Implementation of FlexiCadastre

(for Mineral operation licensing and administration)

In the Ministry of Mines and Energy of Ethiopia

16 February 2009

Main topics:

- Project background

- Mining industry in Ethiopia
  - Resource potential
  - License administration

- Cadstre project
  - Design Phase
  - Implementation phase

- Status of the Project

- Challenges

1. Project background

The Mining Cadastre project for Ethiopia:

- Funded by World Bank under Energy Access Project agreement

- The project is divided in to two phases:-
  - Design
  - Implementation Phase.

Project objective

- To establish modern & Computerized mineral license data handling and management as per the existing Mining legislation.

Therefore

- Help us to know automatically the available license information of the whole country at a time, and thus avoid overlap of license areas, as well as integrated administration.

- Enable us to Implement CDM in the MoME, 9 RMB and 2 city administration M Offices so that establishing transparent and efficient licensing system.
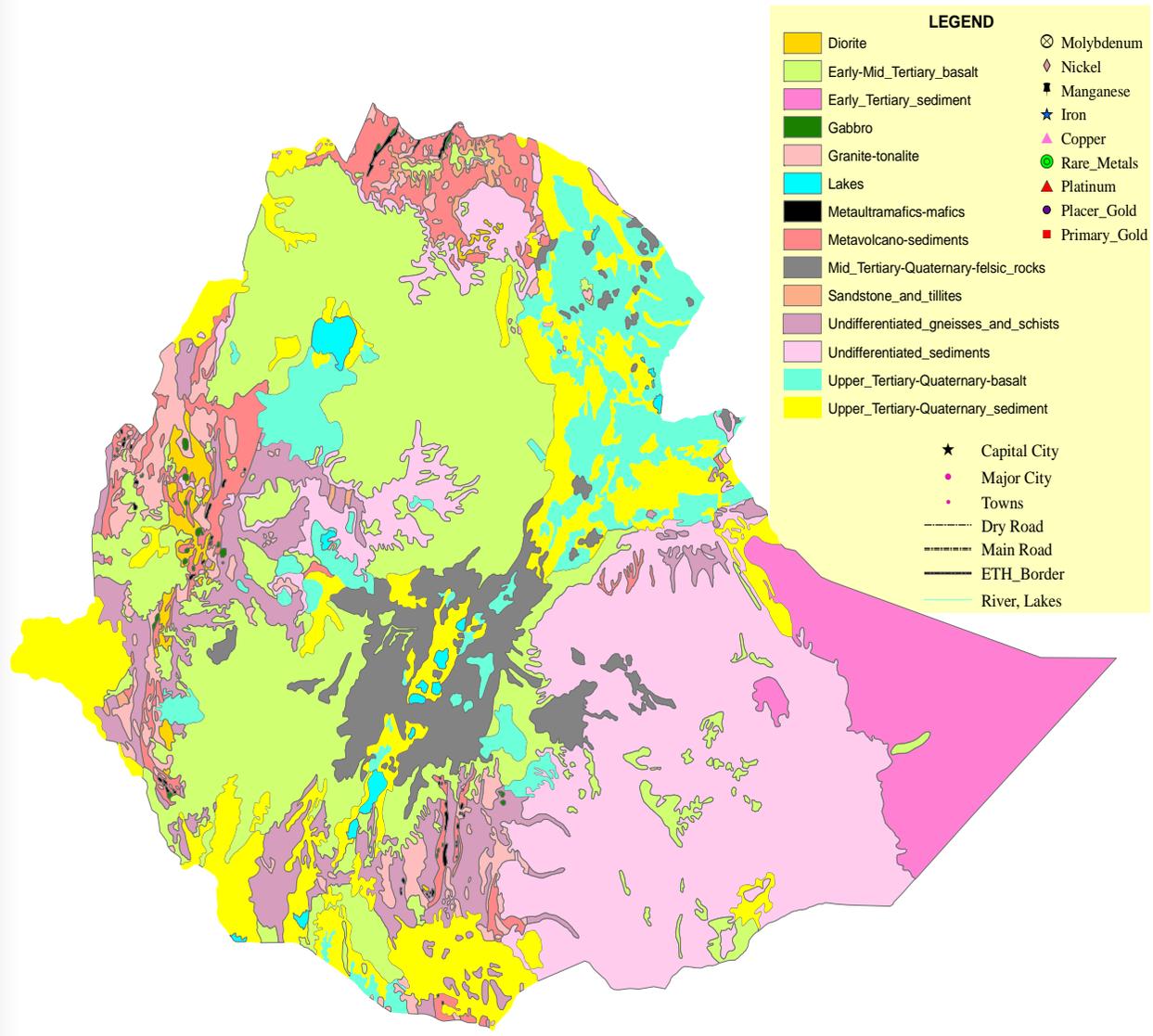
Mining Industry in Ethiopia

- **Ethiopia:**
  - Total area coverge of 1.14M. Sq. km
  - composed of precambrial, mesozoic and cenozoic rocks

- **Mineral Resource potentials:**
  - Metallic minerals
  - Industrial minerals
  - Construction minerals
  - Dimension/decorative minerals
  - Gemstones
  - Mineral water
  - Oil shale, natural gas, petroleum and, etc

Geology of Ethiopia

LEGEND

- Diorite
- Early-Mid_Tertiary_basalt
- Early_Tertiary_sediment
- Gabbro
- Granite-tonalite
- Lakes
- Metaultramafics-mafics
- Metavolcano-sediments
- Mid_Tertiary-Quaternary-felsic_rocks
- Sandstone_and_tillites
- Undifferentiated_gneisses_and_schists
- Undifferentiated_sediments
- Upper_Tertiary-Quaternary-basalt
- Upper_Tertiary-Quaternary_sediment

- ⊗ Molybdenum
- ◊ Nickel
- ▮ Manganese
- ★ Iron
- ▲ Copper
- ● Rare_Metals
- ▲ Platinum
- ● Placer_Gold
- ■ Primary_Gold

- ★ Capital City
- ● Major City
- • Towns
- Dry Road
- Main Road
- ETH_Border
- River, Lakes

License issuance and administration:

- **MoME Issue & administers:-**

  - Prospecting, exploration and large & small scale mining licenses for foreign investors & JV operations

  - Large scale mining licenses operated by national investors

- **The RSMBs issue and administer :-**

  - prospecting, exploration, artisanal mining and small scale mining for national investors

  - Levies and collect land rentals for all mineral operations in the region

License data of Mme &Regional state Mine bureaux/office

- ## In MME:
  - About 167 active licenses
  - Hundreds of inactive license data (most of them in hard copy)

- ## In regional Offices
  - thousands of artisanal mining licenses (almost all of the data are in hard copy/ or nothing exist)
  - Hundreds of prospecting and exploration data are available for

Cadastre project for Ethiopia

- The project is divided into 2 phases.

- These are:

  - Design Phase

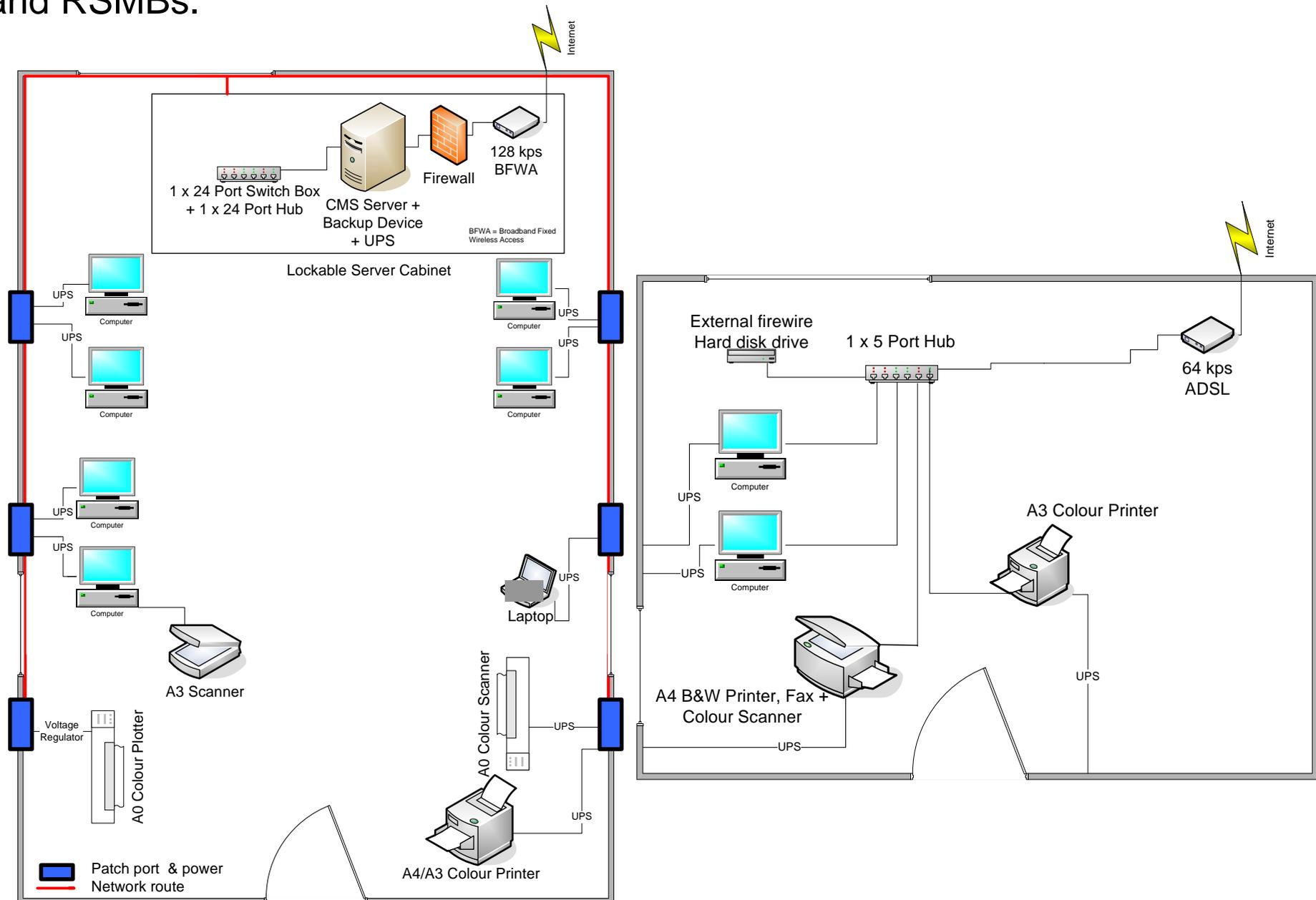 - Implementation Phase

Design Phase

Major activities:

> The design phase of CDM was contracted (to BGS) in 2005 and Completed in 2006 .

> Assessment of the existing mineral license administration, IT capacity and skill level of the Ministry and the regional Bureaus were carried out.

> Prepared lists & specifications of hardware, software & other equipments required for the system (including their cost).

- TOR was prepared to hire the implementing phase performer Firm

- Possible training demands were identified and recommended (in order to efficiently process mineral title applications & maintain the system)

- conceptual Mineral rights data management was designed

Conceptual schematic diagram depicting the CMS hardware for the MME-MOD and RSMBs.

Internet

128 kps
BFWA

Firewall

1 x 24 Port Switch Box
+ 1 x 24 Port Hub

CMS Server +
Backup Device
+ UPS

BFWA = Broadband Fixed
Wireless Access

Lockable Server Cabinet

UPS

Computer

UPS

Computer

UPS

Computer

UPS

Computer

UPS

Computer

A3 Scanner

Voltage
Regulator

A0 Colour Plotter

A0 Colour Scanner

UPS

A4/A3 Colour Printer

UPS

Laptop

UPS

Internet

External firewire
Hard disk drive

1 x 5 Port Hub

64 kps
ADSL

A3 Colour Printer

Computer

UPS

Computer

UPS

A4 B&W Printer, Fax +
Colour Scanner

UPS

UPS

Patch port & power
Network route

Implementation phase

- Hiring process (of the implementing firm) started in January 2007 as per the outputs of the design phase.

- Contract awarded and signed with the Swedish Geological (Hifab AB) & Spatial Dimension Pty, Ltd on April 8, 2008.

- Implementation phase work was commenced in June 2008 as per the contract agreement.

(…continued)

- **The Flexi cadastre system :-**
- ➢ Considered to be implemented at both regional and federal licensing office levels having a central server in MME .
- ➢ Applies mainly Flexicadastre, data-base (access,SQL) & ArcGIS Software.
- ➢ Is real time internet/web based Mineral license data management.
- ➢ Uses topographic map as a main background in Arc map.
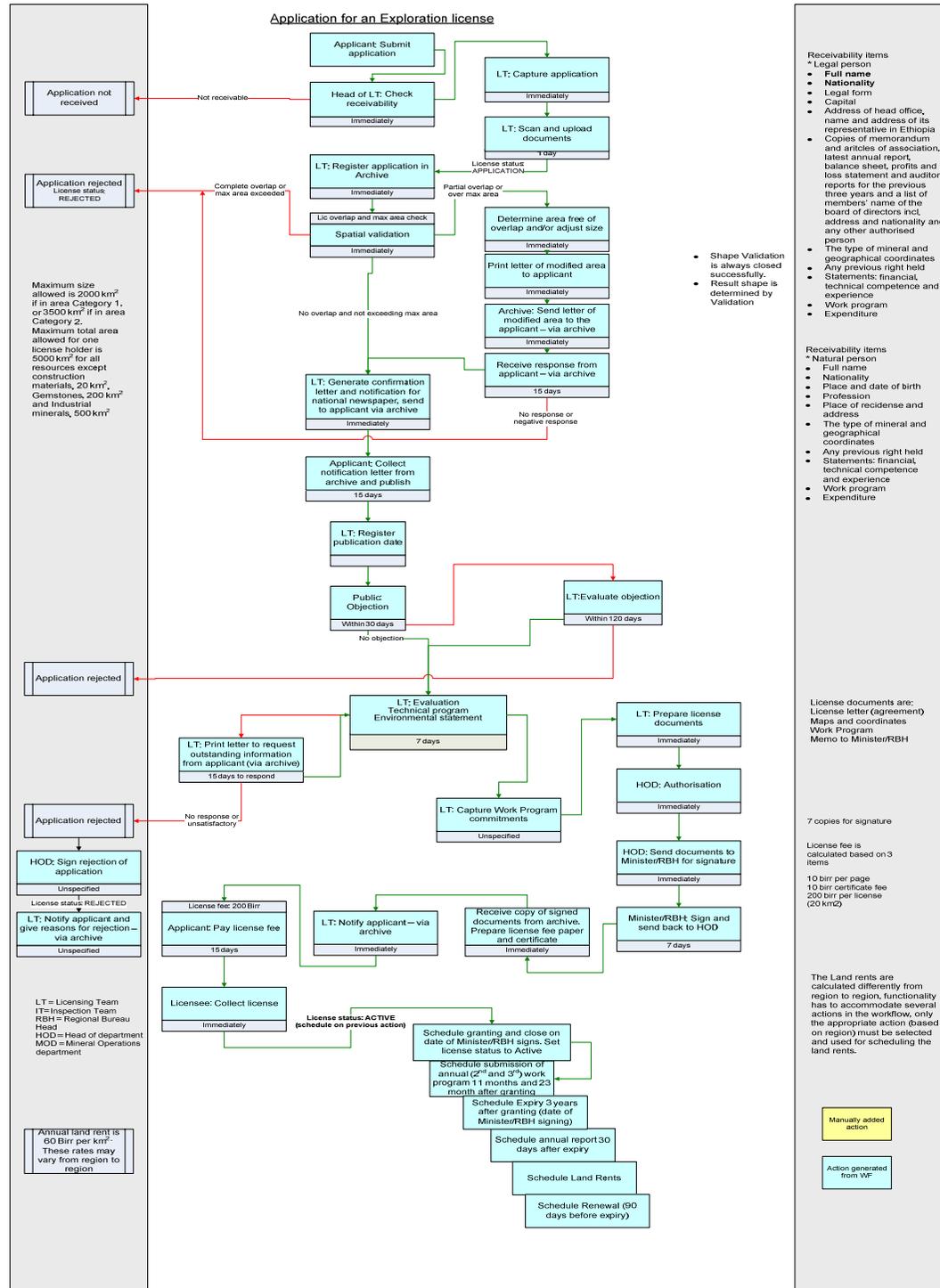- ➢ Takes 9 months implementation, and after its completion 12 months follow up period.

Status of the Implementation phase

- Three round trainings were conducted for 30 trainees of the MoME & RMB for 30 days. The topics were:-
  - on basic computer skill,
  - Database management
  - GIS/Arc GIS,
  - The Mining laws of Ethiopia
  - FlexiCadastre
- Workflows that help to process prospecting, exploration, mining licenses and other related administrative were developed by Spatial dimension & Swedish Geology Hifab..

Example of the Visio Exploration Application workflow diagram

Application for an Exploration license

Applicant: Submit application

LT: Capture application
Immediately

Head of LT: Check receivability
Immediately

Application not received

Not receivable

LT: Scan and upload documents
1 day

License status: APPLICATION

LT: Register application in Archive
Immediately

Application rejected
License status: REJECTED

Complete overlap or max area exceeded

Partial overlap or over max area

Lic overlap and max area check
Spatial validation
Immediately

Determine area free of overlap and/or adjust size
Immediately

Print letter of modified area to applicant
Immediately

Archive: Send letter of modified area to the applicant – via archive
Immediately

No overlap and not exceeding max area

Receive response from applicant – via archive
15 days

LT: Generate confirmation letter and notification for national newspaper, send to applicant via archive
Immediately

No response or negative response

Applicant: Collect notification letter from archive and publish
15 days

LT: Register publication date

Public Objection
Within 30 days

LT: Evaluate objection
Within 120 days

No objection

Application rejected

LT: Evaluation Technical program Environmental statement
7 days

LT: Print letter to request outstanding information from applicant (via archive)
15 days to respond

LT: Prepare license documents
Immediately

HOD: Authorisation
Immediately

LT: Capture Work Program commitments
Unspecified

HOD: Send documents to Minister/RBH for signature
Immediately

No response or unsatisfactory

Application rejected

HOD: Sign rejection of application
Unspecified

License status: REJECTED

LT: Notify applicant and give reasons for rejection – via archive
Unspecified

License fee: 200 Birr
Applicant: Pay license fee
15 days

LT: Notify applicant – via archive
Immediately

Receive copy of signed documents from archive. Prepare license fee paper and certificate
Immediately

Minister/RBH: Sign and send back to HOD
7 days

Licensee: Collect license
Immediately

License status: ACTIVE (schedule on previous action)

Schedule granting and close on date of Minister/RBH signs. Set license status to Active

Schedule submission of annual (2nd and 3rd) work program 11 months and 23 month after granting

Schedule Expiry 3 years after granting (date of Minister/RBH signing)

Schedule annual report 30 days after expiry

Schedule Land Rents

Schedule Renewal (90 days before expiry)

Maximum size allowed is 2000 km² if in area Category 1, or 3500 km² if in area Category 2. Maximum total area allowed for one license holder is 5000 km² for all resources except construction materials, 20 km², Gemstones, 200 km² and Industrial minerals, 500 km²

LT = Licensing Team
IT = Inspection Team
RBH = Regional Bureau Head
HOD = Head of department
MOD = Mineral Operations department

Annual land rent is 60 Birr per km². These rates may vary from region to region

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Receivability items
* Legal person
  - **Full name**
  - **Nationality**
  - Legal form
  - Capital
  - Address of head office, name and address of its representative in Ethiopia
  - Copies of memorandum and aritcles of association, latest annual report, balance sheet, profits and loss statement and auditors reports for the previous three years and a list of members' name of the board of directors incl. address and nationality and any other authorised person
  - The type of mineral and geographical coordinates
  - Any previous right held
  - Statements: financial, technical competence and experience
  - Work program
  - Expenditure

- Shape Validation is always closed successfully.
- Result shape is determined by Validation

Receivability items
* Natural person
  - Full name
  - Nationality
  - Place and date of birth
  - Profession
  - Place of recidense and address
  - The type of mineral and geographical coordinates
  - Any previous right held
  - Statements: financial, technical competence and experience
  - Work program
  - Expenditure

License documents are:
License letter (agreement)
Maps and coordinates
Work Program
Memo to Minister/RBH

7 copies for signature

License fee is calculated based on 3 items

10 birr per page
10 birr certificate fee
200 birr per license (20 km2)

The Land rents are calculated differently from region to region, functionality has to accommodate several actions in the workflow, only the appropriate action (based on region) must be selected and used for scheduling the land rents.

Manually added action

Action generated from WF

- As part of the contract, workshop was also held at Spatial dimension pty, ltd in Cape Town for relevant staffs.

- Available license data are captured with the data capture tool (MS Access) which is developed by Spatial dimension.

- Procurement of software and hardware are on process.

License data capture tool in Access dbase

License data capture tool in edit mode

Web based flexicadaster

- http://127.24.7.9/FlexicadastreBeta/Flexicadastre.htm

Challenges/things to be considered

- Uninterrupted access with fair speed to the internet connection

- Availability of appropriate skilled experts

- Transferring all country's existing hard copy license data in to flexicadaster (~60%).

- Implementation as planned.

THANK YOU