Meeting Minutes 1: Initial Project Discussion

Date: March 17, 2025
Time: 4:00 PM - 6:00 PM
Attendees: TOH Rui Chen, Chamus CHEW Yat Weng, Jernic YEO Jun Zhi
Subject: Project Scoping for QGIS Solar Farm Analysis Assignment

Agenda Items Discussed

1. Project Focus Decision

Initial Options Considered: Wind Farm Analysis vs Solar Farm Analysis

Points of Discussion:

- Wind Farm Limitations:
    - Limited existing wind turbine installations in Singapore
    - Space constraints for new installations
    - Inconsistent wind flow patterns in Singapore
    - Limited local data availability
- Solar Farm Advantages:
    - Greater prevalence of existing solar installations (observed on HDB rooftops)
    - Better data availability for solar installation capacities and locations
    - More opportunities for land use optimization analysis in QGIS
    - Alignment with Singapore's renewable energy initiatives

Decision:

- After discussion, the team unanimously agreed to focus on Solar Farm analysis as the primary project direction.

2. Data Requirements and Acquisition

Required Datasets:

- Land Use Data:
    - Extract polygons with LU_DESC of Openspace, Waterbody & Reserved site

    - Avoid residential, special use, and built-up areas
    - Exclude natural reserves and parks
- Topographical Data:
    - Slope & DEM/aspect data from hands-on exercise
    - Solar radiance data from NASA's POWER LARC website (single point)
- Infrastructure Data:
    - Roads from OpenStreetMap (OSM), clipped with Singapore land use layer
    - Substation/electrical room locations via OpenStreetMap API (export as KML)
    - Environmental data (sunlight/temperature)

Data Collection Assignments:

- Rui Chen and Chamus to research and gather the identified datasets
- Team to refine specific data requirements as project progresses

3. Project Technical Setup

Requirements:

- GitHub repository for version control and collaboration
- A1 poster for presentation

GitHub Workflow Discussion:

- Jernic explained and introduced GitHub workflow version control for team members:
    - Capability to track various file types (code, Excel, CSV, etc.)
    - Basic workflow process: pull → make changes → commit → push
    - Importance of pulling before making changes to maintain synchronization
    - Recommendation to use GitHub Desktop application for easier management

Points of Disagreement and Resolution:

1. Repository Structure:
    - Rui Chen suggested organizing by data types
    - Chamus proposed organizing by project phases
    - Resolution: Agreed to use a hybrid approach with main folders for phases and subfolders for data types
2. Website Platform:
    - Jernic advocated for Quarto for its integration with R and markdown
    - Chamus suggested using WordPress for simpler management
    - Resolution: Selected Quarto to comply with assignment requirements and better technical documentation capabilities
3. Data Analysis Approach:
    - Rui Chen recommended focusing on available open spaces first
    - Jernic suggested a comprehensive approach analyzing all potential land types
    - Resolution: Decided to start with open spaces for initial analysis but develop a framework that could incorporate other land types if time permits

4. Division of Labor

Task Assignments:

- Jernic:
    - Lead technical implementation of Project website using Quarto, HTML/SCSS and Javascript
    - Configure GitHub repository and workflow
    - Develop and integrate geospatial visualization components
- Rui Chen:
    - Lead technical implementation of QGIS analysis
    - Gather and process land use and topographical data
    - Research solar efficiency parameters
- Chamus:
    - Collect infrastructure and environmental data

    - Process and configure scripts for data collection
    - Documentation and report writing

Assignment Considerations:

- Distribution based on technical strengths and previous experience
- Balanced workload across team members
- Cross-training opportunities to develop new skills

Meeting adjourned at approximately 6:00 PM.