FIG WORKING WEEK 2025
AND Locate25 THE NATIONAL GEOSPATIAL CONFERENCE
Collaboration, Innovation and Resilience: Championing a Digital Generation
FIG Geospatial Council of Australia
Brisbane, Australia 6–10 April

CORRECTING CADASTRAL MAPS ERRORS IN ARMENIA

USING GEOSPATIAL TECHNOLOGY

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Head of the Cadastre Committee of Republic of Armenia

Cadastre Committee

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OUTLINE

- Introduction
- Methods
- Results

Introduction

Challenges in Armenia's Cadastral System

- Historical reliance on outdated surveying methods.
- Issues related to human error, manual surveys, and inaccuracies in measurements.
- Need for modern geospatial technologies to improve accuracy and efficiency.

Legislative Reform (2021)

- New legal framework

  Armenia implemented legislative reforms that allowed to integrate high-resolution orthophotos with up to 30 cm resolution.

Goal

To present a scientifically rigorous approach to cadastral map error correction that incorporates both technological advancements and legal frameworks to achieve enhanced land administration accuracy.

To evaluate the accuracy of cadastral maps in Armenia

To demonstrate the effectiveness of geospatial technologies in error correction

To provide a framework for cadastral data enhancement in Armenia

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METHODOLOGY

TOOLS

QGIS, vector data, WGS-84 coordinate system.

COLLABORATION

Involvement of local authorities and community leaders.

LEVELS OF CORRECTION

01 **Correction of Administrative Boundaries**

02 **Correction of District Boundaries**

03 **Correction of Parcel Errors**

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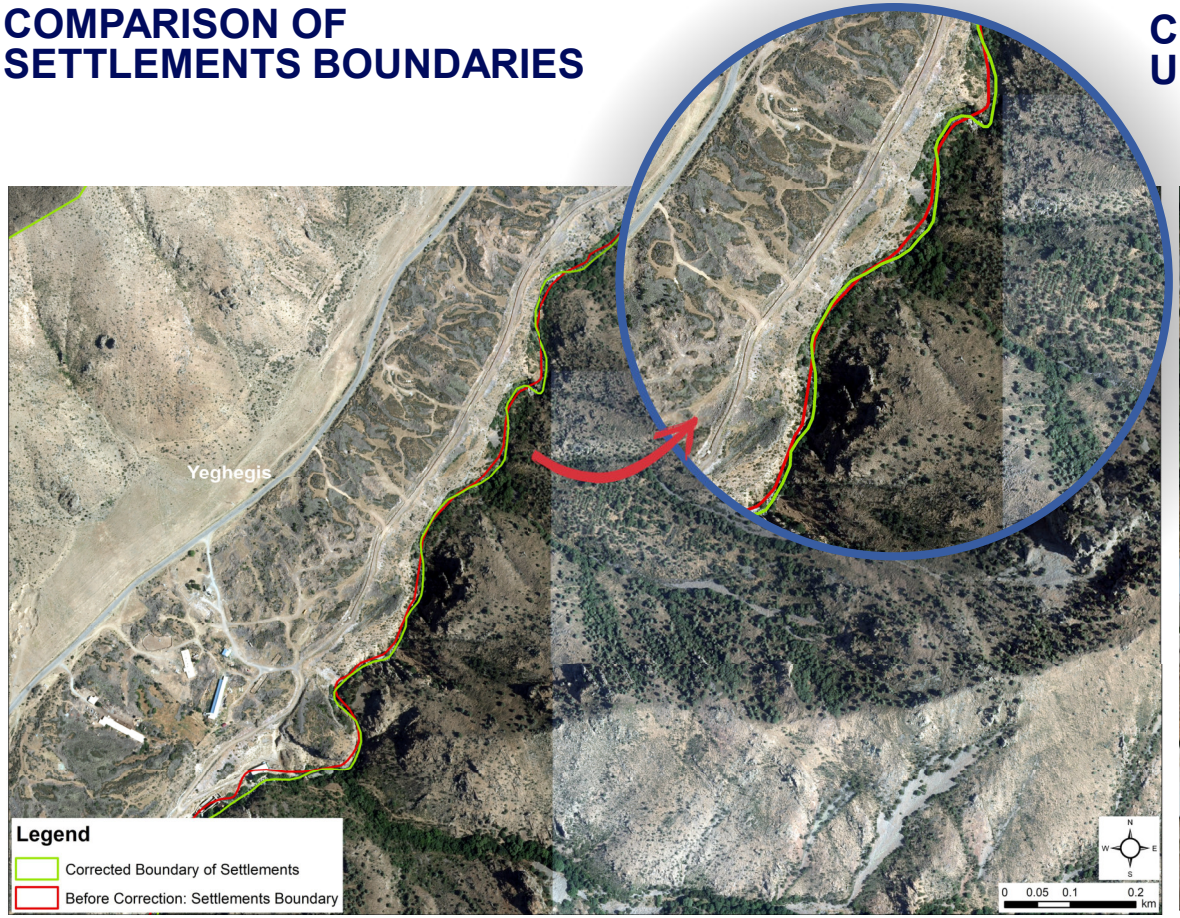
COMPARISON OF SETTLEMENTS BOUNDARIES



CORRECTED CADASTRAL DISTRICT BOUNDARIES: UPDATED AND CURRENT BOUNDARIES

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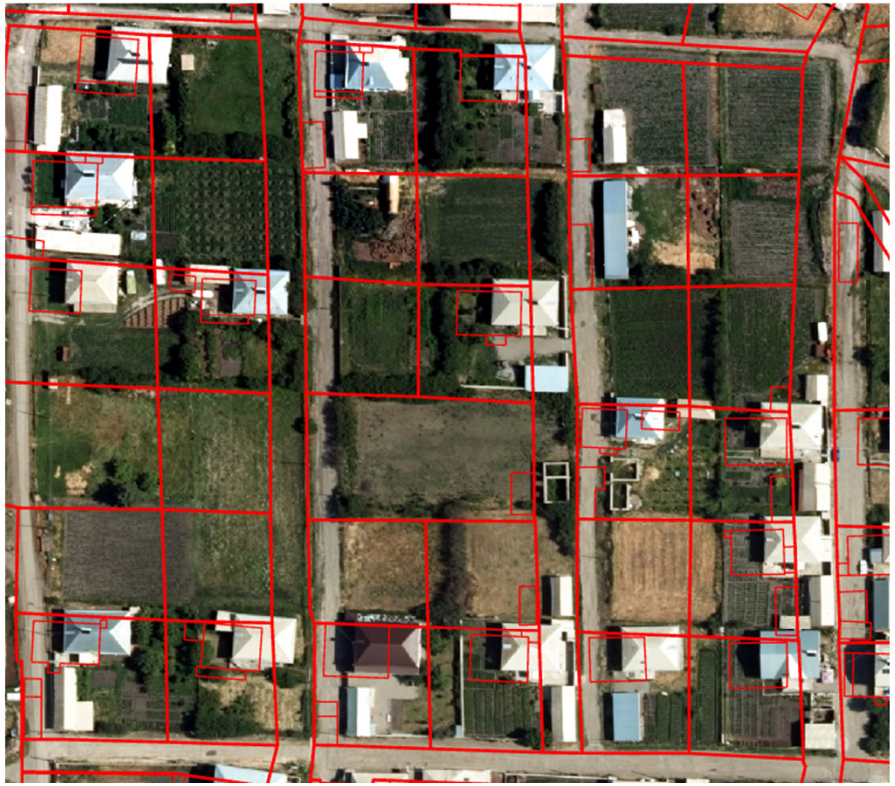
COMPARISON OF CADASTRAL MAP BOUNDARIES



before correction

after correction

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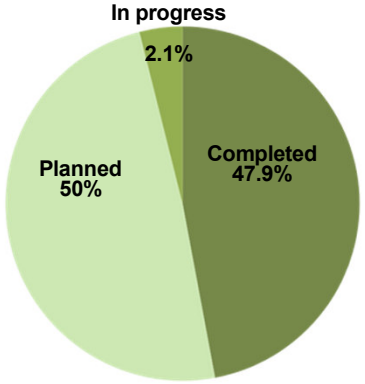
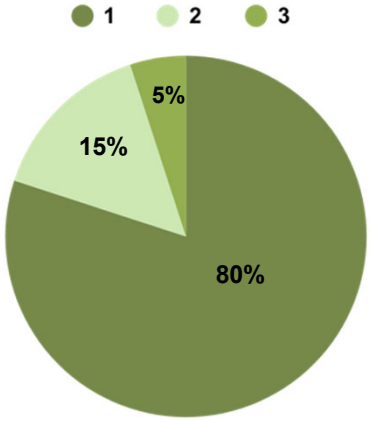
RESULTS

Progress



Workflow overview for the map improvement process



Distribution of feedback and suggestions

Feedback

- 35 revised community projects submitted, focusing on legally defined administrative boundaries.
- Some verbal suggestions were not incorporated (e.g., property boundary disputes).

1.Complaints/suggestions related to property boundaries, which are not considered within the scope of this work.

2. Changes to the boundaries of two neighboring settlements, particularly those adjusted by the Cadastre Committee in accordance with the description of community boundaries defined by the Law on Administrative Territorial Division of Armenia.

3. Other.

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RESULTS

Accuracy Analysis

Geometric Deviation

Mountainous settlements

- Point Deviation: 0.5m – 3m
- Land Plot Deviation: 0.5m – 3m
- Administrative Unit Deviation: 0.5m – 10m

Flatland settlements

- Point Deviation: Up to 210m
- Land Plot Deviation: Up to 210m
- Administrative Unit Deviation: 0.5m – 100m

Topological Errors

Urban (Kapan City)

- Overlay: 150
- Gaps: 152
- Buildings outside parcels: 2

Rural (Saravan Village)

- Overlay: 7
- Gaps: 17
- Buildings Outside Parcels: 0

Semantic Errors

Urban (Kapan City)

- Duplicate Cadastral Codes: 4
- Building Code Mismatch: 18

Duplicate cadastral codes for land parcels and buildings.

Cadastral codes for land parcels or buildings that do not correspond with registered property rights.

Discrepancies between building codes and corresponding land parcel codes.

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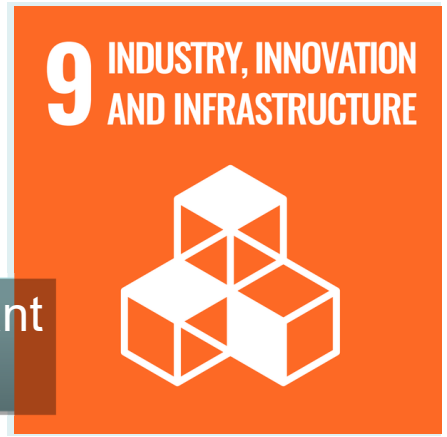
1st relevant SDG



2nd relevant SDG

3rd relevant SDG

SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals

THANK YOU

FOR YOUR ATTENTION

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