



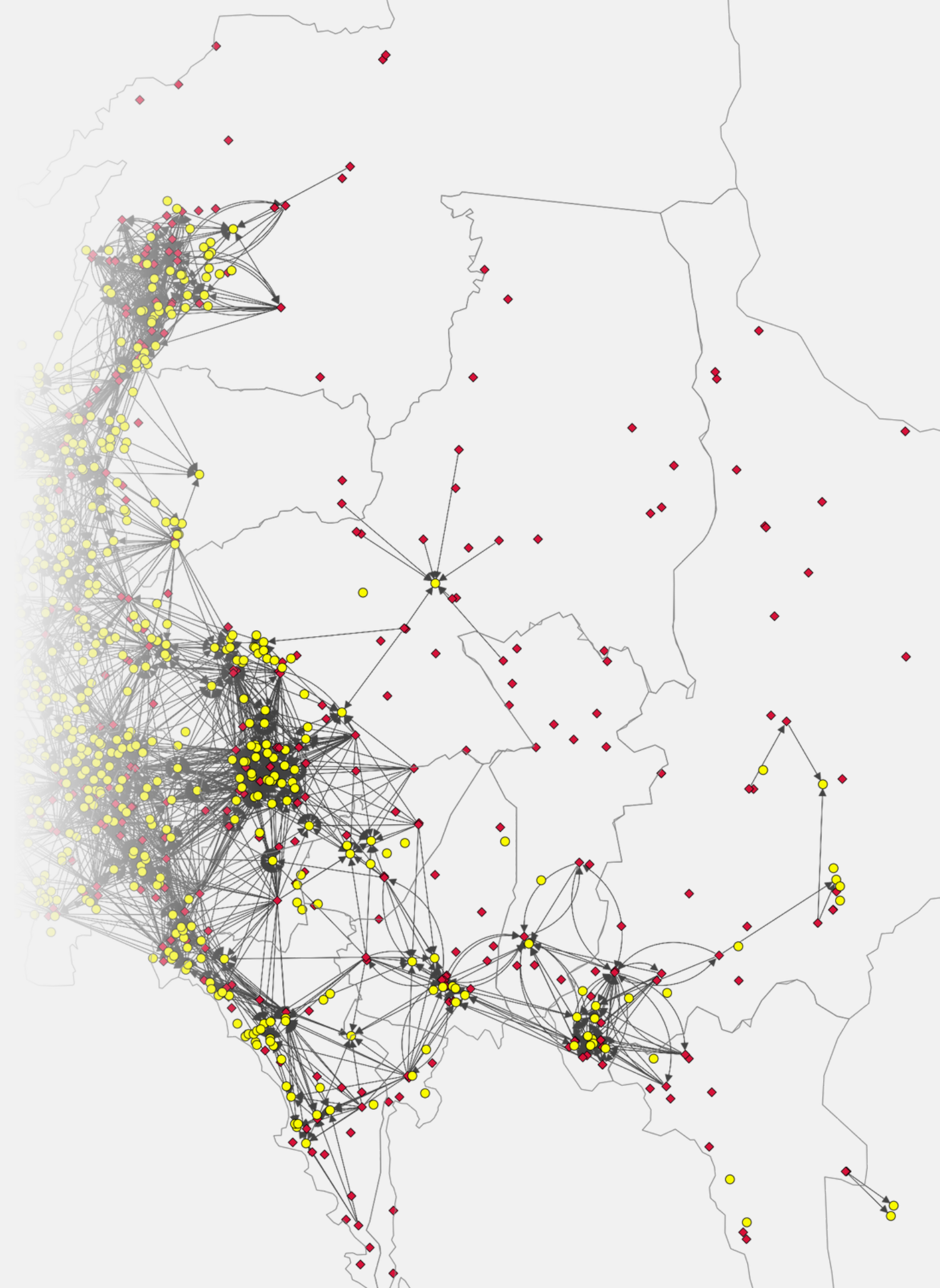
Project PAARAL

Reimagining the relationships of our public
and private schools

Sebastian Felipe R. Bundoc

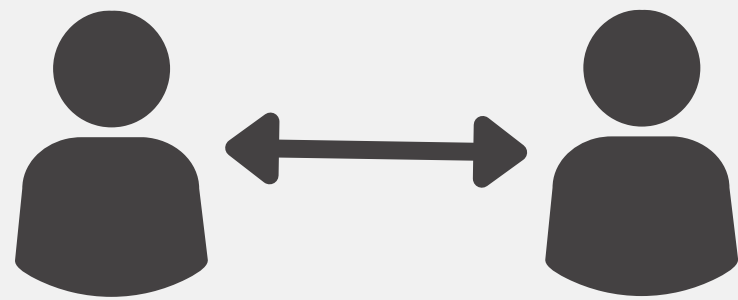
Education Center for AI Research, DepEd

11 June 2025 | UP-PASCN Annual Symposium



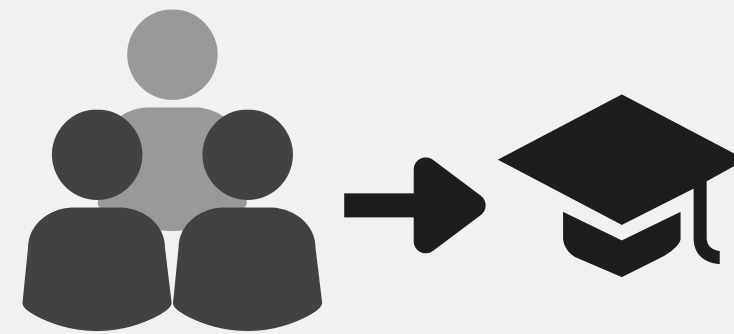
Motivation

Project PAARAL was conceived to assist DepEd in its exercise of foresight and oversight of its **student subsidy programs**



Education Service Contracting

A subsidy program that addresses **public school congestion** by funding qualified students to enroll in **private schools** partners



Senior High School Voucher Program

A program that provides subsidies to **reduce financial barriers** for students pursuing Senior High School in **private schools**



Challenges in DepEd Subsidy Programs

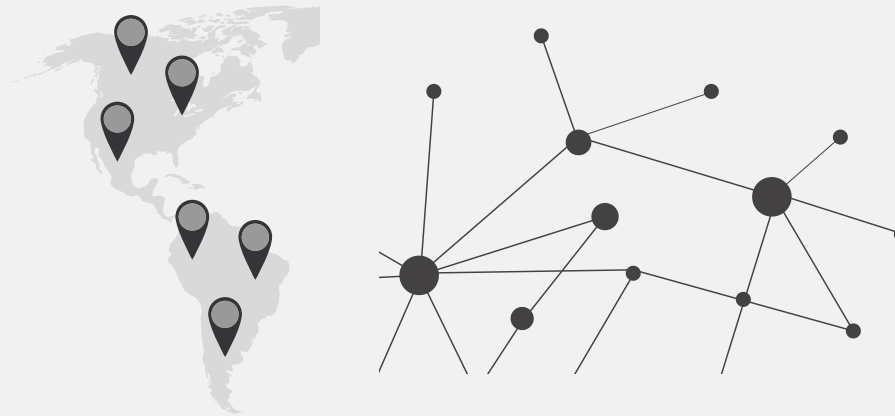
These programs often face **challenges in implementation and oversight** that has led to fiscal shortcomings

Framework

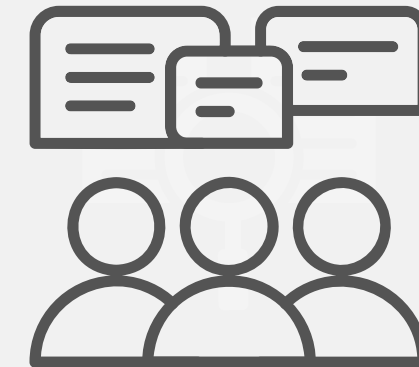
The framework facilitates the generation of school graph networks based on policy or operational use cases



Collect the geospatial information of public and private schools from DepEd



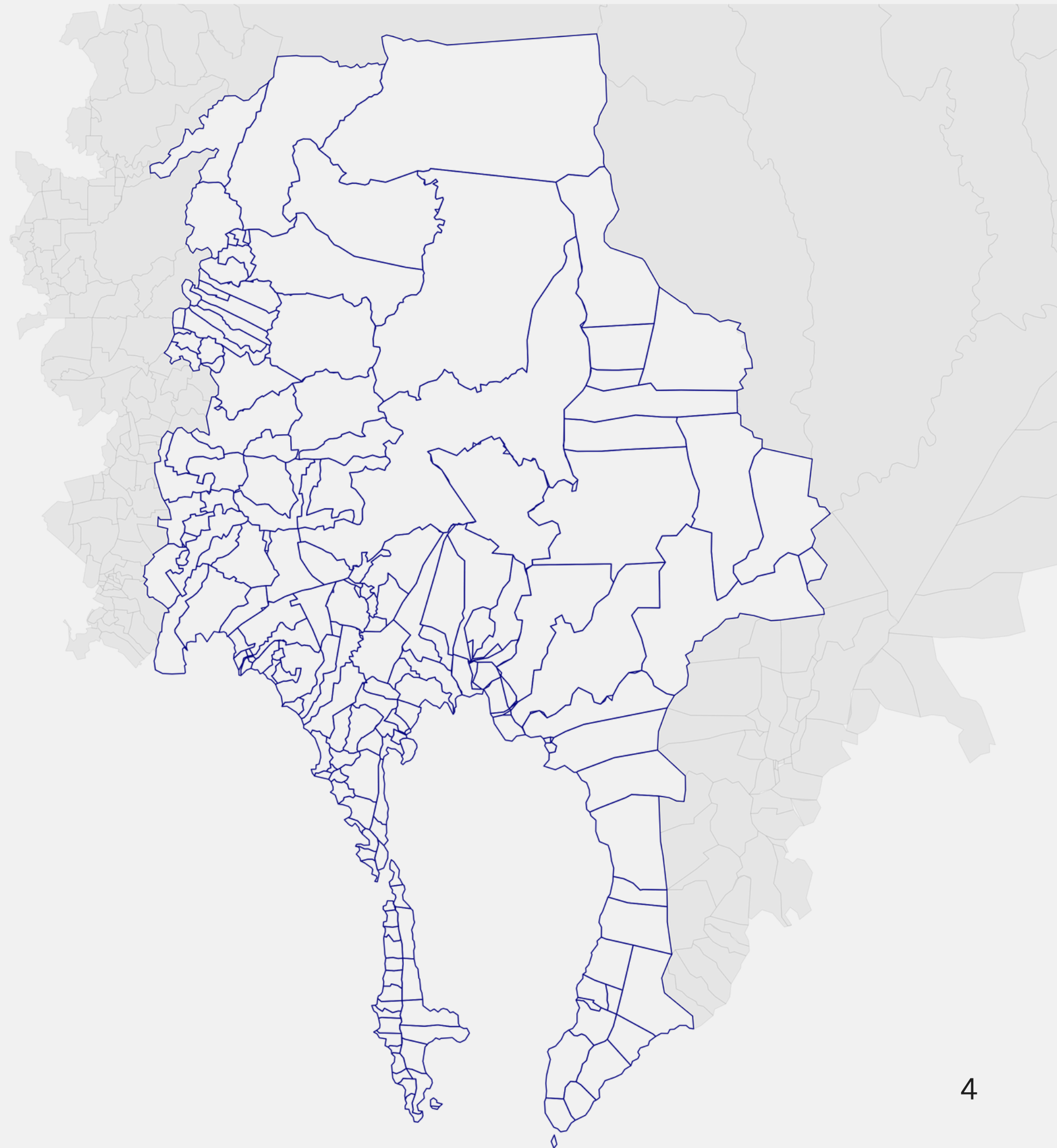
Transform schools into graph networks using open-source tools and resources



Use geospatial analysis and network science to contribute to existing discussions on subsidies

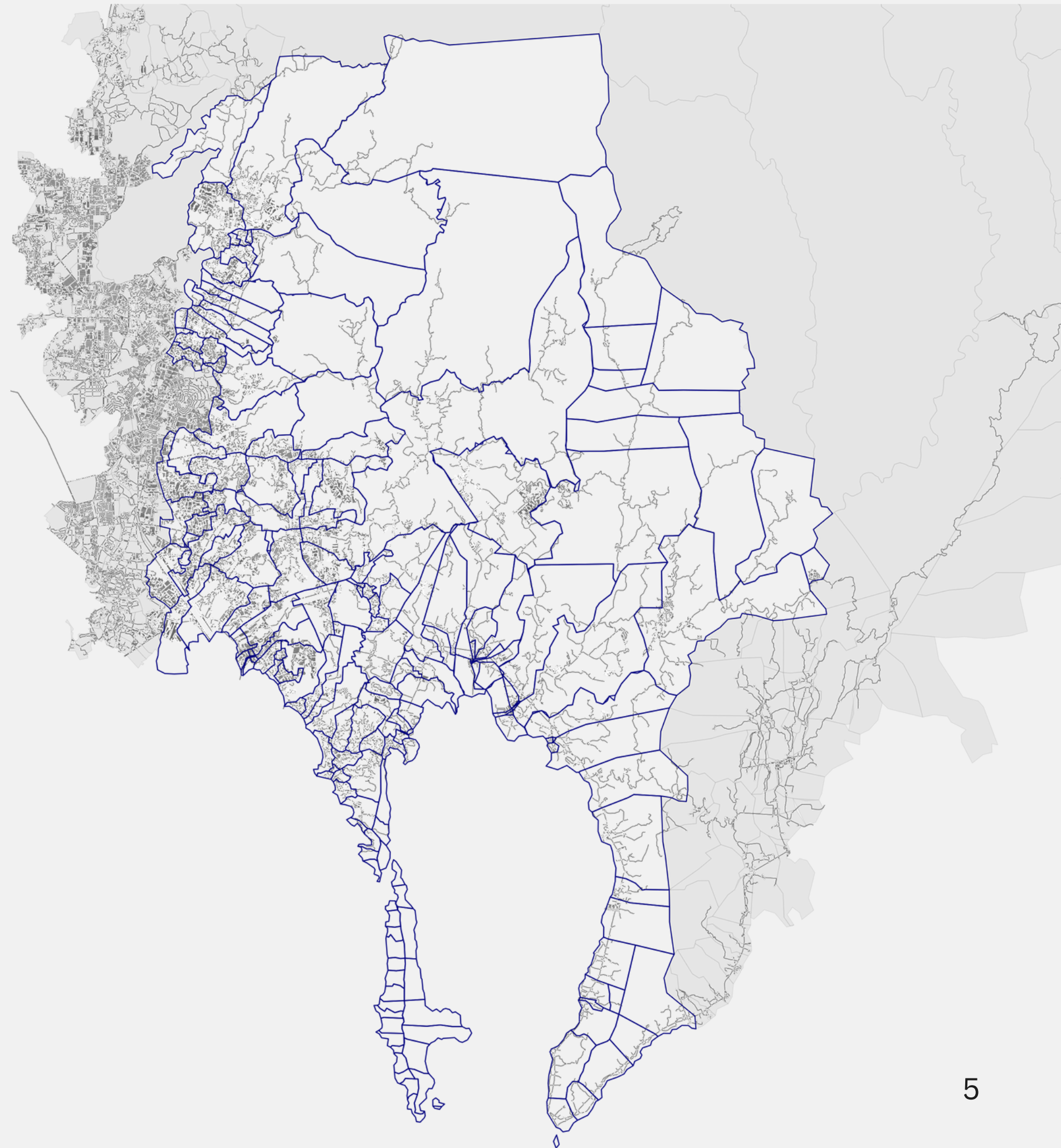
Graph Network of Schools

- Get the geography of target location and the geographies that are adjacent to the target



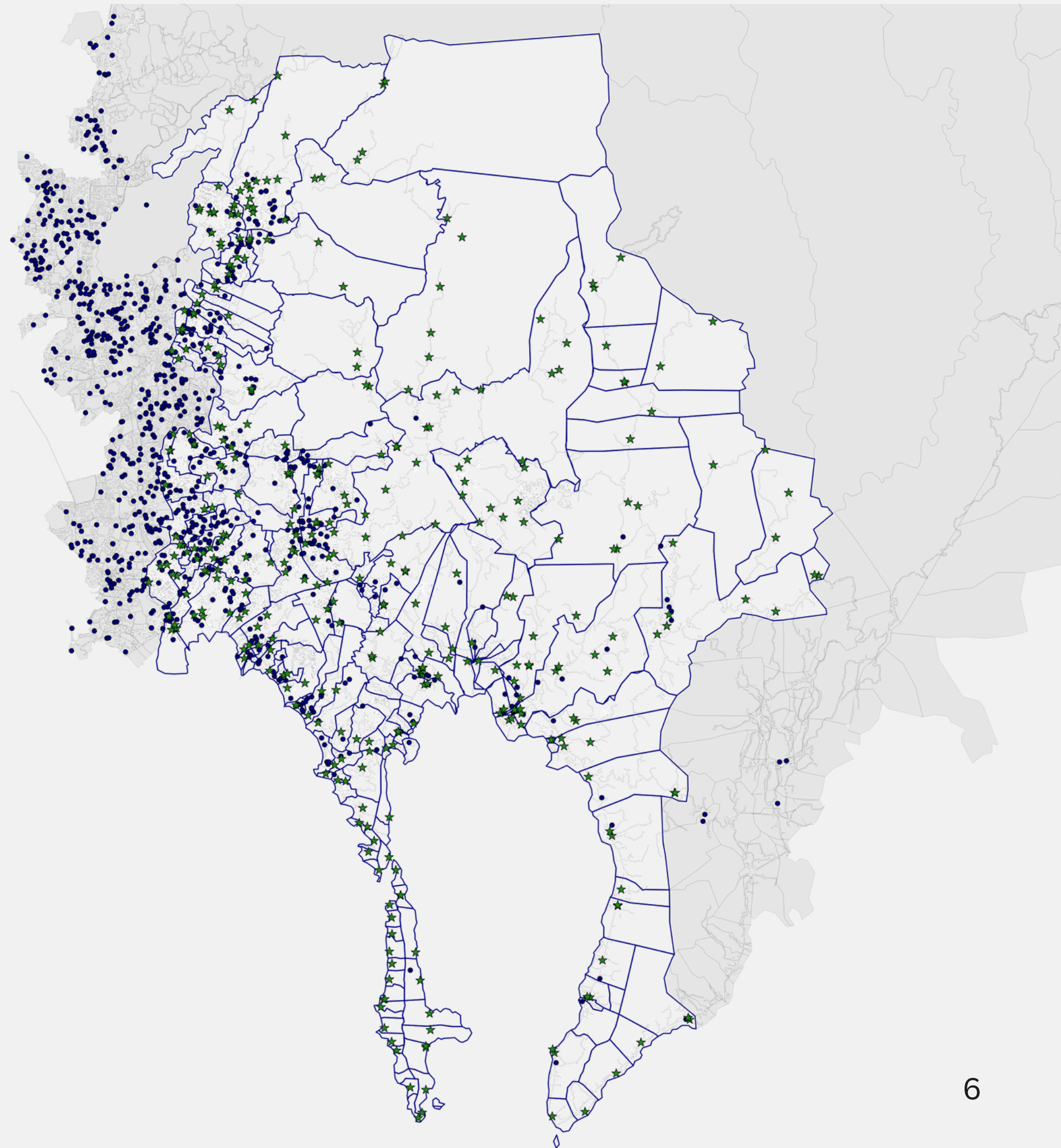
Graph Network of Schools

- Get the drive road network from OpenStreetMaps & NetworkX using the collected geographies



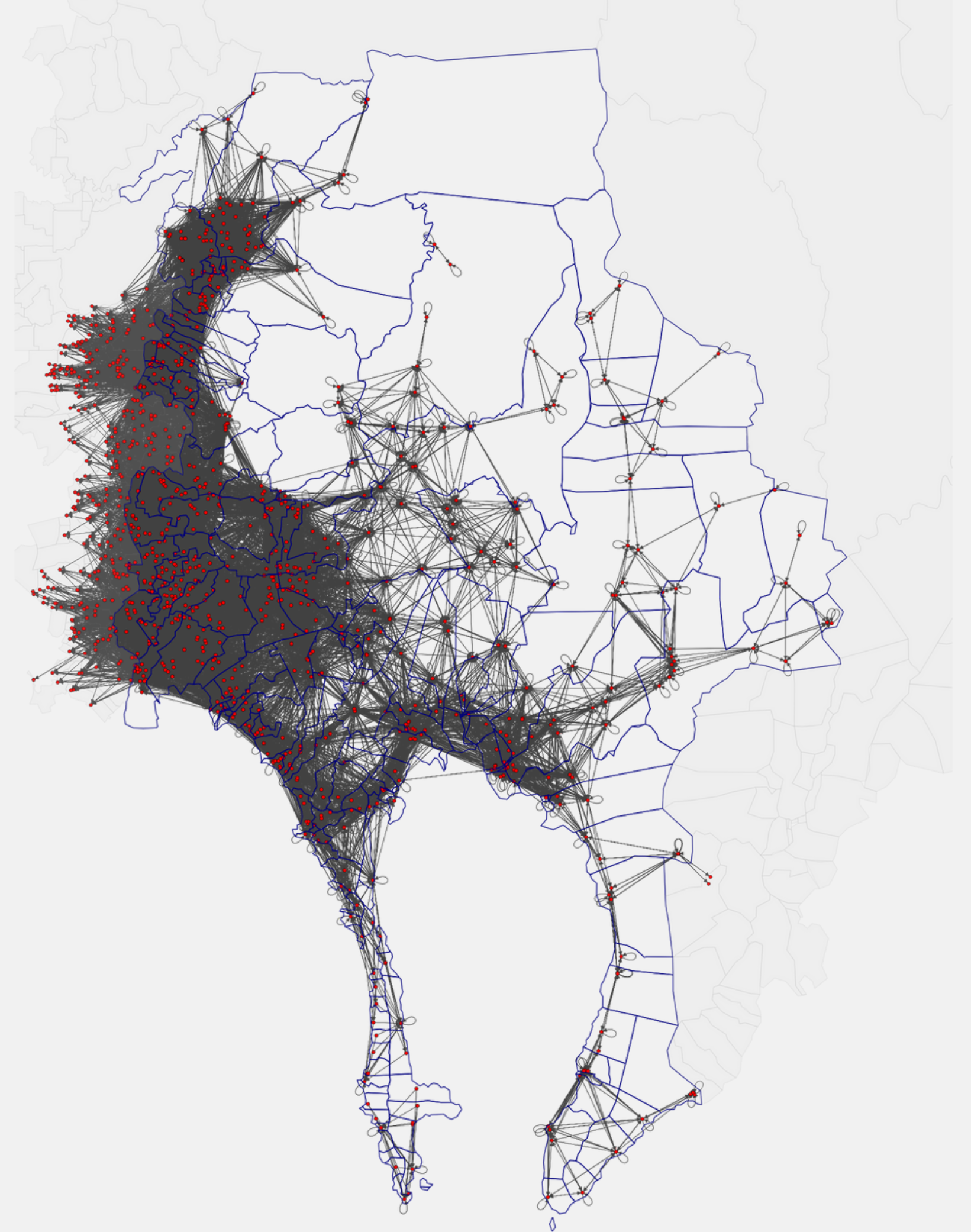
Graph Network of Schools

- Overlay our public and private schools using their longitude and latitude values on the drive network



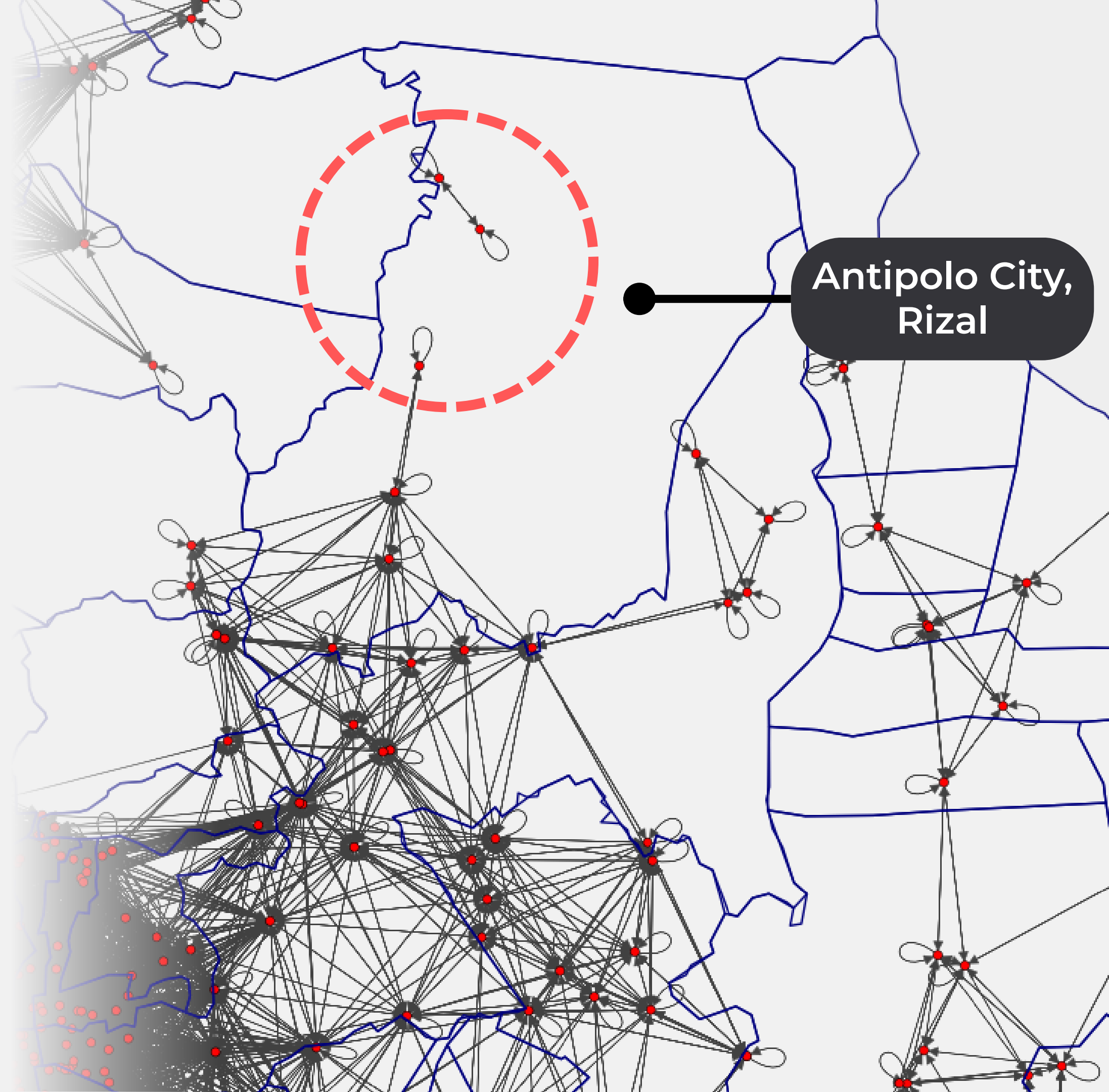
Graph Network of Schools

- Get the shortest paths for every public school to nearby public schools and private schools
- Our graph network's vertices are our schools while our computed shortest paths serve as our edges



Sample Observation

Rizal Province in Region IV-A features a diverse mix of urban and rural areas shaped by its **mountainous terrain**. The highlighted section shows public schools in Rizal's mountainous regions that are **geographically isolated from other educational institutions**, both public and private.



Use Case 1

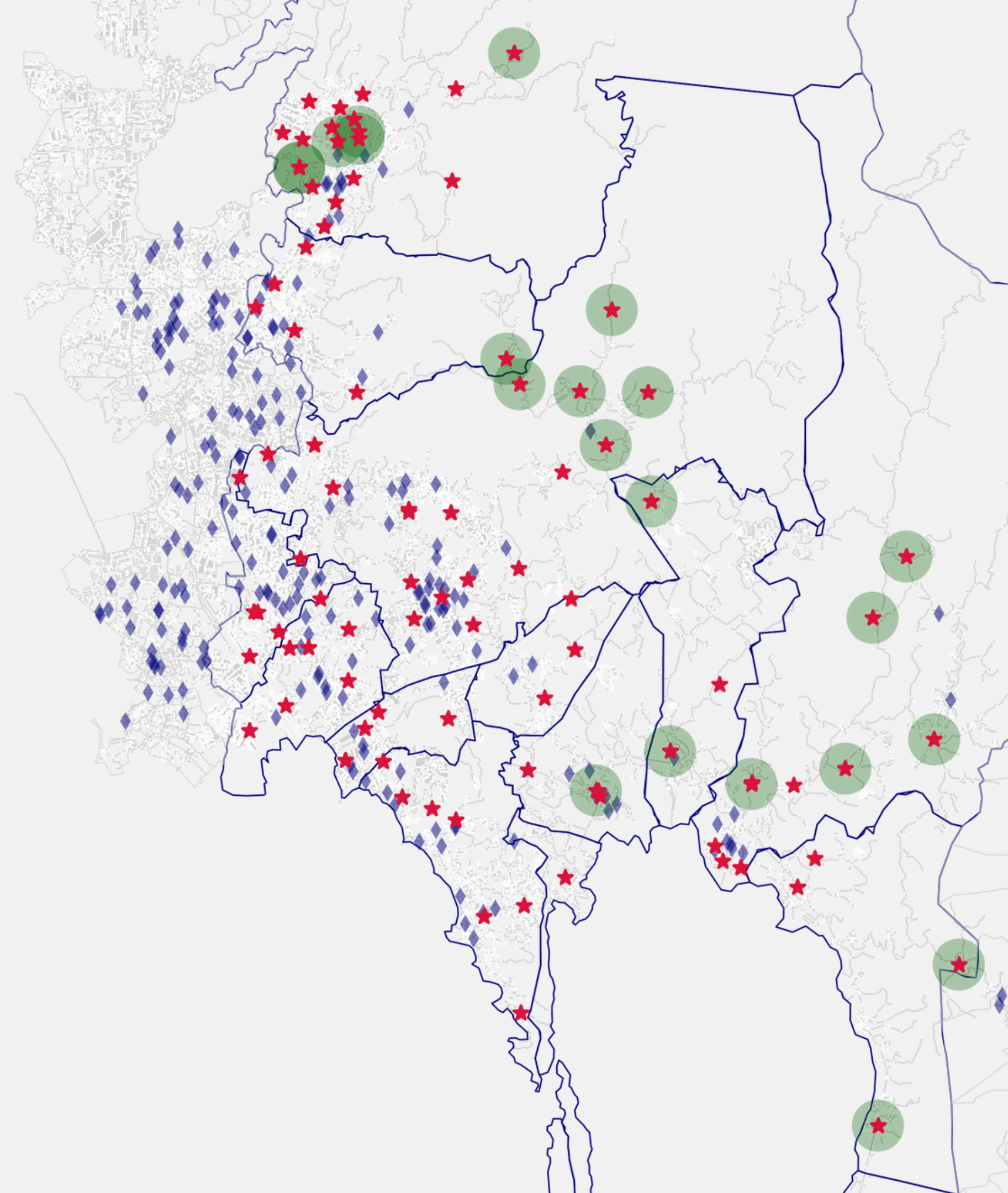
Access of Public Junior High Schools to Senior High School Offerings

QUESTION

Where are our public Junior High Schools that have access to a very limited menu of Senior High School offerings ?

OPPORTUNITIES

DepEd to capacitate public Senior High Schools to offer less accessible SHS offerings. Private schools to complement gaps.

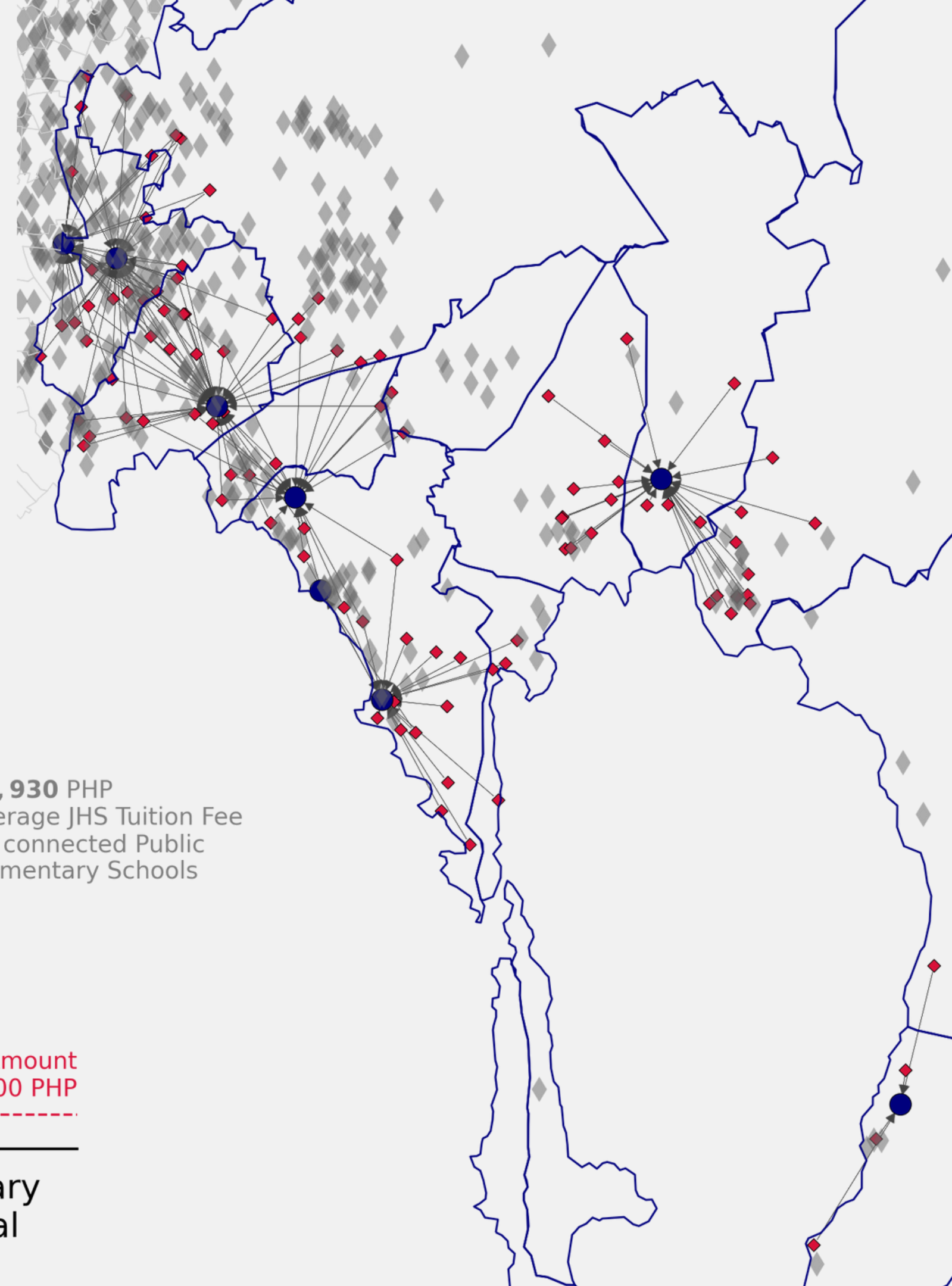
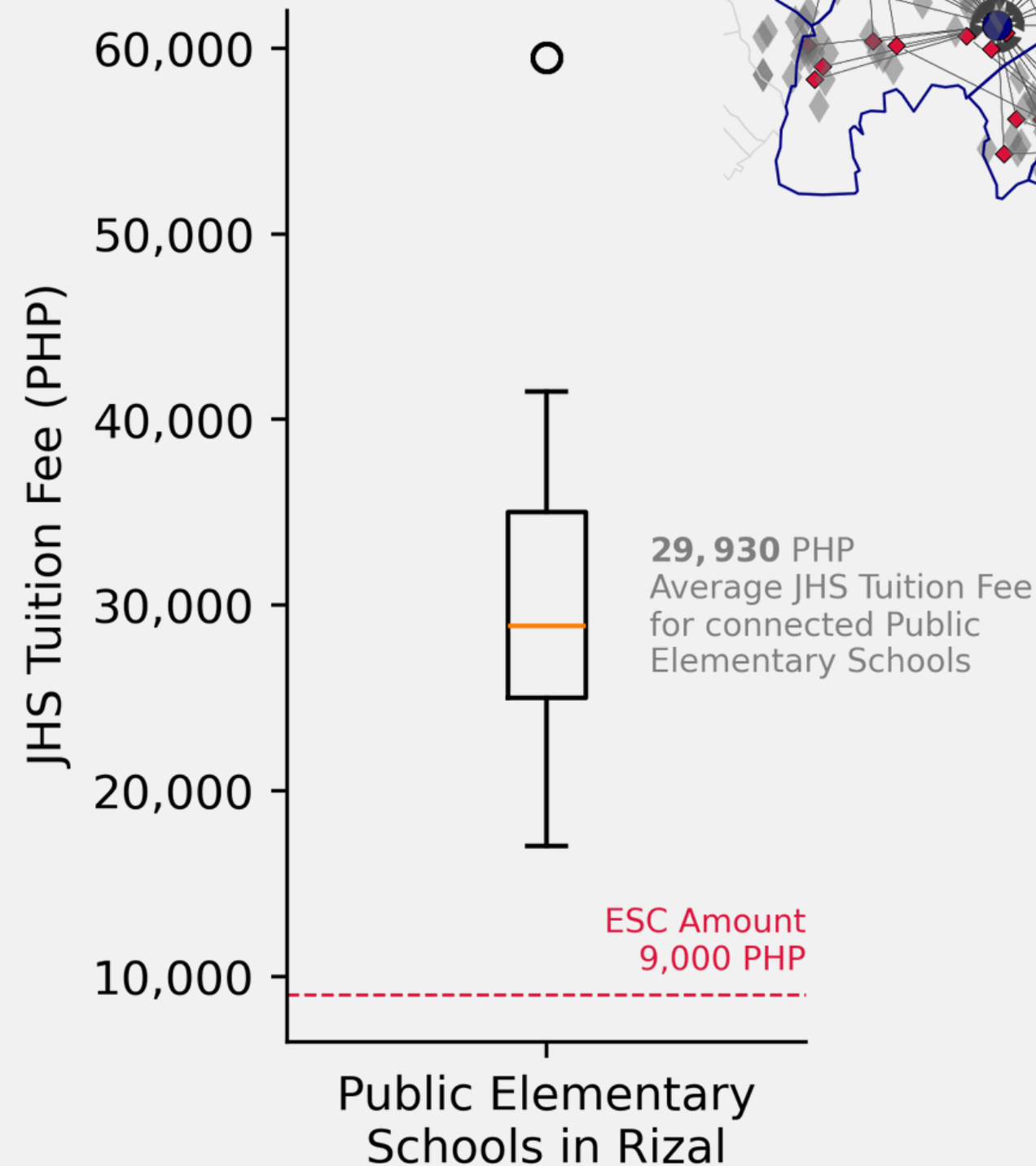


Use Case 2

Rethinking approach in determining subsidy amounts via proximity

QUESTION

What is usually the tuition cost of nearby private schools that are certified to accept government subsidy?
How large is the gap between JHS tuition and DepEd subsidies?





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