

Appendix II

Database and Website

Database and Website

1-1 Mineral Resources GIS Database

In order to utilize for development of mining sector in Armenia, GIS (Geographical Information System) database compiling mining related information.

1-2 Procurement and Setting of Mineral Resources Database System

(1) Hardware

Computers and their peripherals supplied to MTED are listed in Appendix II -1. Those devices are connected in LAN (local area network) based on Windows XP.

(2) Software

In order to construct database of mineral resource information the ArcView of ESRI, GIS software, was introduced to MTED. The detailed specifications of the GIS software are stated in Appendix II -2.

1-3 General Concept of Mineral Resource Database

(1) Input Data

The collected data for database construction is shown in Table II -1.

Table II -1 Collected Data for Database System

No	Content	Source	Data style
1	GIS database of Armenia	American University of Armenia	ArcView3.2 data
2	Geological Map of the Republic of Armenia (scale: 1/1,000,000)	Geoeconomic Scientific Center, made by Kharazian of MNP	CorelDraw file
3	Location of mineral deposits	MNP	Plotted on the output of item 2
4	List of mineral deposit in Armenia	MNP	Table
5	Sketch of power system of the Armenian SSR	Ministry of Energy	Plotted on map
6	Licenses for geological exploration works, Exploitation or development of mineral deposit	MNP	Plotted on map, table
7	Licenses for operating mines	MTED	Table
8	Topographical maps (scale: 1/500,000)	The State Committee of the Real Property Cadastre	Copied
9	List of mine and combinat in Armenia	MTED	Table
10	Meteorological information	World Meteorological Organization www.worldweather.org	Table
11	Landsat TM data	Pacific Disaster center	Digital data, No of Band:3 R:band7 mid-infrared G:band4 near-infrared B:band2 visible green Coverage:UTM Projection:WGS84
12	Environmental information	MNP	CorelDraw file

(2) Database Structure

The GIS database comprises the following layers listed in Appendix II -3. The database tables and its

relationship of mineral resources are shown in Appendix II -4, and the layout-view of ArcView showing the opening menu of this database is listed in Appendix II -5. Users can perform any GIS task in the window. Spatial information is linked to the database, and users can retrieve the database just by clicking on the maps on ArcView. This concept is shown in Appendix II -6.

2-1 General Concept of Website

(1) Concept of Website Design

Basic design of the website has been discussed with counterparts of MTED, and the main concept for the actual website construction was determined, as follows;

- ① Purpose : to accelerate mining foreign investment
- ② Contents : includes MTED and M/P report
- ③ Target : Armenia-oriented foreign investors
- ④ Languages : English and Armenian
- ⑤ ArcView Database : Clickable map style

The conceptual structure and an opening page of the website is shown in Appendix II -7 and II -8, respectively. Some examples of the web site contents were presented in Appendix II -9(1), (2) and (3).

(2) Internet Connection

The web site is connected to Internet via web server (UNIX system) in MTED.

The domain was named as “www.mining.am” and mail addresses were given to mining staff of MTED.

3-1 Situation of Armenian Side for Receiving Technical Transfer

(1) Database

Cooperation of the Goeconomic Scientific Center and Informatics Educational Complex are definitely required to accelerate smoothly the GIS technical transfer to MTED.

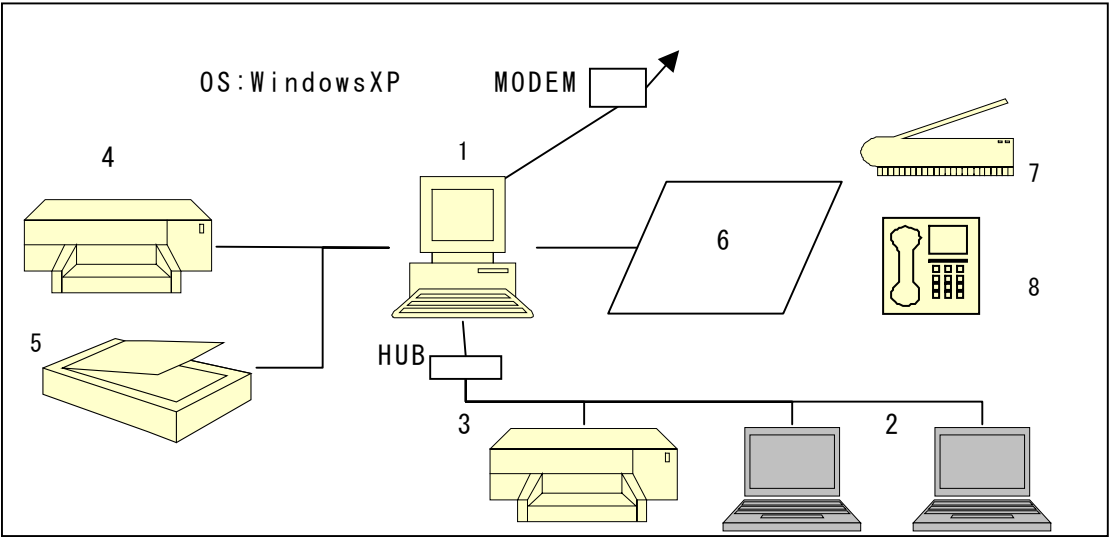
(2) Website

The Information and Marketing Center of MTED has website designers and programmers and some experience for development of a dynamic web site using JAVA script and cgi techniques so the technical transfer was carried out systematically without any trouble, and the developed website will be maintained and revised properly.

Appendix II-1

List of Supplied Computers and their Peripherals

	Name	Set	Production Company	Model	Specification
1	Desktop PC	1	Compaq	S720	P4 CPU 1.70GHz 256MB 40MB
2	Laptop PC	2	HP	pavilion n5445 notebook pc	
3	Printer	1	HP	DeskJet 1220C	A3 Color
4	Printer	1	HP	LaserJet5000 Model C4110A	A3 Black/White
5	Scanner	1	Mustek	ScanExpress A3 USB	Resolution: Optical 300x600 dpi
6	Digitizer	1	CalComp	DrawingBoard III	A0 1118x1524mm
7	Copier	1	CANON	6317	A3 Black/White 220-240V
8	Fax	1	Panasonic	Plain Paper Fax & Copier	A4



Local Area Network of Procured Hardware Installed in MTED

Appendix II-2

List of Supplied Software for GIS

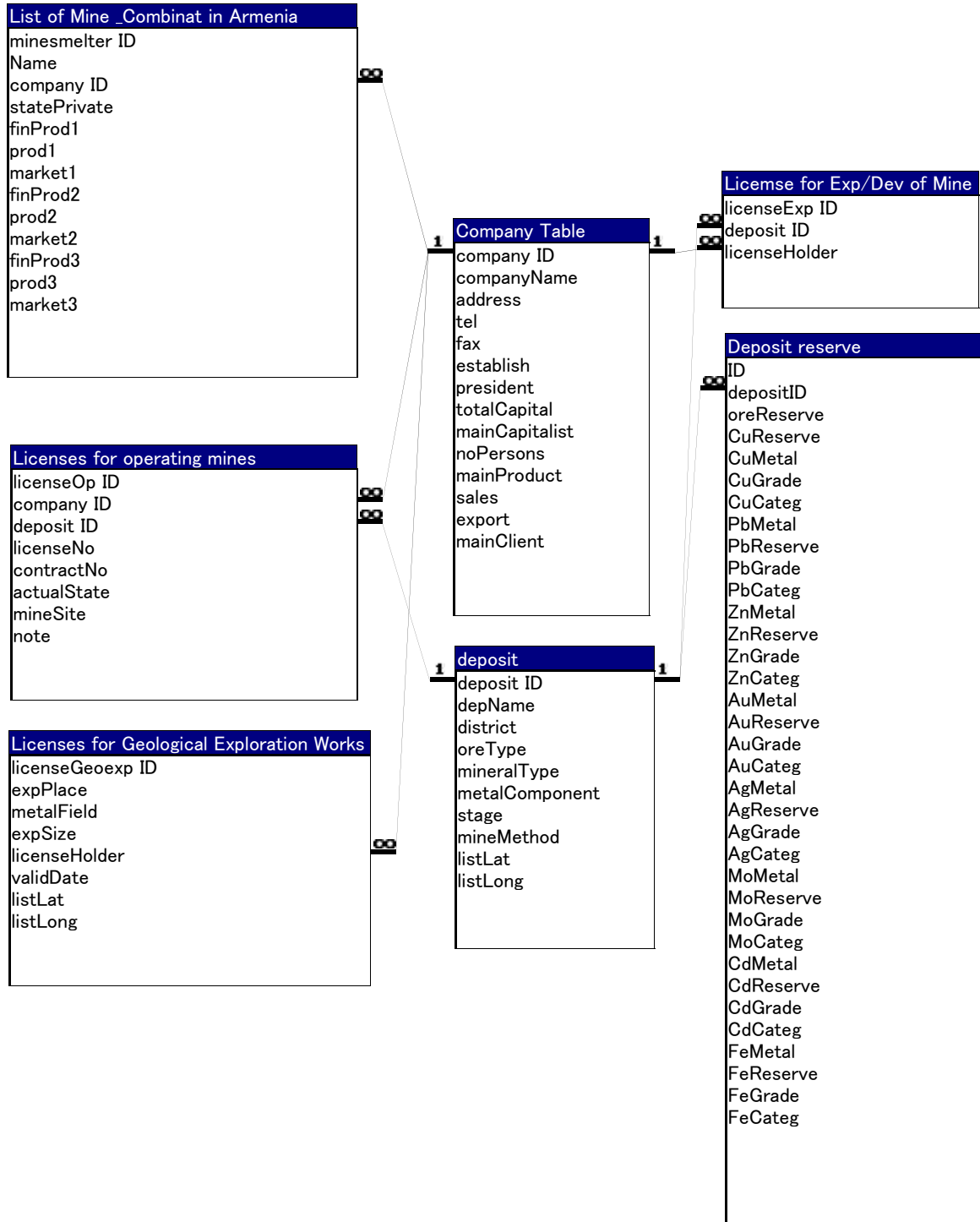
System	Developer	Module	Basic specification
ArcView v.8.1.2	ESRI, USA	Basic Module	GIS basic module Language: English Manual: English Hardware key: Parallel port
		Spatial Analyst	Provides a broad range of powerful spatial modeling and analysis features - Create ; Query, map analyze cell-based raster data Perform ; integrated raster/vector analysis Derive ; new information from existing data Query ; information across multiple data layers Integrate ; cell-based raster data with traditional vector data source
		Geo-statistical Analyst	Provides a powerful suite of tools for spatial data exploration and optimal surface generation using sophisticated methods - Creates ; a surface from data measurements occurring over an area where collecting information would be impractical Provides ; interpolation, surface models, spatial analysis and so forth based on geo-statistics
		3D Analyst	Enables to effectively visualize and analyze surface data - View ; a surface from multiple viewpoints Query ; a surface Determine ; what is visible from a chosen location Create ; a realistic perspective image draping raster and vector over a surface

Appendix II-3

Layers for GIS Database

No	Name of layer	Content	Shape	data
1	License of operating mine	License of operating mines	point	8
2	License of exploration	License of exploration	point	17
3	deposits	Deposit	point	25
4	Armenia	country boundary	polygon	1
5	Countries	surrounded countries	Text	5
6	Marz centers	Marz center city	Point	11
7	Cities	Cities	Point	44
8	Towns	Towns	Point	36
9	Villages	Villages	Point	502
10	Highways	Highways	Line	-
11	Main roads	Main roads	Line	-
12	Roads	Roads	Line	-
13	Railway	Railways	Line	-
14	Airport	Airport	Point	2
15	Powerstations	power stations	Polygon	-
16	Powerline	Power lines	Line	-
17	urban	urban area	Polygon	-
18	mountain	Mountain peaks	Point	2
19	forests	Forest area	Polygon	-
20	lakes & reserves	Lakes or reserves	Polygon	34
21	rivers	Rivers	Line	-
22	Quarternary volcanic centers	Quarternary volcanic centers	Point	-
23	faults	Faults	Line	-
24	topo	Topography(interval:100m)	Line	-
25	geology_new	Geological distribution	Polygon	248
26	marzes	Marz boundaries	Polygon	11
27	LANDSAT	Landsat TM data	Raster	1
28	geographical maps	Geographical maps 1/500,000	Raster	1

Appendix II-4



Database Tables and their Relationships