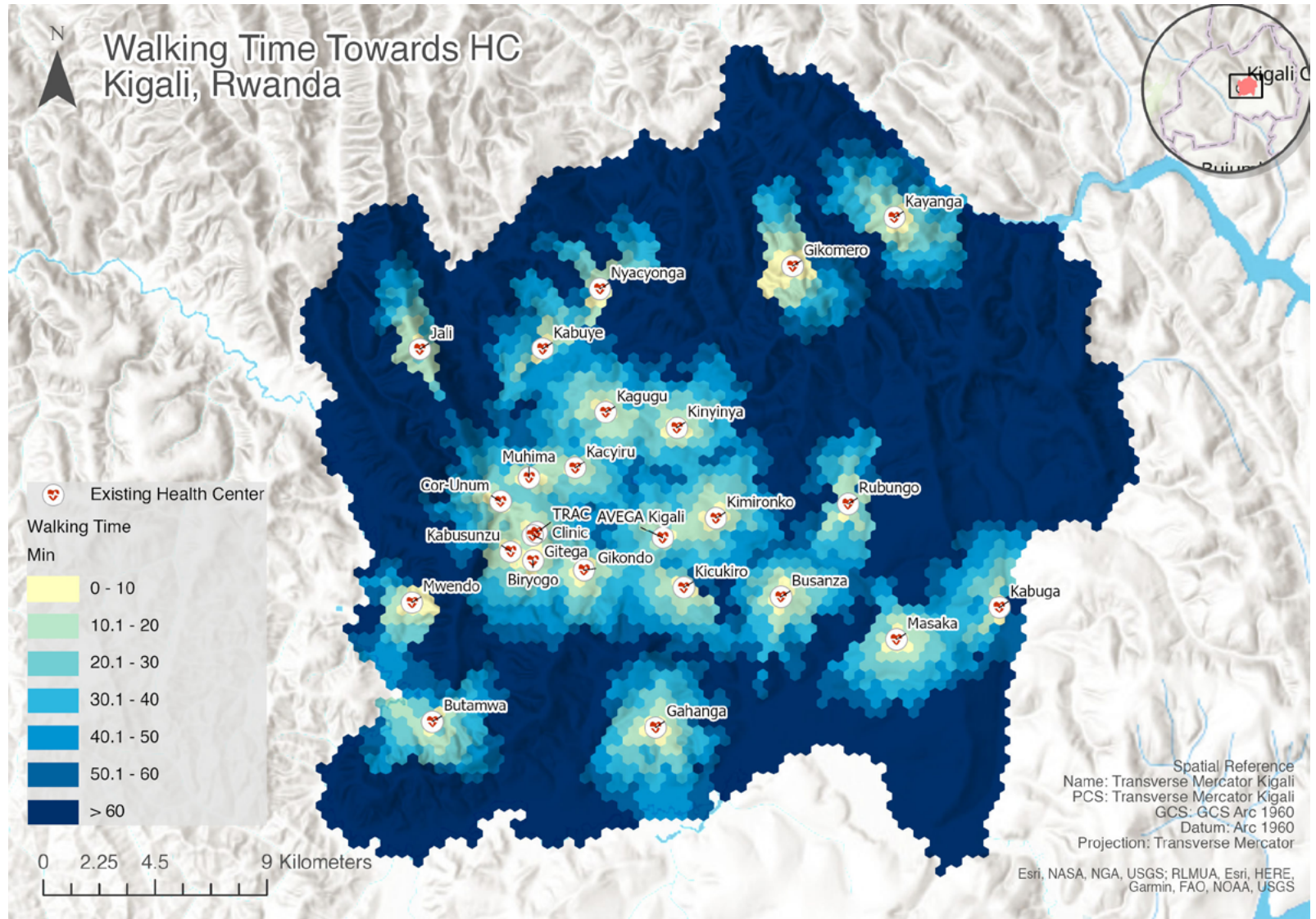


The maps show the gentrification analysis performed for a neighborhood in Enschede, Netherlands. The analysis included on field business identification, bivariate analysis and spatial autocorrelation using Global Moran's I.

Software: ArcGIS Pro



Walking Time towards Health center. Software: ArcGIS Pro



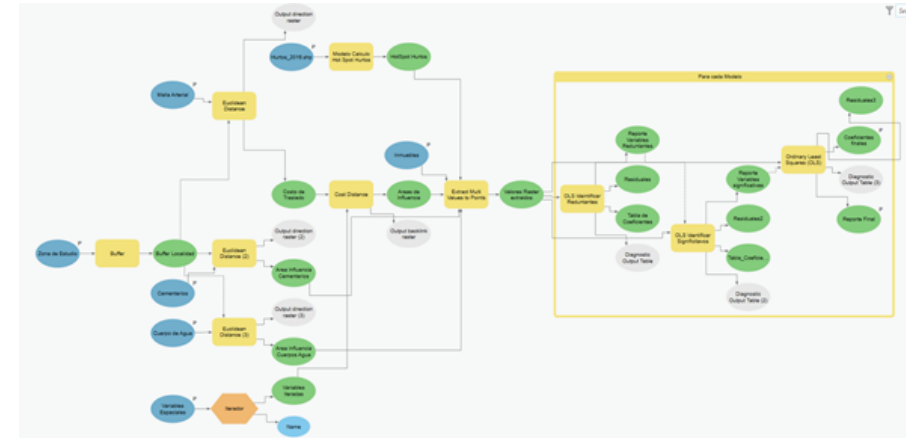
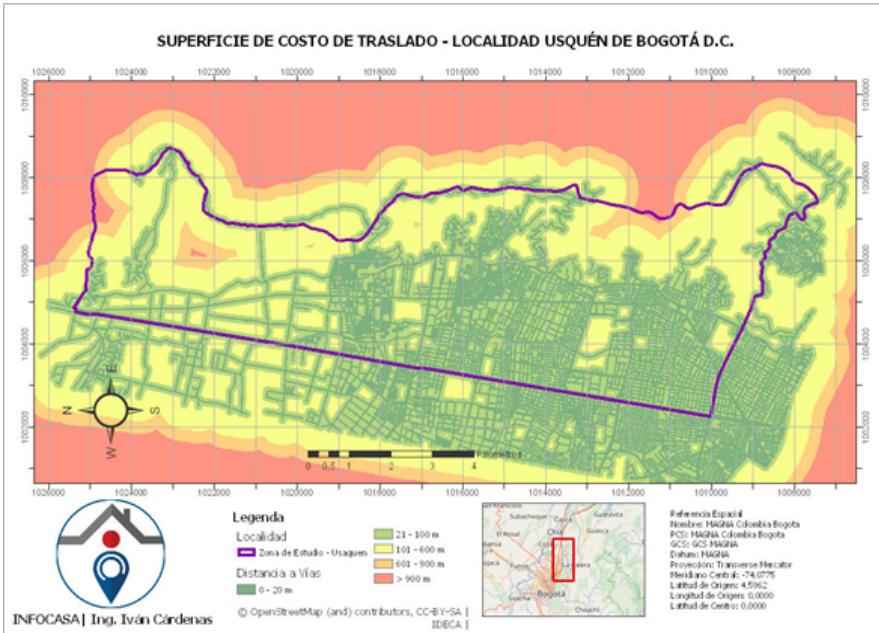
The map shows the average time of walking towards a Health center facility in Kigali, Rwanda.

The map was made using **Network Analysis** for the city and grouped in **hexbins** of 250m.



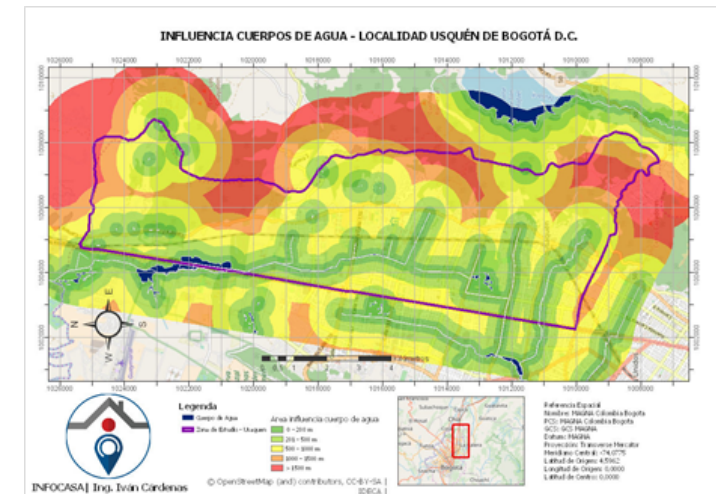
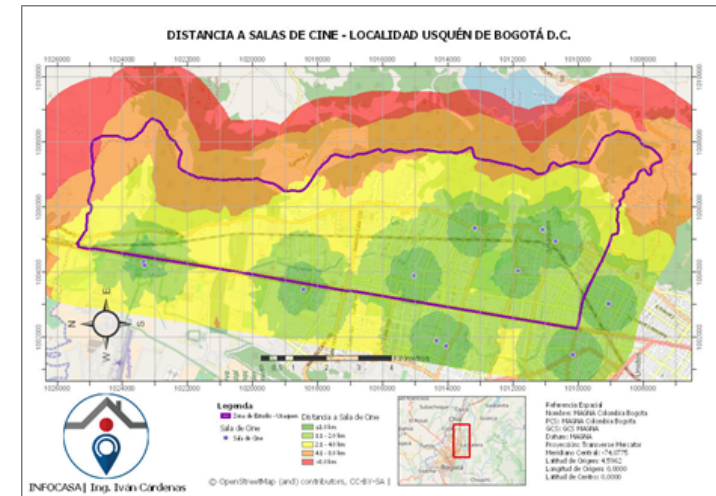
Accessibility Analysis

2021



Hedonic Price modeling for the north zone of Bogotá, Colombia.

The model considers 63 variables in over 2.000 sample points to predict the price of apartments using OLS regression model.

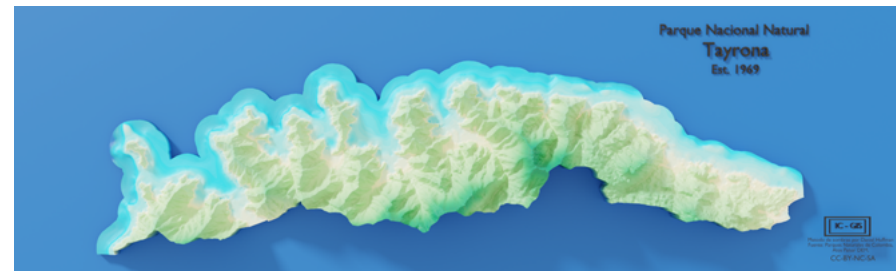
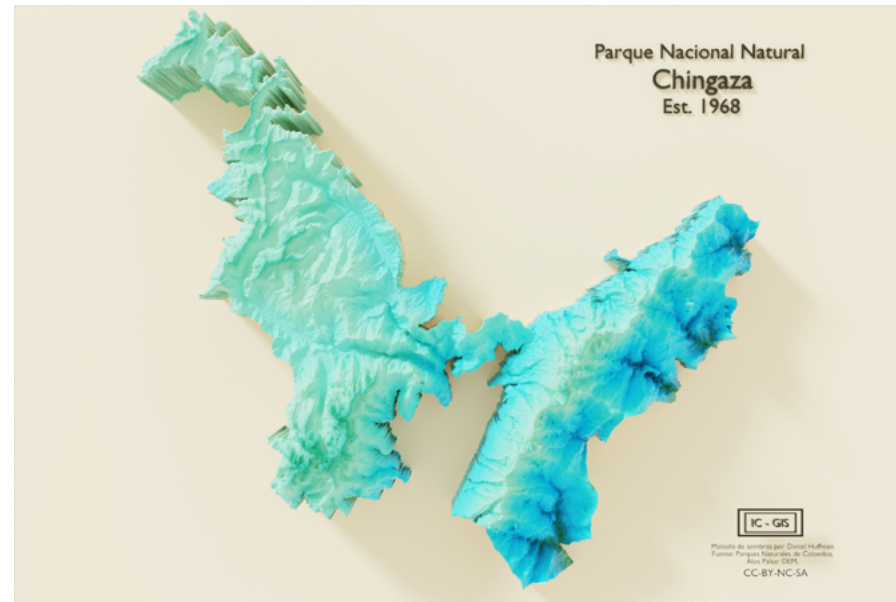
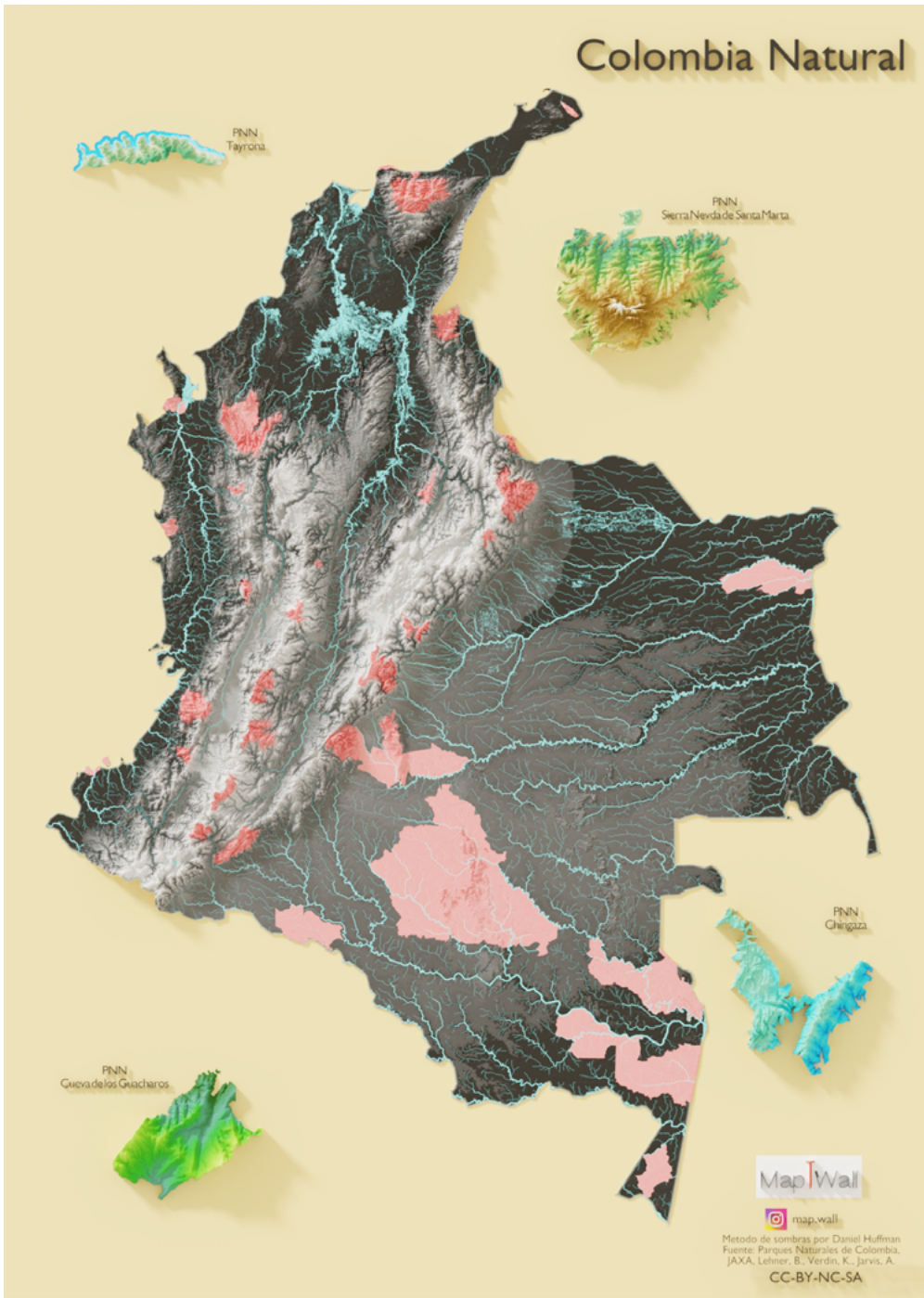


Hedonic Price Modeling

Personal Projects



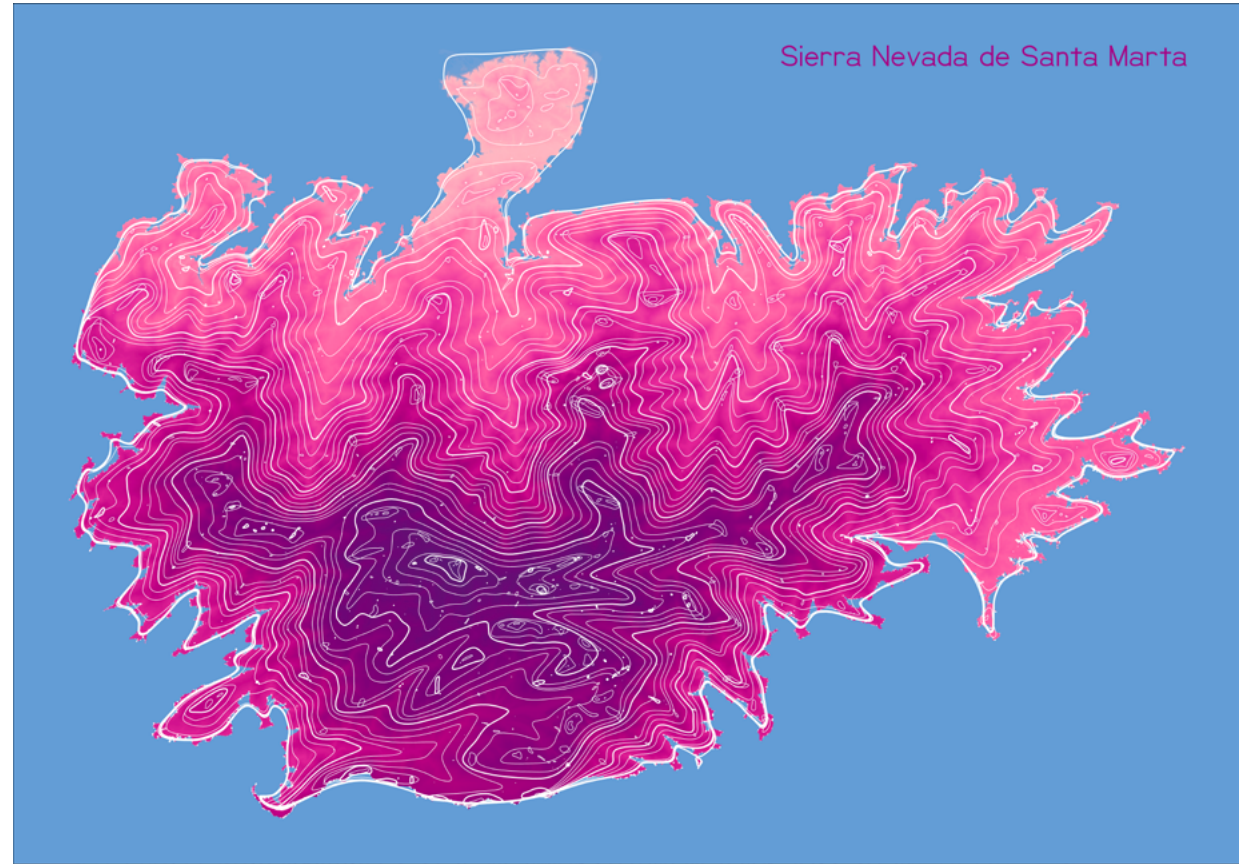
Colombia Natural



Shaded Relief

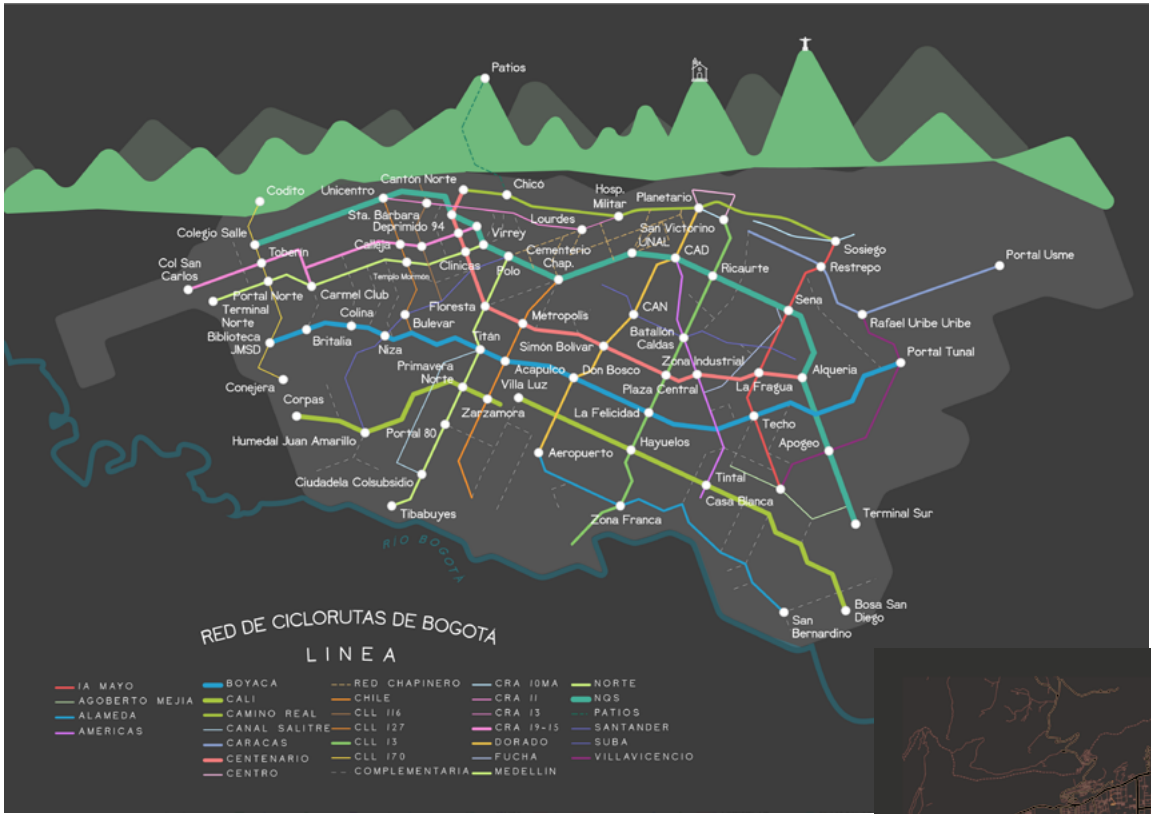
Shaded Relief model of Colombia and selected Natural Parks.
ESRI CUE 2020 Colombia Map Winner.

Software: QGIS, Blender 3D, Illustrator. **2020**



World view of Colombia (left). Sierra Nevada de Santa Marta Natural Park (right)

Software: QGIS, Blender 3D, Illustrator.



Bike Line Network Topological Model

Girl Bike Bogota



