

Reliable Information Management Systems – A Precondition for Mining Sector Development

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Introduction: Beak Consultants GmbH

- Consulting Company for

- GIS & Database Development
- Introduction of IMS in State Agencies
- Mineral Exploration
- Geology
- Environmental Studies, Site Reclamation
- Research & Development



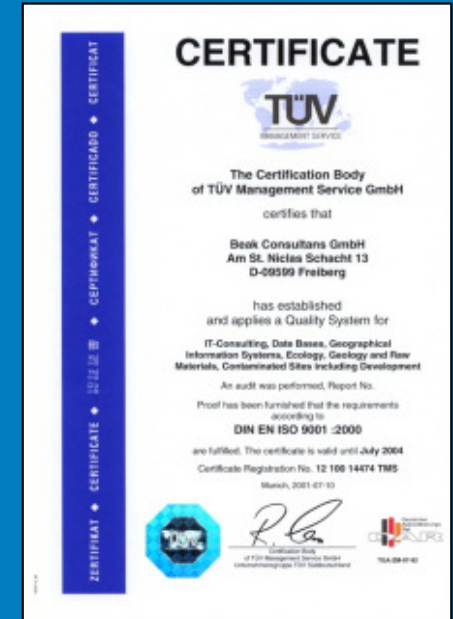
- Working on projects worldwide in

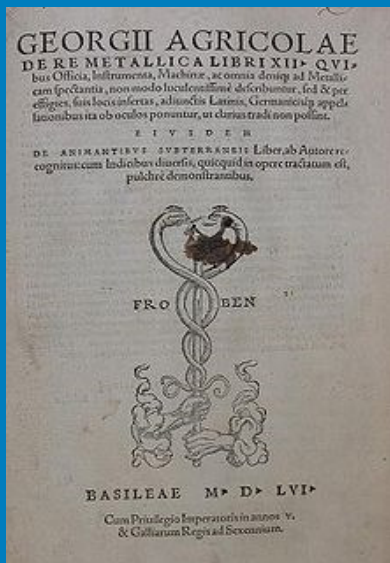
- Rwanda, Uganda, Ghana, Namibia, South Africa, Algeria, Morocco, Southern Sudan, Yemen, Mongolia, Kosovo, Albania
- Partner of



Introduction: Beak Consultants GmbH

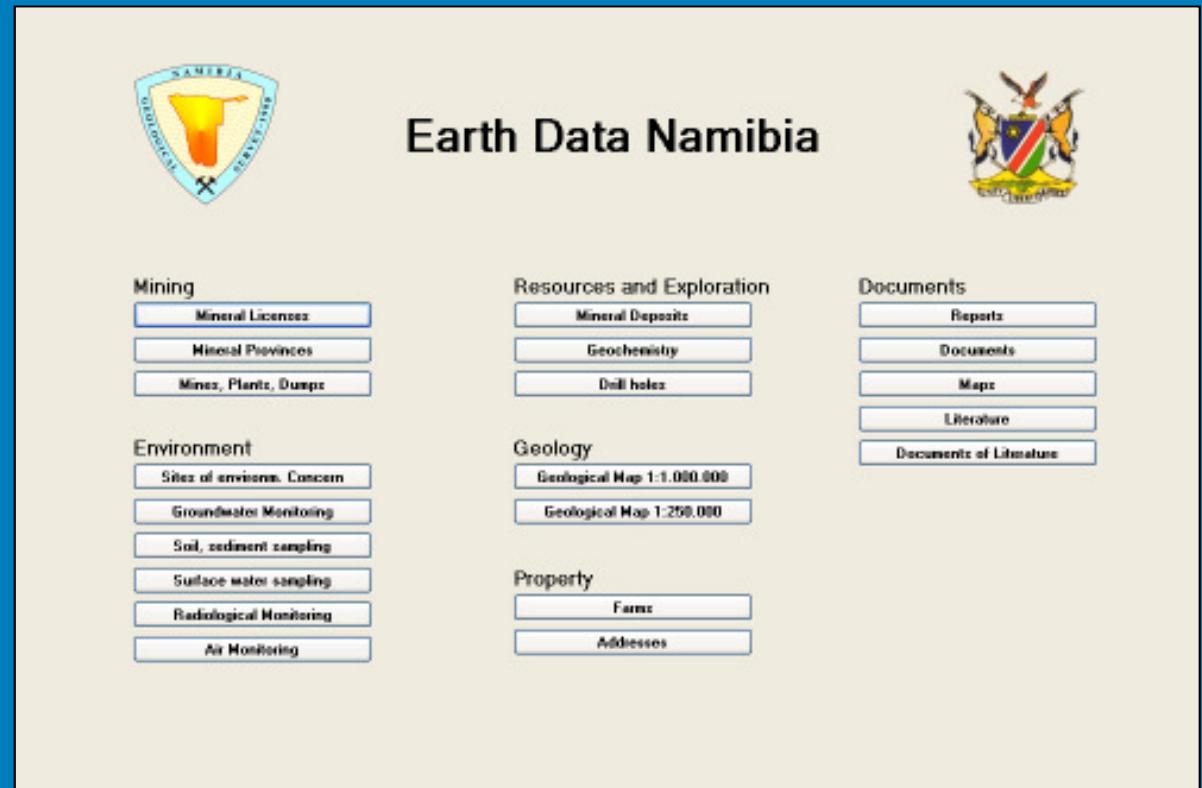
- High quality standards: ISO 9001:2008 certificate
- More than 18 years of company experience
 - Beak International Inc. founded 1965 in Canada
 - Beak Consultants GmbH founded 1994 in Freiberg/
Germany
 - North American operations acquired by Stantec
Consulting Limited in 2003
 - German operations refinanced as an independent
company, retaining the rights to the name Beak
- Up to 35 years experience of employees
- Our roots are the former East German Geological Survey
- Currently 43 scientists and technicians





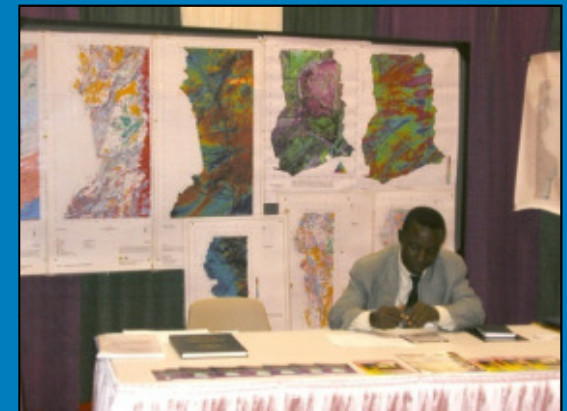
Agenda

- Prerequisites for Mining/ Mineral Sector Development
- National Information Management Systems (IMS)
 - Tasks
 - Characteristics
 - Implementation
 - Components
- *Case Study*
- Conclusions



Data = Money ?

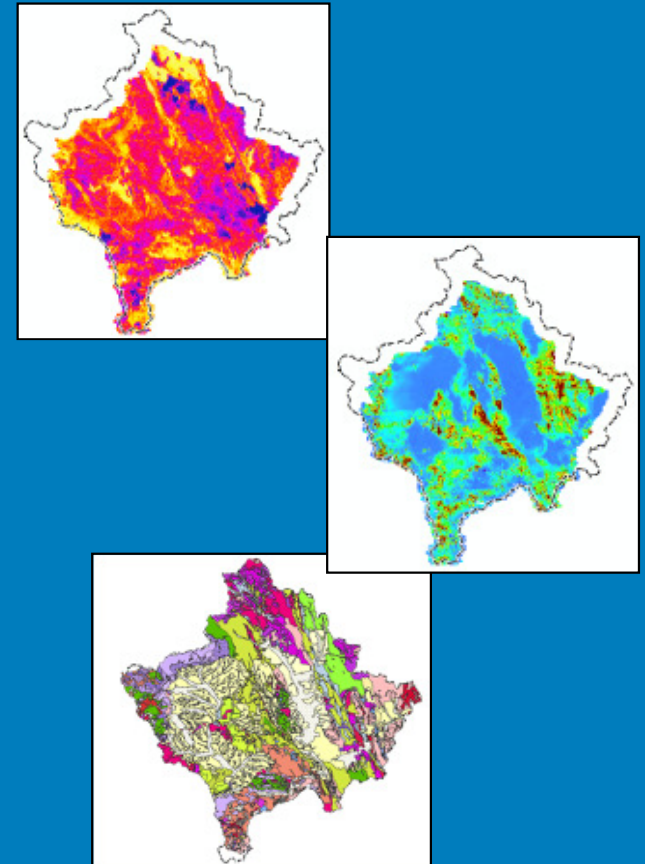
- ***Preconditions for Mining Sector development***
 - Mineral prospectivity
 - Investment
- ***How to attract investment ?***
 - **Provide investment security**
 - Political & economic framework,
 - Policies for taxes, royalties,
 - Mining legislation,
 - Infrastructure, labour, ...
 - **Provide information, make data available**
 - What data is available ?
 - How can I get this data ?
 - How much is the data?
 - What format is the data in ?



→ ***How to make data available ?***

Available Data = Money !

- **Billions of Dollars** were and are still spend for investigation of mineral resources → Creation of **data**
- Management and use of **data** is key issue:
 - for creation of new values and benefits
 - for attraction of investment
 - for solution of national planning tasks:
 - infrastructure,
 - land use, protection of the environment,
 - geo-hazard prevention etc.
- **Best instrument** for fast and organised **dissemination of good data**:
 - Information Management Systems (IMS)



→ **Available Data = Money**

Reality: Without IMS our data ≠ Money

- We have lots of data
- We have modern information technology
- We have excellent personnel

But

- Data is not used as it could be
- Many (potential) users are not aware of the existing data
- We are trapped in a jungle of information

– Existing data could bring more benefit

→ **Information Management System** required for data storage, management and provision

→ **Prerequisite for Mining Sector development**



Information Management System (IMS):

- Manage the existing and a fast growing amount of new information
(minerals, mines, documents, drill holes, analytics, concessions, ...)
- Prevent loss of information
- Provide for high quality of data
- Guarantee security of data
- Guarantee easy and fast availability of data



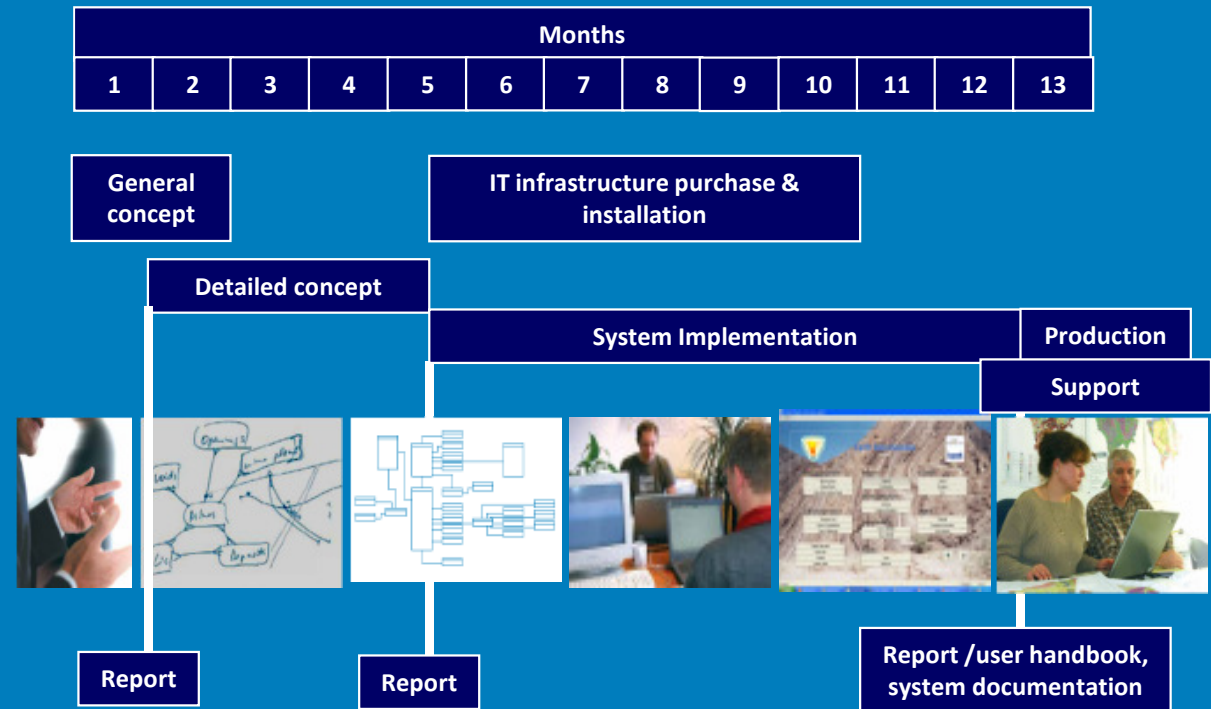
Main Characteristics of a National IMS

- Have important data „on stock“
- Manage data independently from the further use
- Standardise data structures and coding
- Having data ready for distribution
- Separate the data storage from the applications
- Handle services to capture and store data as a national on-going task and not as a project related issue

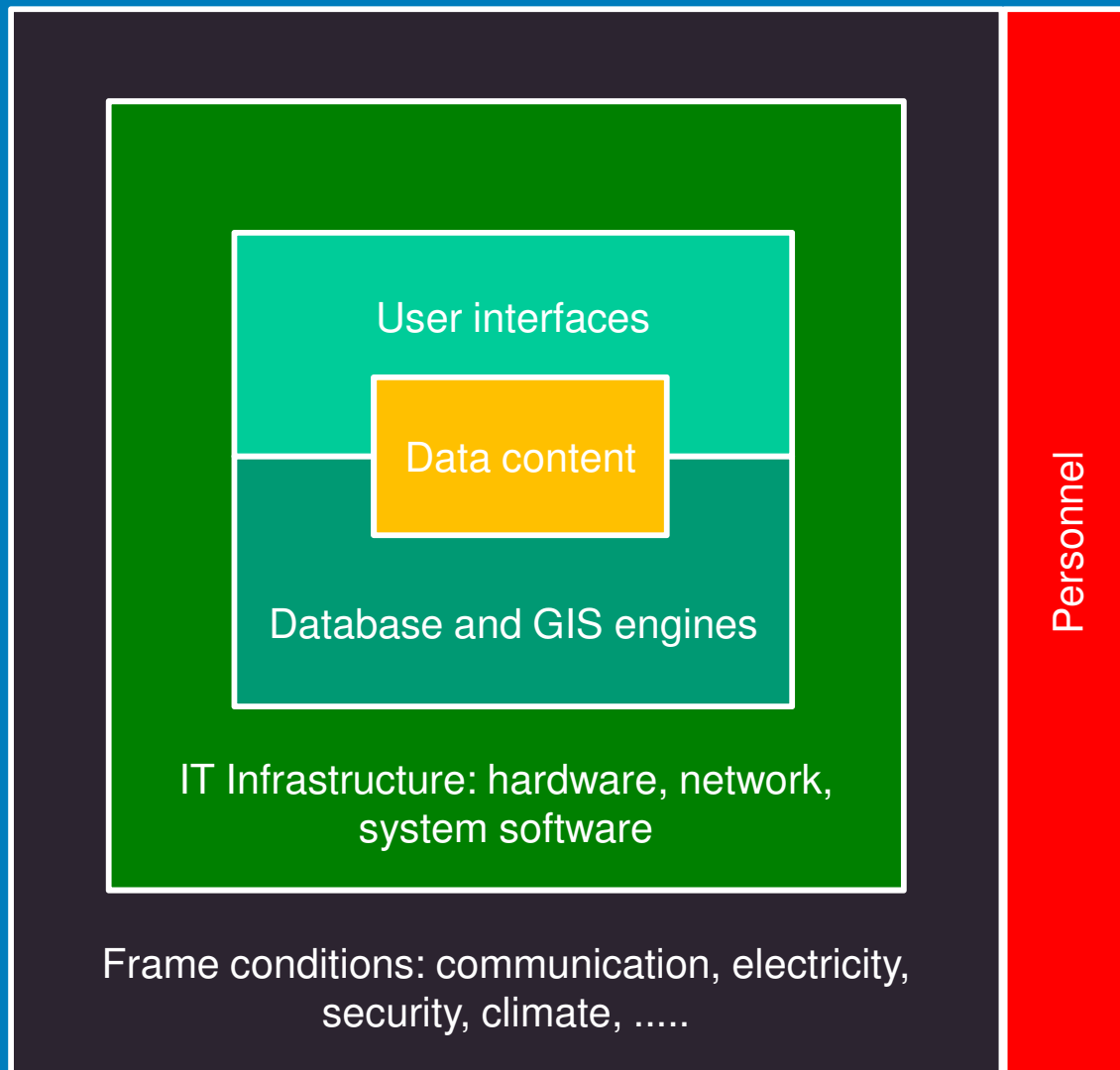
Implementation of a National IMS

How to start and run a Modern IMS sustainable ?

- Implementation and data capture are time consuming and expensive
- System must be supported permanently
- Qualified staff is required
- System life time (infrastructure, interface) is comparable short: 5 – 8 years
- System requires clear procedures and policies
- System must become a daily working instrument

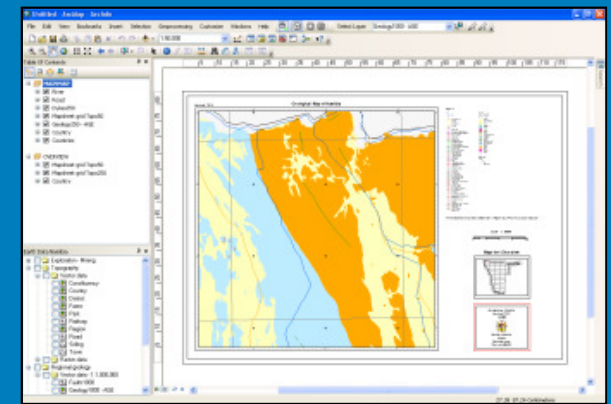
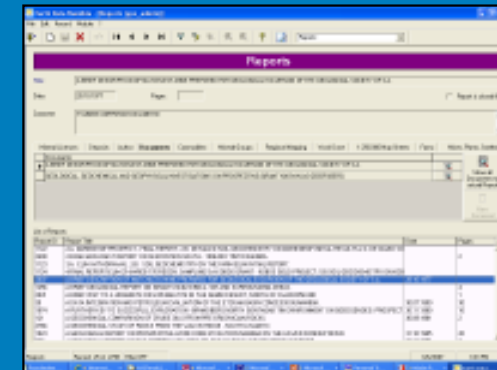


Components of the IMS



Important Features of Comprehensive Modern IMS

- Network like data structure
 - Integration of data and metadata
 - Import and export interfaces
 - Use of standards
-
- User friendly (Windows Style) interface design
 - Graphical User Interface
 - Integrated viewer for spatial data
 - GIS
 - Access/ distribution via Internet
 - Website



Software Impressions of Modern IMS: Graphical UI

Earth Data Namibia

Mining

- Mineral Licenses
- Mineral Provinces
- Mines, Plants, Dumps

Resources and Exploration

- Mineral Deposits
- Geochemistry
- Drill holes

Documents

- Reports
- Documents
- Maps
- Literature
- Documents of Literature

Environment

- Sites of environm. Concern
- Groundwater Monitoring
- Soil, sediment sampling
- Surface water sampling
- Radiological Monitoring
- Air Monitoring

Geology

- Geological Map 1:1.000.000
- Geological Map 1:250.000

Property

- Farms
- Addresses

UDIS DGSM Documentation Center

Administration

- Lookup Tables
- Integrity Check
- User Administration

Business data

- Personal Data
- Lending

Metadata database

- Documents and Special Objects

GEODATABASE GHANA

Mining

- Mineral Licenses
- Mines
- Monthly Mining Return Reports
- Quarterly Prospecting Return Reports

Economic Geology

- Mineral Deposits Occurrences
- Geophysics
- Geochemical Data

Geology

- Drill Holes
- Sample Analysis
- Geological Field Visit Data
- Map Legends

Environment

- Conservation Sites

Mineral Trade

- Previous Mineral Trade Figures
- Mineral Trade Trends

Metadata Database

- Bibliography Documents
- Special Data

Administration

- Credit Mch/Bus
- Integrity Check
- Lookup Tables
- Security

Business Data

- Persons Companies
- Annual Mining Return Reports

Software Impressions of Modern IMS: Interactive web GIS

GEOLOGICAL SURVEY OF NAMIBIA
Earth Sciences for Namibia's Sustainable Development

None Energy Administration and Finance Diamond Affairs Mines Geological Survey of Namibia

Thematic Layers

- Mineral Occurrences [Label](#)
- Granted Licenses (02/2013) [Label](#)
- Pending Licenses (02/2013) [Label](#)
- Historic Licenses [Label](#)
- Exploration Reports [Label](#)

Topography

- Rainfall [Label](#)
- Bathymetry [Label](#)
- Drainage [Label](#)
- Rivers
- Rails
- Roads
- National Parks [Label](#)
- Towns [Label](#)
- Districts [Label](#)
- Regions [Label](#)
- Border [Label](#)
- Map Sheets 1 : 250.000 [Label](#)

Geology

Geophysics

Base Maps

- Landsat
- Open Street Map (Mapnik)
- Google Physical
- Google Streets

Coordinates
UTM33: 378846m, 7640770m
Lon/Lat: 13.83173°, -21.33100°

Search HME web site

Search

Designed and implemented by **beak CONSULTANTS**

Software Impressions of Modern IMS: Website

Department of Geological Survey and Mines of Uganda

Welcome to the Department of Geological Survey and Mines, Republic of Uganda

News & Events

UMEC 2013
The Government of Uganda through the Ministry of Energy and Mine...
[More...](#)

Modern Documentation Centre presented on "Mineral Wealth Conference" During the "Mineral Wealth Conference"...
[More...](#)

Independent Commission for Mines and Minerals

Komisioni i Pavarur për Miniera dhe Minerale
Nezavisna Komisija za Rudnike i Minerale

UNMIK

Home About ICMM About Kosovo Mining and Geology Investor's Guide Dataportal GIS Downloads Data Shop

Date: 10/29/2006

This web site is in the phase of introduction. Please report any remarks to webmaster_kosovo@beak.de.

Thematic layers

ShowActiveName

- Licences
- Exploitation Sites
- Processing Plants
- Map of Minerals 1:200,000
- Map of Construction Minerals 1:50,000
- Boreholes

Topography

Geoscientific Maps

ShowActiveName

- Geological Map
- Tectonic Map
- Geological Map GM200

GEOLOGICAL SURVEY OF NAMIBIA

South Sciences for Namibia's Sustainable Development

Home Energy Administration and Finance Regional Affairs Mining Geological Survey of Namibia

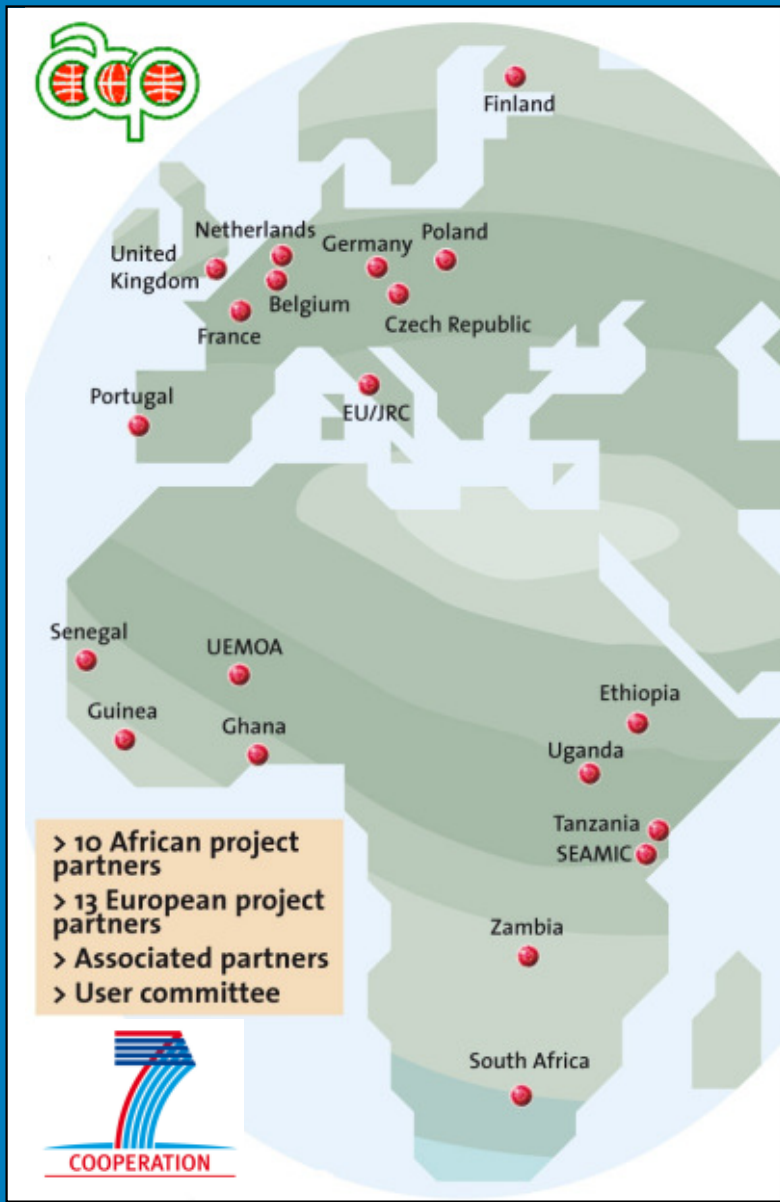
Mineral Occurrences Historic Licences Exploration Reports

Mineral Occurrence Name: [input]
 License: [input]
 Region: [input]
 Map Sheet 1 : 250:600
 Deposit Type: [input]
 Commodity: Au - Gold
 Economic Viability: [input]
 Feasibility: feasibility study
 Geological Knowledge: detailed exploration
 Clear Input Fields Query Database

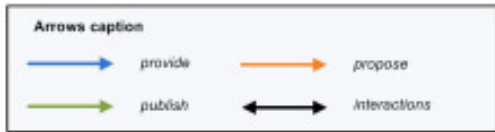
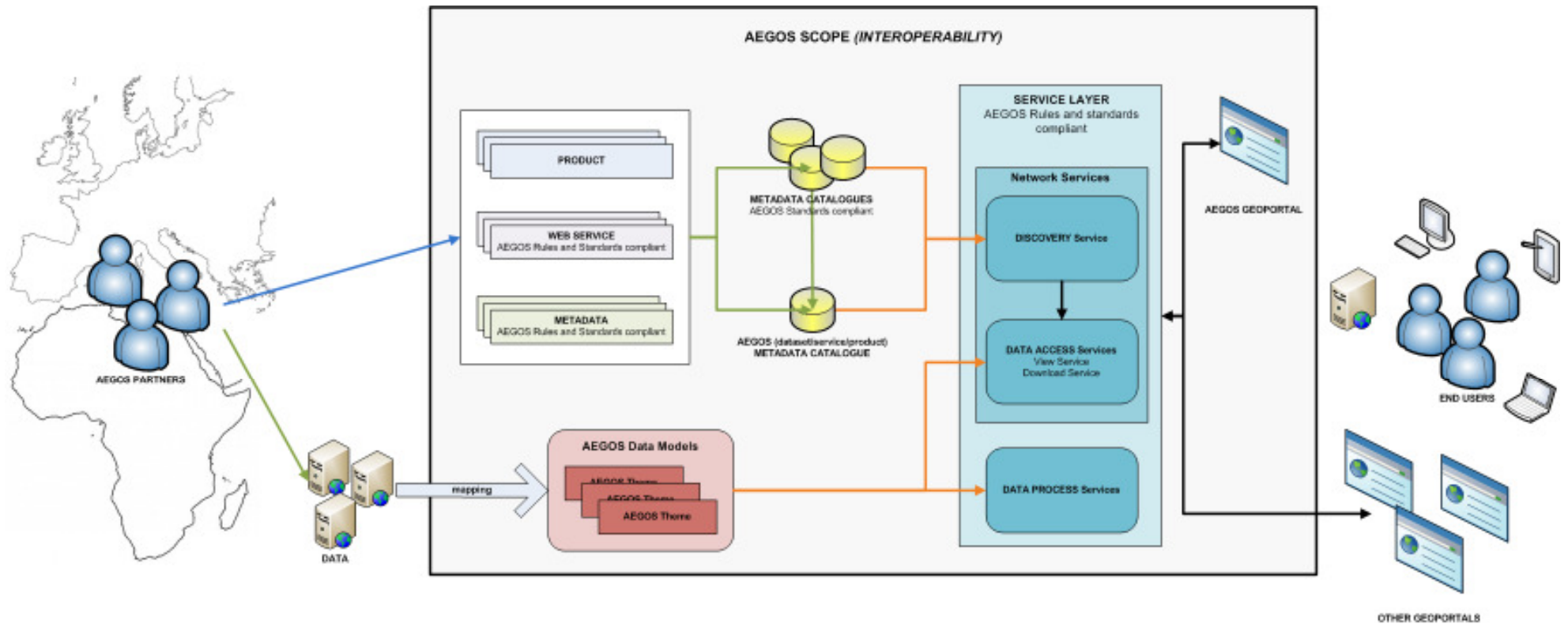
The search for mineral occurrences did return 2 results.

For further inquiries please refer to the Geological Survey of Namibia.

Mineral Occurrence Name:	Tevrede Gold
Licences:	ERL1100 ERL1592 - TEVREDE ERL19 - Etosha Basin ERL2224 ERL2329 ERL2369 ERL2508 - OTJOVASANDU ERL2009 - TEVREDE ERL324 ERL4266 ERL4341 ERL580 ERL857 ERL895 ERL70



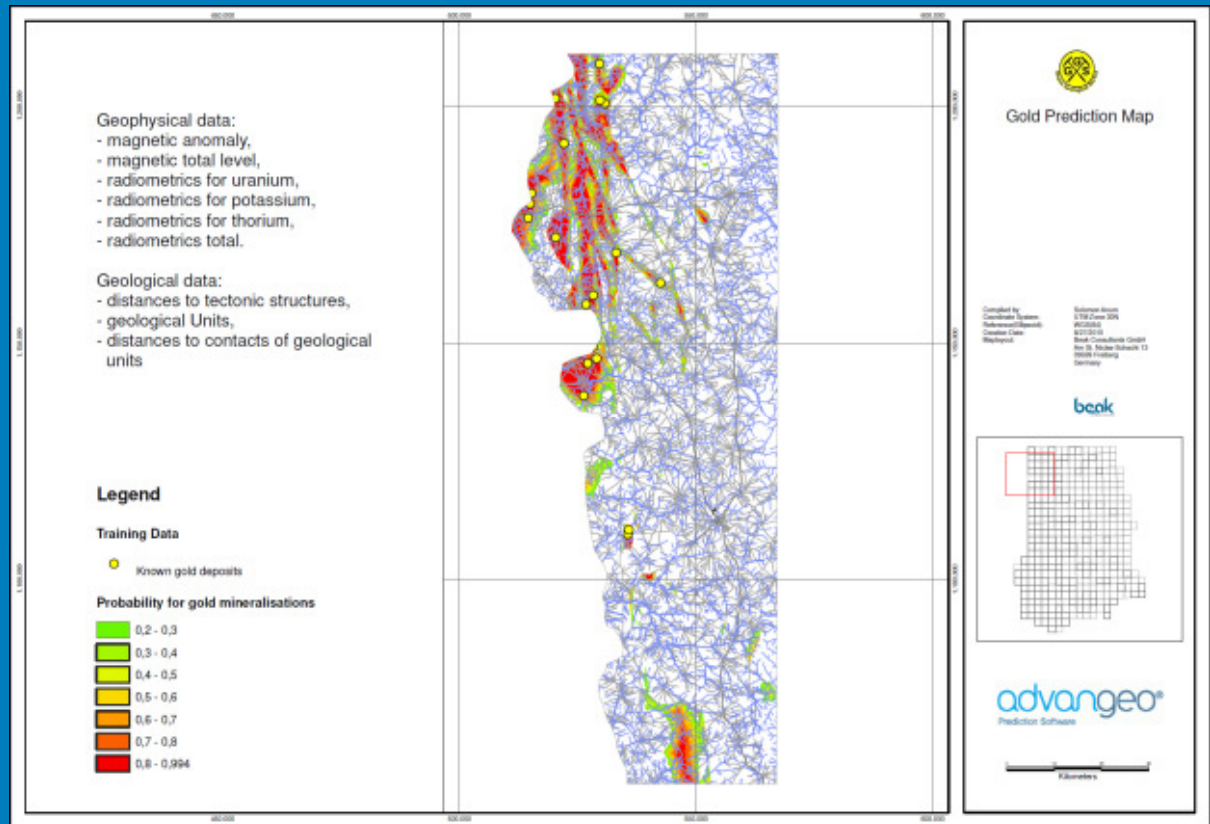
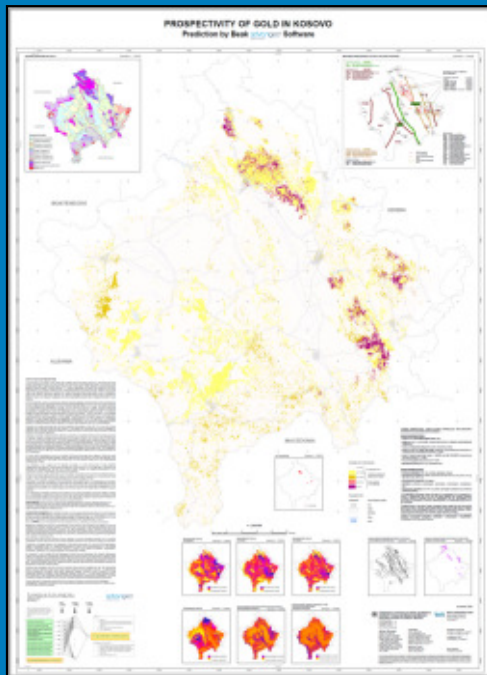
- **Preparation Phase (2008-2011)**
Design of a multi-national georesources observation system
- **Main Targets**
Institutional decision-makers, investors, geoscientific communities and education
- **Partner:**
 - Europe:
 - 9 Geological Surveys
BGS, BRGM, BGR, CzechGS, GTK, RBINS-RMCA, PGI, TNO, INETI
 - 1 Consulting Company
Beak
 - 3 International Organizations
CIFEG, IRD, JRC
 - Africa:
 - 8 Geological Surveys / Schools
CGS, DNG, GD-SOM-UNZA, GSD, GSE, GSM, IRA, MMI
 - 2 International Organizations
SEAMIC, UEMOA



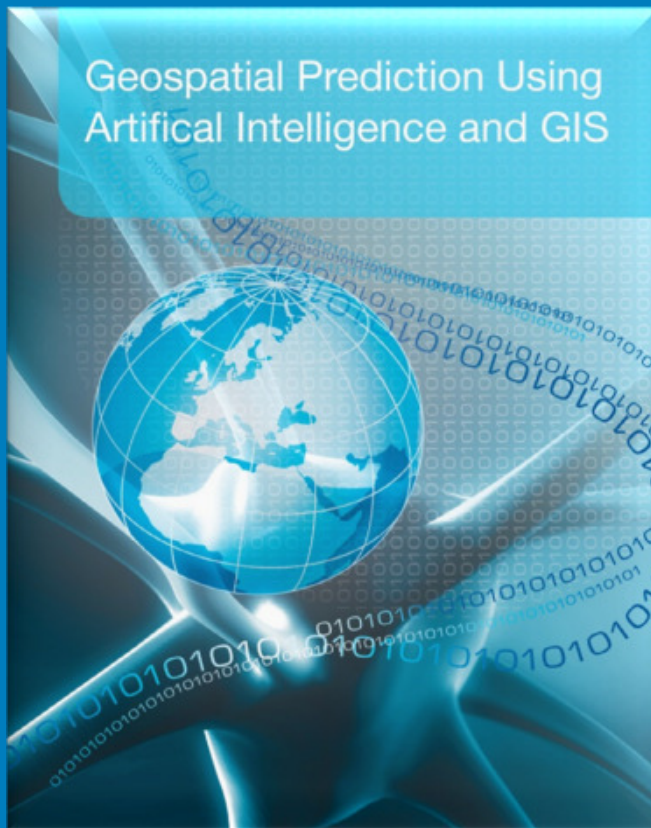
Metadata on-line
Data (on-line and off-line / e-AEGOS)
Products (on-line and off-line)
Services (customised)
Capacity building

Conclusions

- Implementation of IMS is a strategic issue
- It creates preconditions for Mining Sector development
- only IMS allow sustainable storage, management, dissemination and provision of good data
- Attraction of investment
- **Available Data = Money**



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- Integrated GPS & 2 MP Camera
- Indestructible waterproof technique
- Userfriendly & flexible Software
- Direct data-embedding in database & GIS

Coordinates, outcrop-data, sample-points, descriptions, measurements, photos