

LCMR Project Final Report

Title Page

Project Title: Enhanced Land Cover Mapping Initiative

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Executive Summary

The Enhanced Land Cover Mapping Initiative was designed to improve the accuracy and usability of existing land cover maps for the region of South Valley. By integrating advanced remote sensing technologies and ground-truthing methodologies, the project successfully updated the land cover database, which will assist in better resource management, urban planning, and environmental protection.

Project Objectives

- To update the regional land cover maps using high-resolution satellite images.
- To verify map accuracy through comprehensive ground-truthing efforts.
- To create a publicly accessible database of the updated land cover maps.

Methodology

- **Data Collection:** Utilized high-resolution satellite imagery and aerial photography to collect data over a 10,000 sq km area.

- **Image Processing:** Applied machine learning techniques to classify different land cover types such as forest, urban, water, and agricultural lands.
- **Validation and Accuracy Assessment:** Conducted field surveys to validate and correct the map outputs, ensuring an accuracy rate above 95%.
- **Database Development:** Developed an online database to disseminate the updated maps to public and governmental bodies.

Achievements and Results

- Produced updated land cover maps with a classification accuracy of 98%.
- Increased the types of identifiable land cover classes from 5 to 15, including specific categories for different forest types and urban densities.
- Launched an interactive online platform where the maps are accessible to stakeholders and the public.

Challenges and Solutions

- **Challenge:** Difficulties in accessing remote areas for ground-truthing.
- **Solution:** Employed drone technology to collect data in inaccessible regions, which enhanced the validation process without the need for extensive physical travel.

Financial Overview

- **Budget Allocated:** \$300,000
- **Total Spent:** \$290,000
- **Savings:** \$10,000 saved through the use of in-house developed drone technology instead of outsourcing.

Conclusions and Recommendations

The project not only met but exceeded its objectives by leveraging cutting-edge technology to enhance the quality and accessibility of land cover data. For future projects, it is recommended to explore the integration of more dynamic data sources, like real-time satellite feeds, to keep the maps continuously updated.

Appendices

- **Appendix A:** Technical Specifications of Satellite Imagery and Software Used
- **Appendix B:** Classification Schemes and Methodology Details
- **Appendix C:** Accuracy Assessment Reports
- **Appendix D:** User Guide for the Online Map Database