

ZANZIBAR LAND ADMINISTRATION AND REVENUE GENERATION SYSTEM (LARGE) (4620)



FIG Congress 2010
Facing the Challenges – Building the Capacity
TS 10F - Land Taxation and Fiscal Cadastre

Jukka Nieminen

14.4.2010

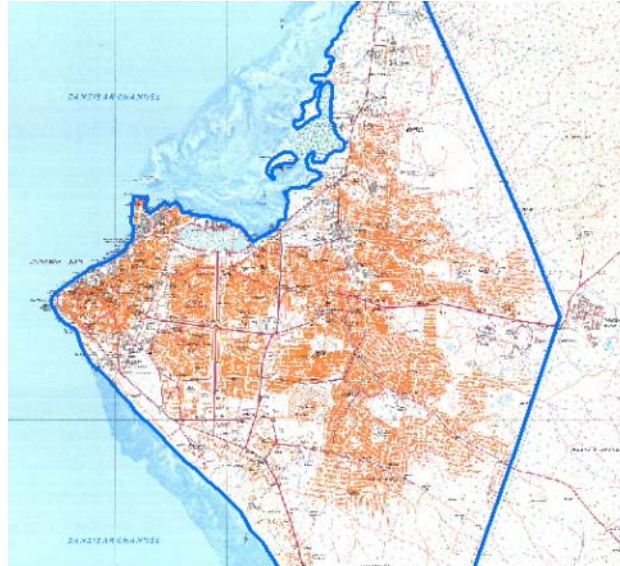
Zanzibar



| | Unguja 2002 | Pemba 2002 | ZANZIBAR 2002 | ZANZIBAR 2008 |
|----------------------------|----------------|---------------|------------------|------------------------|
| Land area sq. km | 1,666 | 988 | 2,654 | |
| Population | 620,957 | 360,797 | 981,754 | 1,100,000 ² |
| Population density /sq. km | 373 | 365 | 370 | 414 |

Urbanization 1978-2005

- Aerial photography 1978 → maps 1982
- Early 1980s all urban area was within the boundaries of Zanzibar Municipal Council (Urban District)



3

Urbanization 1978-2005

- Massive urban development has taken place 1978-2005
- Now the built up area reaches far beyond the Urban District
- Aerial photography 2004-2005
- Digital maps made in-house



Aerial photography 2004-2005



5

Buildings 2009¹

| AREA | BUILDINGS TOTAL | |
|-----------------------|-----------------|----------------|
| STONE TOWN | 2,078 | |
| ZANZIBAR TOWN | 76,263 | |
| UNGUJA - OTHER | 102,261 | |
| UNGUJA TOTAL | | 180,602 |
| MKOANI | 2,139 | |
| CHAKE CHAKE | 6,591 | |
| WETE | 6,323 | |
| PEMBA - OTHER | 59,337 | |
| PEMBA TOTAL | | 74,390 |
| ZANZIBAR TOTAL | | 254,992 |

Urban area buildings 93,394
Rural area buildings 161,598
254,992

¹ preliminary estimate 1.10.2009

6

Multi Purpose Cadastre Pilot - Partners

Land Administration

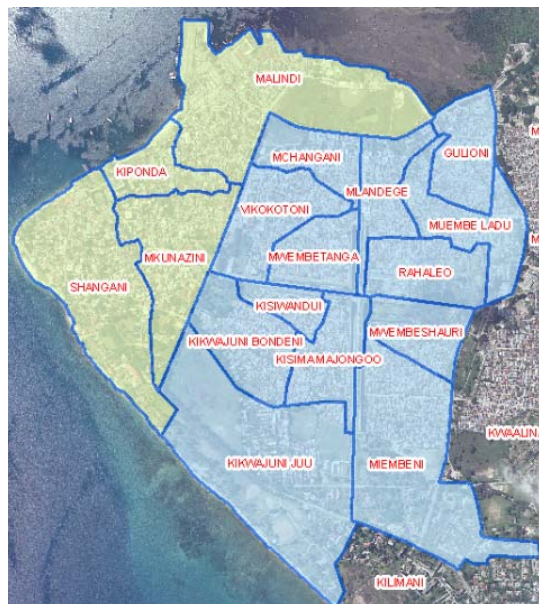
- **Department of Surveys and Urban Planning (DoSUP)**
 - Digital map, aerial photos
- **Department of Land and Registration (DoLR)**
 - Property valuation, Government land lease agreements
- **Registrar of Land**
 - (Adjudication →) Registration of lands
- **Stone Town Conservation and Development Authority (STCDA)**
 - Administration, planning, conservation, and services

Revenue Generation

- **Zanzibar Revenue Board (ZRB)**
 - VAT, hotel levy, stamp duty, land lease collection and monitoring, etc.
 - In the future: property taxation
- **Zanzibar Municipal Council (ZMC)**
 - Urban services, utilities management, utility charges collection
- **SMOLE**
 - GIS development
 - Database development

7

Multi Purpose Cadastre Pilot - Phases



8

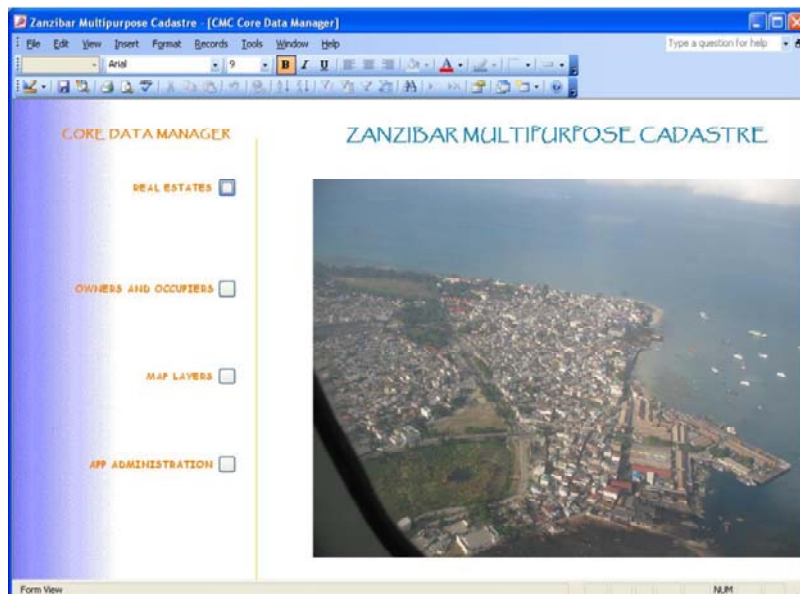
Fiscal Cadastre



09/05/2010

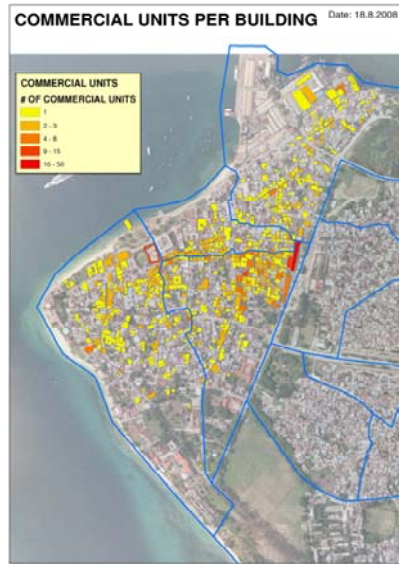
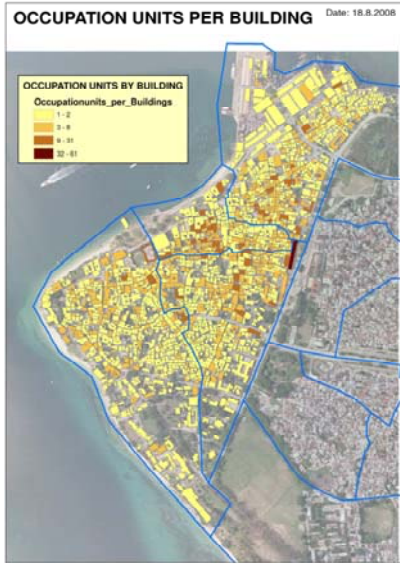
9

Data Entry



10

Thematic Maps



11

Internet Browser Thematic Maps : OpenLayers

MPC Thematic Maps: Buildings by Unit Use

Scale = 1 : 1000
50 m
520667.70048, 9319168.65977

Tools for map zooming and panning

Scale text and bar

Map legend

Show thematic map layers on/off

X, Y location of mouse

12

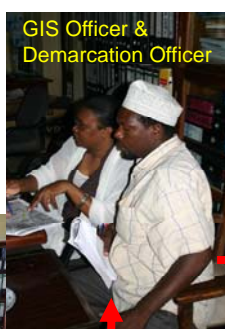
CORE DATA COLLECTION - STATUS

- 97% of buildings done
- SECTION I (Stone Town) 2,069 buildings and 4,638 units entered
- SECTION II (N'gambo area 13 shehias) 5,391 buildings and 10,313 units entered
- Total 7,460 houses and 14,951 units



3

Adjudication Process



09/05/2010

14

ADJUDICATION - STATUS

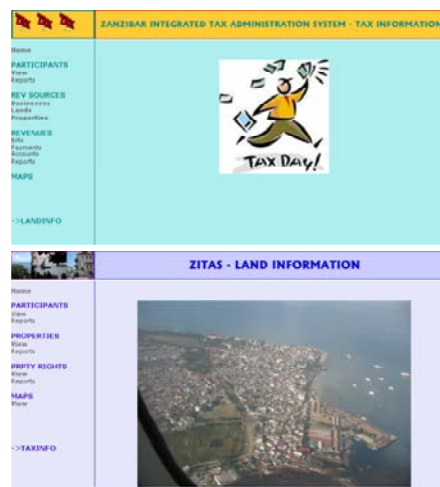
- SECTION I (Stone Town) 1,683 parcels formed and demarcated
- Adjudication completed for 765 parcels
- Others waiting for Adjudication Committee and 90 day public display



15

Zanzibar Integrated Tax Administration System – ZITAS

- SMOLE support for system development
- Business plan v 0.1 - complete
- Overall system design - complete
- User interface - complete
- Installation - complete
- Test data input started on VAT collection in Stone Town
- **Property valuation pending**
- Planned start of real use as of March 2010 – status now ?



16

LARGE - Final results

- Pilot system implemented
- GIS system tested and corrected
- Databases tested and corrected
- Revenue collection method tested
- Staff trained

- Tangible figures available to present to donors for replication of the approach to other urban areas



17

Challenges

- **Challenges met**
 - Delay of the public announcements (Gazette)
 - Delay in public meetings
 - Delay in naming the officers
- **Future challenges**
 - Political will
 - Resistance among the inhabitants
 - Slow process in adjudication part – overly optimistic expectations



18

LARGE - Conclusion

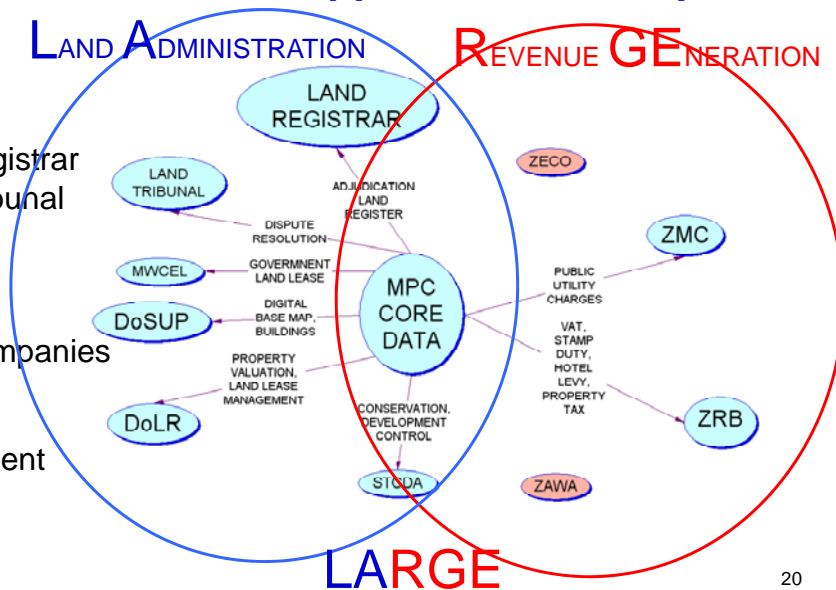
- Pragmatic approach – uses existing knowledge level of Zanzibar staff
- Needs heavier tools if real multi-user environment is built (open source GIS is a serious option!)
- **Political will is essential**



19

Stakeholder needs + application development

- MWCEL
 - DoSUP
 - DoLR
- Land Registrar
- Land Tribunal
- ZMC
- ZRB
- STCDA
- Utility companies
- Census
- Local Government (shehias)



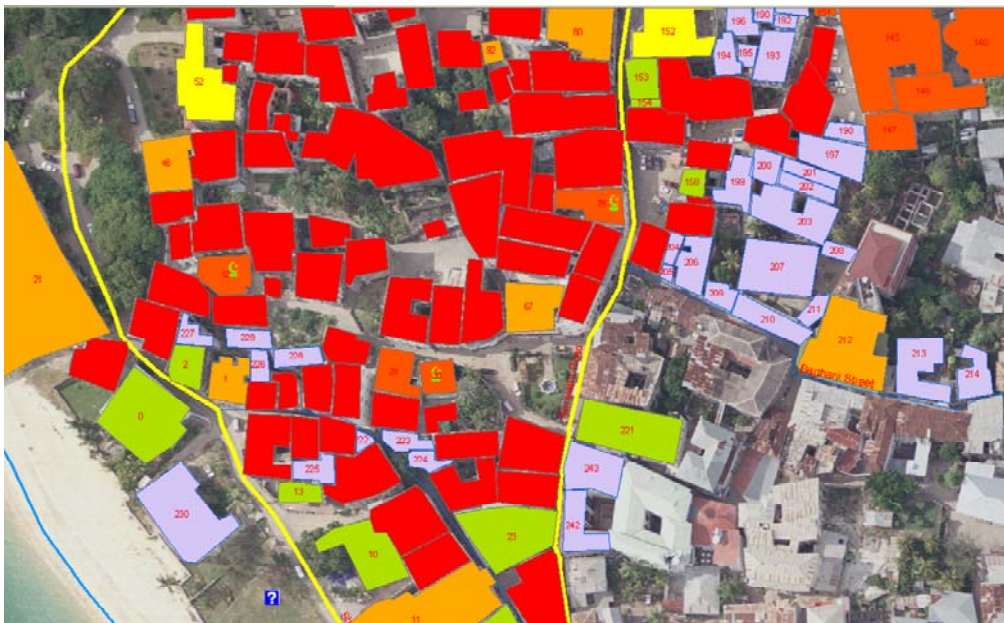
20

LARGE

IT IS POSSIBLE AND USEFUL TO
COMBINE DATA COLLECTION AND
DATASYSTEM DESIGN PROCESSES FOR
BOTH LAND MANAGEMENT
(SYSTEMATIC LAND REGISTRATION)
AND REVENUE GENERATION

21

Asanteni sana!



Background



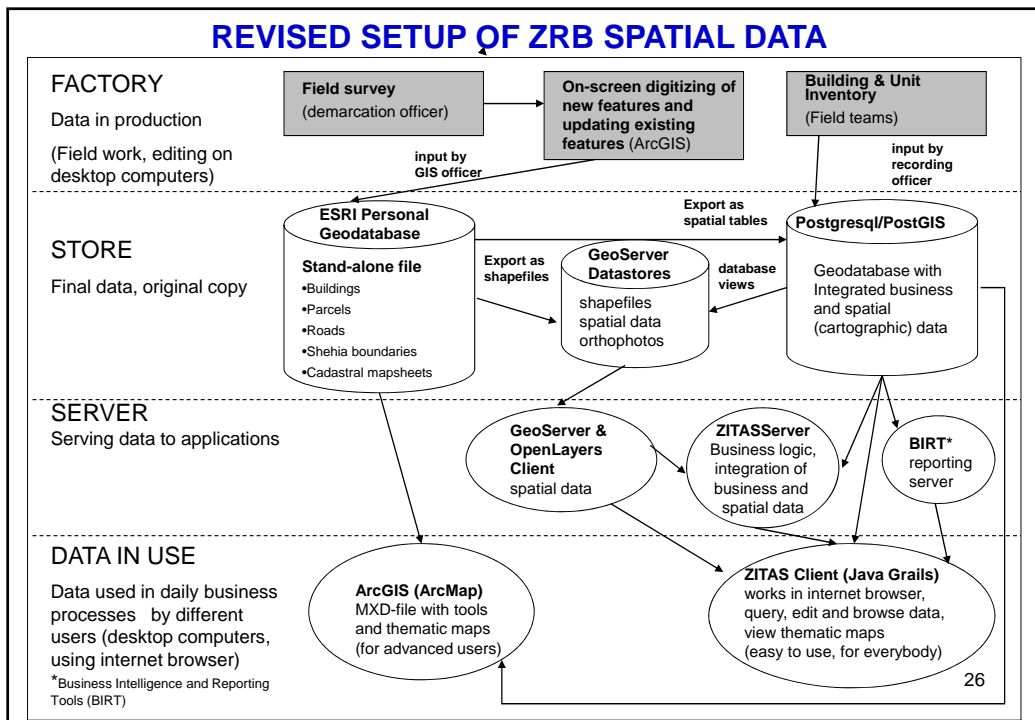
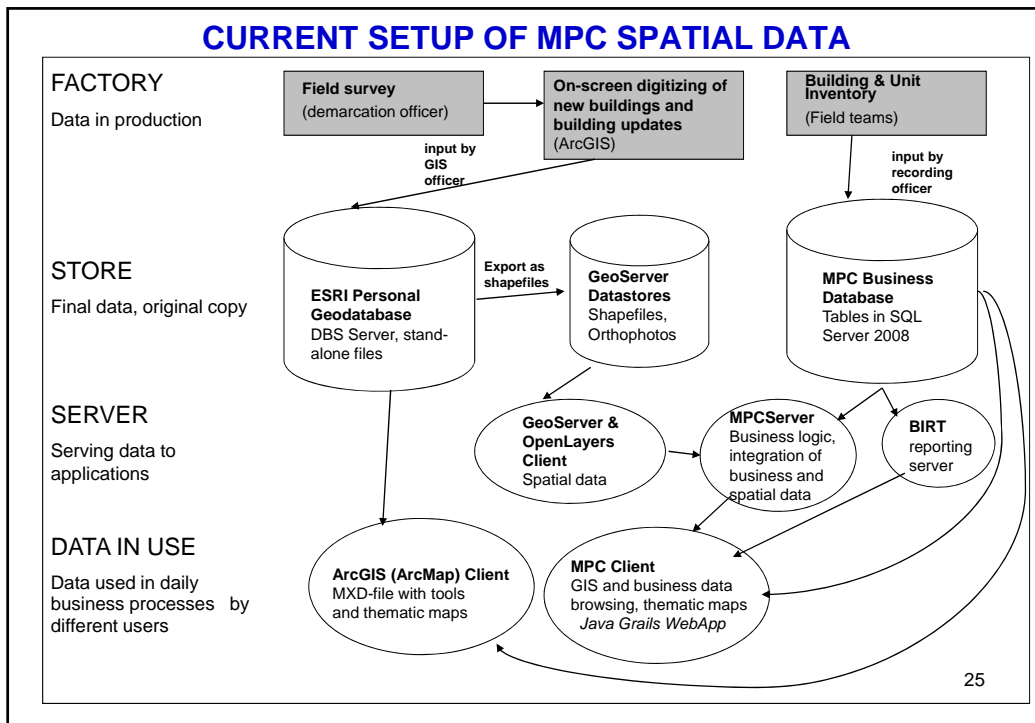
23

Zanzibar in figures





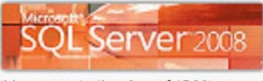








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| Region | 1967 | 1978 | 1988 | 2002 | Annual growth rate 1978- 1988 | Annual growth rate 1988- 2002 |
|-----------------|---------|---------|---------|---------|--|--|
| North Unguja | 58,380 | 77,017 | 96,938 | 136,639 | 2.3 | 2.5 |
| South Unguja | 39,087 | 51,748 | 70,274 | 94,244 | 3.1 | 2.1 |
| Urban West | 85,047 | 142,041 | 208,571 | 380,074 | 3.8 | 4.5 |
| North Pemba | 72,015 | 106,290 | 137,189 | 185,328 | 2.6 | 2.2 |
| South Pemba | 92,306 | 99,014 | 127,623 | 175,471 | 2.6 | 2.3 |
| Grand Total | 354,815 | 476,111 | 640,578 | 981,754 | 3.0 | 3.1 |
| Area per person | 0.69 ha | 0.51ha | 0.38ha | 0.25ha | | |

24



LARGE GIS Software Components

| GIS Component | Current software | Cheap Proprietary or Open Source Alternatives |
|---------------------------------------|--|--|
| 1. GIS data editing and management |  (ArcView Licences \$1600) With ZigGIS Extension (\$300) possible to edit data straight from PostGIS without ArcSDE |  (Licences starting from \$395)  (free, can edit PostGIS)  QuantumGIS (free, can edit PostGIS) |
| 2. Geodatabase Management System |  (Licences starting from \$1500) |  (free) |
| 3. Spatial data server |  (free) |  (free) |
| 4. Data visualization (thematic maps) |   (free) |  (free)  (free)  (free) 27 |