THE ROLE OF CADASTRAL INFORMATION IN PERI-URBAN SETTLEMENT PLANNING IN KIGALI CITY

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About the study
Settlement planning is conceptualized as two phases: preparation of plans and implementation.

Land use and rights changes in the course of peri-urbanization

Planning instruments:
- Settlement plan
- Land Re-adjustment in settlement planning and implementation

Forms and level of stakeholder participation is shaped by and shapes the process of planning and information needs and uses.

Objective: investigate the process of preparing and implementing a settlement plan in a peri-urban area of Kigali with specific focus on how cadastral information is used.
Background of the case study
Parcel structure

- Irregular parcel
- Individual parcels
- No access to roads

Participatory approach was proposed by the district

- Many people sold their land
- Relocation
- Land rights affected

Land readjustment

- Regular and equal sized parcel
- With access to roads

Two years to implement the project
Methods
Individuals' perceptions on planning

Process of plan preparation and implementation

Practices in land acquisition and reallocation

Uses of cadastral data

Mapping land use change

Dynamics between the plan, cadastre and ground

Consistency between the plan and cadastre

Land use classification

Spatial analysis

Questionnaire

Expert Interviews

Focus Group Discussion

GIS

Mixed method

Applies to

Sub-objective 1

Sub-objective 2

Sub-objective 3

Sub-objective 4
Specific objectives and main findings
1. To describe how land uses and rights changed during the plan implementation

a. Landuse change

- Decrease of agriculture land (from 43.9% to 0%)
- Increase of road and houses size (1.7% to 26.1% and 1.8% to 12.2%)
- Vacant land (grassland) is the dominating landuse currently
- Some planned uses are not yet in place (schools and health centre)
b. Land rights changes/affected

- Planned roads affected individual plots
- Planned parcels affected existing houses

- Most changes in subdivision and use rights
- Lack of self determination on compensation and inheritance rights
2. To compare the neighbourhood characteristics of the site before the implementation of the plan and nowadays

**Neighbourhood Composition**
- No noticeable difference in age between two groups
- Education and income are higher for new residents
- New residents are urban salaried; and old residents are farmers
- Indication of gentrification

**Push and Pull factors**
- Requirement of the plan
- Landuse change
- Cheap land and housing
- Rental market

**Residents’ perception**
- Overall residents are happier now than before
- Most residents feel at home
3. To investigate what, by whom and for what purposes cadastral information was used in settlement plan preparation and implementation

a. Type of information used in planning

- **Information needed in plan preparation**
  - Road setback required
  - Road size required
  - Type of houses required
  - Size of the plot required
  - Existing built-up data
  - Land use data
  - Digital Elevation Model (DEM)
  - Existing utilities structure
  - Satellite images
  - Cadastral information
  - Land with annotation
  - Protected areas
  - Population data
  - Rules and regulation of plans
  - Urban planning code
  - Experiences from others
  - The vision of the Country

- **Information needed in plan implementation**
  - Settlement plan itself
  - Signed Commitment form
  - Timeline to implement the plan
  - Approval of the district
  - Approval of the city
  - Land titles (hardcopy)
  - Cadastral information
  - Budget of the plan
  - Checklist for monitoring

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**Cadastral information most used**

- Parcel layer
- Ownership
- Land title
3. To investigate what, by whom and for what purposes cadastral information was used in settlement plan preparation and implementation

b. Uses of cadastral information

Cadastral information was used as the base map for planning:

- Inform parcel merging
- Inform re-parcellation
- Who owns what
- See the progress of the project
- Identify boundary changes
- Physical demarcation of plots
- Proof of ownership
3. To investigate what, by whom and for what purposes cadastral information was used in settlement plan preparation and implementation

C. Land readjustment and the use of cadastre

Deviation to standards of land readjustment on:
• cost sharing,
• land reduction,
• compensation

Land acquisition and reallocation

Land registration process
4. To describe the degree and kind of participation of residents in settlement plan preparation and implementation

a. Actors and level of participation

- Actors and participation levels increased from preparation to the implementation
- Participation via the committee

![Diagram showing participation levels in plan preparation and implementation](image-url)
4. To describe the degree and kind of participation of residents in settlement plan preparation and implementation

b. How informed people were

- Majority of residents felt well informed

C. Satisfaction with planning process

- Overall residents are satisfied
Recommendations
For the future research, I recommend more studies on:

- The dynamics of displacement within peri-urban areas as a result of planning
- Plan preparation and implementation without the cadastre
- The use of cadastral information in other planning domains and areas
- How “participation” manifests in practice of planning
- People’s perceptions and commitment in planning

For Rwanda,

- I recommend to revise land readjustment process in peri-urban areas of Kigali city, to improve the cost and benefit sharing among all landowners
Thank you!