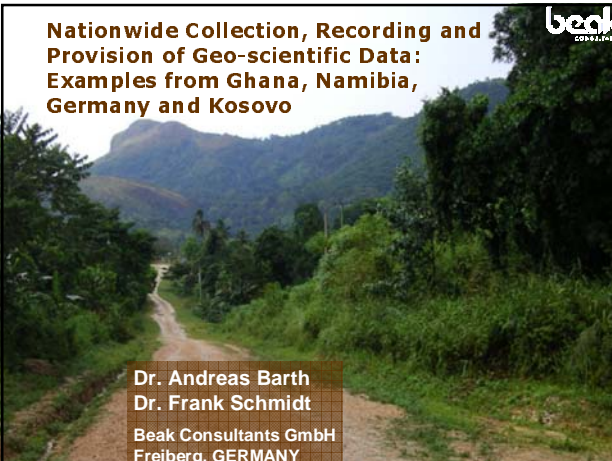



Nationwide Collection, Recording and Provision of Geo-scientific Data: Examples from Ghana, Namibia, Germany and Kosovo




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Beak Consultants GmbH



- Modern Consulting Company
 - Geosciences & Environment
 - GIS & Cartography
 - Planning and implementation of **tailor-made software**
- High quality standards: ISO 9001:2000 certificate
- 12 years of company experience
- Up to 30 years experience of employees
- Traditional Roots: Geological Survey of the former G.D.R.



Overview

- **Non-metallic Resources in Saxony KOR50 (Germany)**
ACCESS 97, ArcView 3.2, VBA c/s appl., 25 tables, spatial data in file system
- **EarthData Namibia**
ORACLE 6, ArcView 3.3, VB 6.0 c/s appl., 300 tables, spatial data in file system, unstructured data in files
- **Geodatabase Kosova**
SQL Server 2000, ArcGIS 8.3, VB.Net c/s appl., 250 tables, 3 languages, spatial data in file system, unstructured data, www.kosovo-mining.org
- **Geodatabase Ghana**
SQL Server 2005, ArcGIS 9, ArcSDE, VB.Net c/s appl., 250 tables, unstructured data, www.ghana-mining.org; 5 LAN, 1 WAN, 50 PC, 5 Authorities

Common Existing Situation

For more than one hundred years, geo-scientific data were collected on paper.


Descriptions, bore hole logs, maps and exploration reports have filled up public and non-public archives with materials of inestimable value.

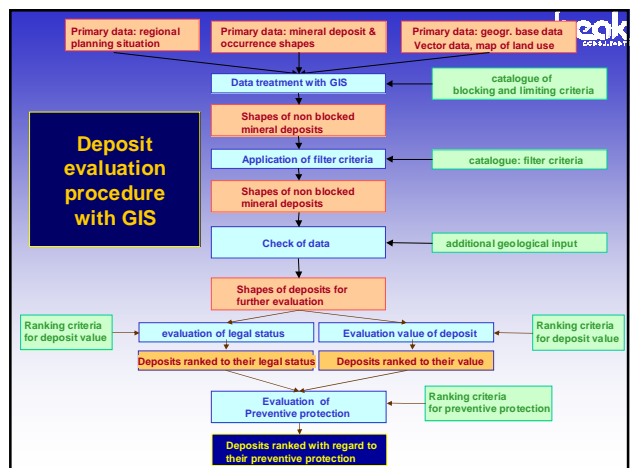
The systematic capture, storage and distribution of this information is an extremely important and expensive activity.

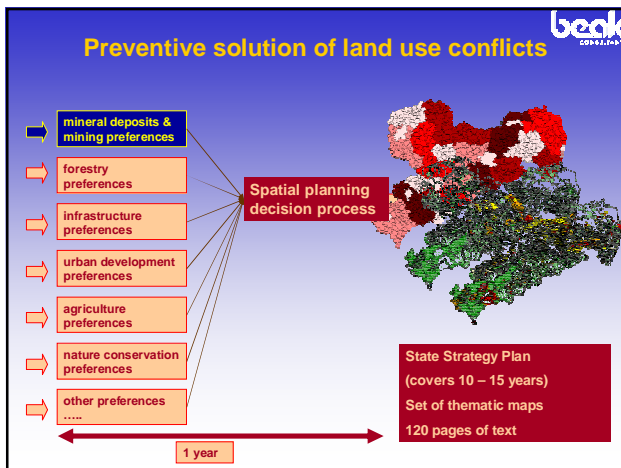
Many database systems grew independently from each other even in one organisation. The result is a jungle of information, many redundancies and problems with sharing of information

1998: Map of Mineral Deposits KOR 50 Free State of Saxony, Germany

- long-term strategic goals for aggregate mining industry: **Where are our deposits ?**
- Attraction of investors
- Environmentally friendly aggregate mining
- Support planning activities: land use planning, planning of infrastructure, urban development, agriculture, national parks, ...







Namibia – Geological Investigation and Minerals

History

- Systematic geological investigations > 100 years → many unique documents
- Strong library / mapping section
- Since 1992: GIS capabilities
- Since 1996: Growth of different databases
- Since 2001: Systematic implementation of a central database

Minerals

- First diamonds found at the beginning of the last century
- Deposits of U, Cu, Zn, Pb, Au, precious and semi precious stones, dimension stones

The start of a project: Requirement Analysis

- Manage geo-scientific data for a whole country
 - 100 years of exploration: reports & maps
 - licences (n *1,000)
 - mineral deposits & occurrences (n *1,000)
 - reports & documents (n *100,000)
 - drill holes, geochemistry, etc. (n *10,000,000)
 - environmental issues (monitoring, hazardous sites, emissions)
- Manage factual and geometrical data
- Multi-user system with different access rights
- Easy to use
- Open for further growth

Kosovo: Background

- 11.000 km²
- 1,9 Mio. inhabitants
- mainly ethnic Albanians
- under UN Administration since the Kosovo war 1999
- development of a local administration

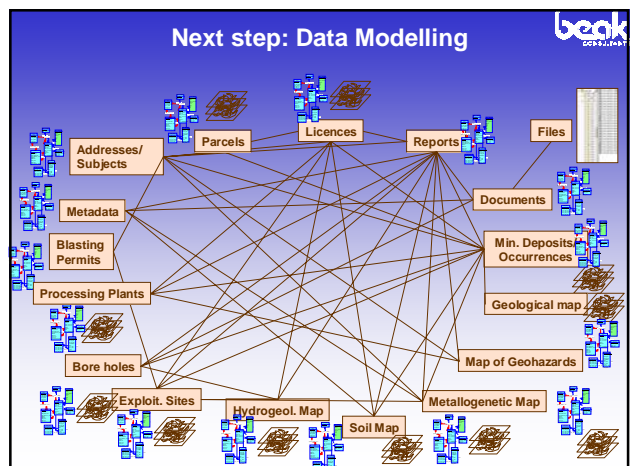
- base metals, silver
- chromite
- lignite
- bauxite
- hard rock, sand, gravel

Mining Journal Supplement:
www.beak.de/pdf/news/KosovoMiningJournal.pdf

Requirements Analysis

- Create pre-requisites for the economic reconstruction of the country
- guarantee transparency of the licensing process, attract investors
- Provide information to any interested party (state agencies, NGOs)
- Guarantee easy and fast availability of data → Internet
- Create important pre-requisites for complex land use and infrastructure planning:
 - geology
 - hydrogeology
 - minerals
 - geo-hazards
 - soils
 - contaminations,...


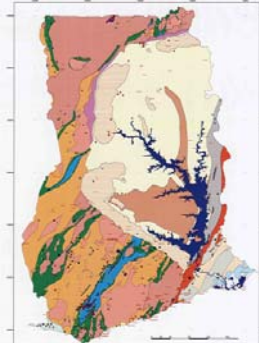
2003 - 2006



Geodatabase Ghana 2005 – 06

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CONCEPT

Ministry of Lands, Forestry and Mines
Minerals Commission of Ghana
Mines Department
Geological Survey Department of Ghana
Precious Minerals Marketing Company

The Ministry of Finance and Economic Planning, Republic of Ghana
 Financed by 8th EDF Fund, SYSMIN Programme (European Union)

The Web Site

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CONCEPT

Promotion of the mineral and mining sector of the country
 Attraction of investors to the mineral industry
 Provision of geo-scientific and geo-economic information to stakeholders: land use planning, health, environmental groups

Features:
 Interactive Map Viewer
 Connection to Database
 Automatic Statistics
 Introduction to Ghana
 Investors Guide
 Newsletter
 Shop: maps and reports
 Download of Forms and Mining Acts



Experiences

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CONCEPT

Is there an universal information system: NO !

- the **general structure of an IMS is always similar: database, GIS, and unstructured information, but**
- **local limitations, regulations, and pre-existing features require in almost all cases a tailor-made system design and programming, and**
- the very fast development of information technologies requires the **adjustment of developed systems as well**

Experiences: data capture process

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CONCEPT

- **rubbish in rubbish out**
- **data capture is expensive, but correct data are essential**
- **quality insurance is a complex process**
- **data capture must be well organised**

Field work, reports and other analogue data sources

Factual data	Shapes	Analytics	other data	
↓	↓	↓	↓	Data capture
↓	↓	↓	↓	Data entry
↓	↓	↓	↓	Software
↓	↓	↓	↓	Plausibility
↓	↓	↓	↓	Authorisation

Discussion: Information Management Systems

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CONCEPT

- Requirements Analysis
- Design of Data Model
- Coupling of GIS, database, (*web-interface*)
- Data Capture and Entry
- Spatial Analysis, Factual Queries, Maps, Reports



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