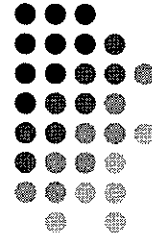



A parcellary approach to mapping existing land

USES:

The case of Nairobi city

Presented by: Wamukaya Edwin



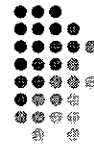
 COLUMBIA UNIVERSITY



UNIVERSITY OF NAIROBI
Dept. of Urban & Regional Planning



Introduction...



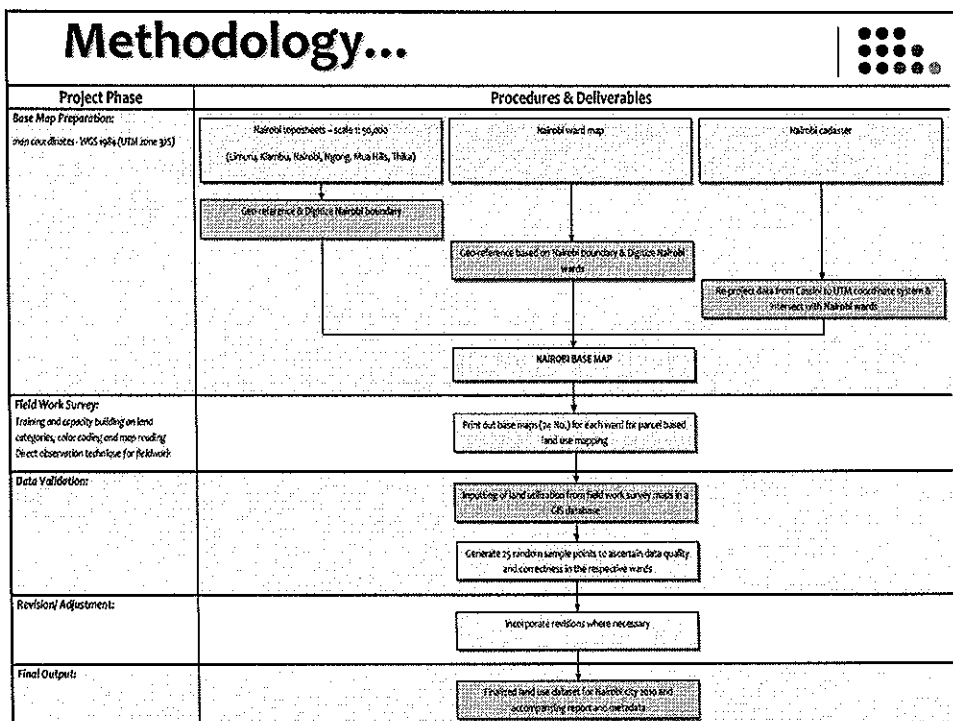
- Land use mapping continues to play a major role in formulation of land use plans
- **Land cover vs land use:**
 - *land cover* - a physical description of the earth's surface (e.g. grass, trees, building and asphalt)
 - *land use* - a functional (socio-economic) description of the earth's surface (e.g. agricultural, residential, commercial and industrial)

About the parcellary approach...

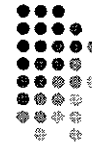
- This is a community based “walk through” approach of determining individual uses of parcels in the locality
- **Advantages:**
 - *it is possible to validate and update the land information status of the locality faster*
 - *reliable because boundaries of land uses can be located on their exact position on the ground*
 - *local Government units can be able to monitor with ease the developments happening in a given locality and problems such as unwanted/ undesirable developments can be avoided*
- **Disadvantages:**
 - *Tedious and time-consuming process*
 - *Requires up to date cadaster boundaries*

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Methodology...



Methodology in implementing the parcellary approach [1]...



Base map preparation

- Use a GIS to prepare a cadastral base map of the city of Nairobi
 - *secure all the complete list of cadastral maps pertaining to the city*
- Overlay the ward boundary maps to the cadastral map to show which parcels are located or belonging to a certain ward
 - *It is important to note that, in most cases, ward boundaries do not necessarily correlate with the boundaries appearing in the cadastral sheets. This is because they have a different basis of boundary delineation where ward maps are used for administrative purposes.*

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Methodology in implementing the parcellary approach [2]...



- *All over features shall be inputted to the computer including the waterways, road network and other important landmarks, which can be of help to the land use planners in locating parcels in the ground.*

Field work survey

- Training personnel to be involved in the survey
 - *How to read maps/ aerial images*
 - *Land use color-coding (must be strictly observed as not to confuse different uses of parcels)*
 - *Individual ward printouts to be distributed to the research assistants for their reference with the ward/ administrative boundaries.*

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Land use categories[1]...



- In general, land is classified according to its physical characteristics and/or the present activity that occurs on it.
- The two major divisions in a land use classification system are “Developed” and “Undeveloped” uses.
- Each of these divisions can be further subdivided into specific land uses.
- The following is a listing and description of the standard land uses categories (based on the physical planning handbook)

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Land use categories[2]...



Code	Land use categories	Practical examples	Color - codes
0	Residential	All land and/or structures used to provide housing for one or more households	Brown
	High density (01)/ Medium density (02)/ Low density (03)	Slums/ apartments/	Dark brown/ Mid brown/ Pale brown
1	Industrial	Light or heavy industrial, motor garages, airport ware houses	Purple
2	Educational	Schools, colleges, universities (public & private), research institutions	Orange
3	Recreational	Municipal and community parks, golf courses, designated/ restricted open spaces, protected forests	Green
4	Public purpose	Hospital, post office, library, fire station, cemetery, churches, mosques, temples, stadiums, theatres, police stations, prisons, administrative offices	Yellow
5	Commercial	Office parks, retail, wholesale, furniture shops, banks, hotels, petrol service stations, restaurants, grocery stores, establishments oriented towards providing professional and personal services to the public	Red

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Land use categories[3]...



Code	Land use categories	Practical examples	Colour - codes
6	Public utilities	Power stations, mobile phone masts, water and waste water, land fills	Blue
7	Transportation	Roads, streets, municipal parking lots, railway lines, airports, termini	Grey
8	Undeveloped land	All parcels with no interpretable building/structure (thereby undeveloped)/ All parcels with no obvious land use category as listed above	Pale yellow
9	Agriculture	Cultivated land or land used to support livestock and poultry	Pale yellow
10?	Mixed use	This category identifies parcels having more than one land use	To be determined
11	Special purpose	Government security installations	To be determined

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Methodology in implementing the parcellary approach [3]...



- Research assistants to be deployed in areas/ localities where they are more familiar with. This hastens and facilitates the mapping activity (**Local knowledge**)
- After the fieldwork, all ward maps used will be turnover to the technical person for integration into the land use database.
- **Validation**
 - Random checks to ascertain/ validate the data quality and correctness will be carried out independently shortly after the completion of mapping and will involve personnel who had not participated in mapping.

Methodology in implementing the parcellary approach [4]...

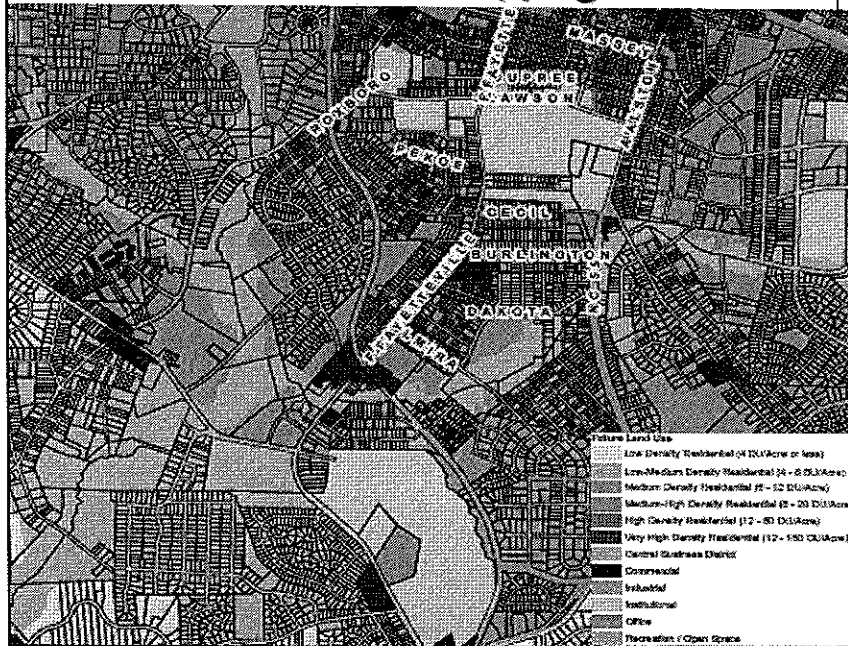


□ Outputs

- *This stage involves the finalization of the land use dataset, final report including metadata, validation reporting and quality assurance*

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Examples of land use mapping initiatives...



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Nairobi City: Land uses

