ANNUAL REPORT 2003

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PREFACE

The present Annual Report provides a summary of the statutory tasks and ancillary activities undertaken by the state organization Czech Geological Survey - Geofond (Geofond) during the year 2003. A brief account of the financial outcome for the year is also presented. The report has been produced for use by state authorities and also by other geological organisations and the wider public. A more detailed description of all these activities can be found in the Report on the activities and financial affairs of Geofond during 2003, produced on behalf of the Ministry of the Environment of the Czech Republic.

As in previous years, Geofond carried out statutory tasks in compliance with its Charter of Foundation and the laws of the Czech Republic, specifically, Law No. 62/1988 Coll. On Geological Works (Geological Law), Law no. 44/1988 Coll. On Protection and Utilization of Mineral Resources (Mining Law), all amendments to these laws, and the Agreement Ref. no. M/140/1997 between the Minister of Environment and the Minister of Industry and Trade on the utilization of Geofond.

Statutory activities involving maintenance, regular up-dates and extending the accessibility of files and databases containing the results of geological investigations have continued. Special attention has been given to improving the quality, complexity and accessibility of these databases.

In addition, Geofond undertook numerous geological projects financed from the budget of the Geological Department of the Ministry of the Environment. The Project "Documentographic processing of reports from 1941-1978 in the possession of Geofond" continued from the previous years. The Project "Evaluation of regional mineral resources for regional raw material policy", started in 2002 was completed during 2003, including the final report. The new projects "Completion of Documentographic information subsystem in 2003 – 2006", "Economic registers of SurIS (the information subsystem for raw materials) / Enlargement and update of the economic branch of SurIS", "Evaluation of state-controlled exclusive mineral reserves", "Database of main mine workings II" and "Database of mine waste dumps II" were initiated during 2003. In the context of the one-year project "Management, maintenance and testing of possible developments of the information system of Geofond in 2003" the existing application infrastructure was improved, new information management technologies were tested and new applications were created to improve usage of databases on the local Intranet and access to signal information on the Internet.

Geofond also took a significant part in collaborative projects financed by the Ministry of the Environment, managed by other organizations. These included the studies: "Stratigraphic architecture of the Cenomanian in the Bohemian Cretaceous Basin: relationship between sedimentary systems and reactivation of structures in the basement underlying the Cretaceous strata" (Led by the Geophysical Institute of the Czech Academy of Science), "Digitisation of borehole geophysicsl measurements from selected boreholes and their input to the Central relational database of Geofond" (Led by Aquatest Inc.), "Processing the borehole geophysical measurements from DIAMO s.p. and their transfer to the Central relational database of Geofond – Crystalline formations of the South-Western part of Bohemia" (Led by První Příbramská Ltd.), "Digitisation of borehole geophysical measurements from DIAMO s.p. – Moravia (led by DIAMO s.p.,

GEAM Dolní Rožínka branch) and "Potential of mineral resources in the Natural Protected Areas of the CR and limits of their exploitation" (Led by the Czech Geological Survey).

As the rent requested for the cellar archive in Kamenická 1 was increased significantly, the archive space was vacated at the beginning of the year and part of the stored documents from the Folio archive of the register of mineral resources was moved to the building of the local branch in Kutná Hora.

From 1st September 2003, Geofond was enlarged to incorporate the Unit of Geophysical Data in Brno. Four employees of the abolished Geofyzika Inc. and their activities were transferred to Geofond.

At the end of the year 2003, Geofond was finally equipped with new servers, replacing obsolete, failure-prone and overused equipment. Scanning equipment was installed at the workplace and new advanced software was also purchased so that current plans for improving data-management at Geofond could be realised.

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1. ACTIVITIES DESIGNATED BY THE MINISTRY OF THE ENVIRONMENT

1. Acting in the capacity of a branch of the State Geological Service, Geofond routinely fulfils tasks requested by state authorities.

These individual tasks were not specified at the beginning of the year and therefore were not formally listed among the main projects. The main *ad hoc* tasks in 2003 were:

- Compilation of drafts of the Statements Hor (Ministry of Industry and Trade) 1-01 and Geo (Ministry of the Environment) V3-01 for the year 2004, and their discussion. The wording of these Statements has been approved under the program of the Czech Statistical Bureau for inclusion in the collection of statistical data for 2004, published in the Collection of Laws (Czech Statistical Bureau).
- Transferring a new edition of Maps of Protection of mineral deposits for use by the State Mining Authority, and donation of the publication "Mineral Commodity Summaries of the Czech Republic" and "Balance and changes in the reserves of exclusive state controlled mineral deposits between 1993 – 2002" to the State Mining Authority and the Czech Bureau of Mines.
- Compilation of proposal for the protection of South Moravian lignite deposits in relation to potential development of local communities (Jihomoravský Region Authority).
- Compilation of maps and reports on areas with special geological phenomena (Moravsko-Slezský Regional Authority)
- Compilation of comments on the proposed Law, amending the Act No. 62/1988 Coll., On Geological Works (Geological Law), Act No. 44/1988 Coll. On Protection and Use of Mineral Resources (Mining Law), and Act No. 61/1988 Coll., On Mining Activities, Explosives and State Mining Authority, all amendments to these laws, and Declarations of the Ministry of the Environment on geological documentation and on planning, provision and evaluation of geological works and on reporting of risk geofactors (Ministry of the Environment)
- Compilation of information on rehabilitated areas affected by the exploitation of mineral resources, for the purposes of regional raw materials policy of Liberecký, Plzeňský, Českobudějovický, Královéhradecký, Středočeský and Ústecký regions (Czech Geological Survey, Ministry of Industry and Trade).
- Compilation of summary information on areas in the CR affected by the exploitation of mineral resources where rehabilitation was undertaken (Ministry of the Environment, Ministry of Health Care, Czech Ecological Institute, Agency for Protection of Nature and Landscape)
- Compilation of maps and reports on areas of special geological phenomena for land use planning of large community areas in the Pardubický, Jihomoravský and Liberecký Regions (Regional Authorities)
- Study of historical mine workings in the Mariánské Lázně area (Ministry of Education – Faculty of Science of the Charles University)
- Compilation of hydrogeological data for use by Královéhradecký, Pardubický, Českobudějovický and Plzeňský Regions (Regional Authorities)

2. **Compilation and publication of „The Balance of reserves in exclusive state-controlled mineral deposits in the Czech Republic“ and „ Register of reserves in the non-exclusive mineral deposits of the Czech Republic“, up-dated versions as of January 1, 2003, in accord with §29 Par. 4 of the Act No. 44/1988 Coll., On Protection and Utilization of Mineral Resources (Mining Law), and § 10 of the Act No. 89/1995 Coll., On the State Statistical Service, all amendments to these laws.**

On May 31, 2003, three parts of the „Balance of reserves of exclusive mineral deposits in the Czech Republic“ were published (I. Ores, Minor Elements, II. Fossil Fuels, III. Exclusive Industrial minerals and rocks and also the „Register of reserves of mineral deposits of the Czech Republic“, containing non-exclusive construction materials (i.e., those outside state control), using data from the State Statistical Statements Geo (Ministry of the Environment) V3-01. Both publications were distributed to 42 bodies of the state administration of the Czech Republic selected by the Geological Department of the Ministry of the Environment.

3. **Compilation and distribution of the yearbook „Mineral Commodity Summaries of the Czech Republic” - updated as of January 1, 2003.**

This yearbook, produced by Geofond and published by the Ministry of the Environment, is the only generally accessible source of information on the mineral resource potential of the Czech Republic, including mineral production and foreign trade and prices. It also gives a list of the main mining companies. Number of copies: 200 (in Czech), 250 (in English). Publication dates: June 30, 2003 (Czech edition) and July 31, 2003 (English edition). By October 31, 2003, it was issued in the form of a CD in Czech, English and German versions.

4. **Preparation of the report „Balance and changes in the reserves of state-controlled mineral deposits between 1993 and 2002”.**

This information, for internal use by the Ministry of Industry and Trade, the Ministry of the Environment and the State Mining Authority only, is to assist the state administrative bodies in the preparation of documents concerning State policy on raw materials. This was produced in the same form as in the previous year, except for the commentary, to which significant changes were made.

5. **Compilation of „Reserves of minerals within designated mining claims and other exploited deposits of non-exclusive minerals“, prepared at the request of the Ministry of Industry and Trade and in accord with § 10 of the Act No. 89/1995 Coll., On the State Statistical Service, all amendments to this law.**

The data were collected using the statistical statement form Hor(MPO)-1-01. A compilation of reserves of minerals was published on May 31, 2003, printed in 75 copies and mailed to those institutions selected by the Ministry of Industry and Trade.

6. **Undertaking registration of geological works in accord with § 7 Law No.62/1988 Coll. (On Geological Works), all amendments to the law, and the Act of the Ministry of the Environment 282/2001 Coll. (governing registration of geological works).**

In 2003, 168 organizations made submissions to the register of geological works, 18 more than in 2002. In total 2.680 geological projects were registered. Of these 868 were engineering-geological works, 1.772 were hydrogeological works, 27 works were related to mineral deposits, 6 were for research purposes and 36 were related to ground workings (29 registrations included two kinds of

work). There were 611 more registrations during 2003, which was a remarkable increase compared with the previous year. This was probably due to more strict compliance with the amendment to the Law on Geological Works, and especially with the Act of the Ministry of the Environment.

7. Providing protection and registration of exclusive state-controlled mineral deposits in accord with § 8 Law No. 44/1988 Coll., On Protection and Use of Raw Materials (Mining Law), all amendments to the Law, and §§ 15 to 19 of the Law.

According to § 8 of the Mining Law, Geofond is responsible for protection and registration of 454 state-controlled mineral deposits. For 340 of these mineral deposits, a total of 338 protected areas have been designated. For the remaining 114 state-controlled mineral deposits, applications for the designation of 25 protected areas were lodged in 2003. Of 16 newly identified areas of protected mineral deposits in the Geofond register, 13 were defined during 2003. Representatives of Geofond take part in negotiations and on-site investigations related to the definition of these protected areas of mineral deposits. For the remaining 89 state-controlled deposits, proposals for designation of protected areas are being consecutively prepared. Geofond regularly applies for modifications and cancellation of existing protected areas as changes in the status of state-controlled mineral deposits take place. A total of 89 designated protected areas have so far been cancelled on the recommendation of Geofond. Of these, 7 were cancelled in 2003.

8. Maintaining the database of old mine workings in accord with § 35 Law No. 44/1988 Coll. (Mining Law), all amendments to the Law, and regulation No. 363/1992 Coll. of the Ministry of the Environment (registration of old mine workings, maintaining the database, taking part in on-site investigations at the request of the Ministry of the Environment).

In accord with the laws listed above, Geofond undertakes registration of old mine workings. Data is stored in the Database of old mine workings which, since 2002, has been presented at signal level on the Geofond intranet and on the Internet. A total of 289 new reports on dangerous surface effects arising because of old mine workings were registered. As of December 31, 2003, 1.260 such reports had been registered, involving 1.161 old mine workings. From previous years, 9 reports of multiple events related to 2.862 sites without detailed specifications have been registered. Representatives of Geofond were present at on-site investigations and at inspections of safety measures at 18 localities, and took part in meetings concerning problems of old mine workings at the request of the Ministry of the Environment. A detailed list of old mine workings, updated as of December 31, 2003, was produced by Geofond for the Geological Department of the Ministry of the Environment. This serves as information in support of the Annual Report of the Ministry of the Environment.

9. Providing information at the request of public or private bodies in accord with Law No.123/1998 Coll., on the right to information about the environment.

In 2003, 4 requests from public and private bodies for provision information in accord with the above Law were processed. These enquiries were mostly related to problems arising from old mine workings and their rehabilitation.

10. Preparation of expert opinions concerning protection of mineral deposits, potential dangers from undermined areas and landslide movements at the request of regional councils, organizations and other parties, in accord with § 13 Law No. 62/1988 Coll. on geological works, all amendments, including compilation of literature summaries if requested.

In 2003, 918 requests for expert opinions regarding intended investments and local planning were received. All requests were fulfilled, including the 10 remaining from the end of the year 2002. In addition, during 2003, the department in Kutná Hora compiled 8 expert reports concerning localities endangered by landslides and 86 expert reports concerning undermined areas.

11. Expert supervision of the compilation of specialised databases by Geofyzika Co. Brno, and Geomin Coop. Jihlava, as contracted and commissioned by the Ministry of the Environment

In April 1997, Geofond was appointed by the Geological Department of the Ministry of the Environment of that time to supervise the compilation of specialised databases. Those databases had been created or maintained under the terms of particular projects, financed and contracted by the Ministry of the Environment. Supervision is provided in the form of one-day meetings and problem-solving meetings, held with the contractors. During these meetings, consultations on progress, structures of compiled databases and their relations to the information system of Geofond take place and, in addition, annual evaluation of results and reports is made by Geofond. Databases, created or updated in the context of these activities, are passed to Geofond and subsequently incorporated in the geophysical and geochemical subsystem of the Central Relational Database. In 2003, projects by Geofyzika Co. Brno and Geomin Coop. Jihlava were supervised.

In the case of Geofyzika Co. Brno, compilation of the geophysical database was carried out under the terms of the project "Compilation and use of geophysical data, obtained with finance from the state budget". The contract between the Ministry of the Environment as client, and Geofyzika Co. as contractor was signed in June 2001. In 2003, the task was completed by Geofyzika Co. Brno in two stages covering the work for months 1. – 4. of 2003 and months 5. – 8. of 2003, as amendments to the contract. From 1st September 2003 the contract was cancelled, and most of the key specialists involved were re-employed by Geofond and the Czech Geological Survey. The work continued at these organizations under the terms of the project "Compilation and usage of geophysical data, obtained with finance from the state budget – phase 9. - 12.2003", covered by a contract between the Ministry of the Environment and Geofond, and its Amendment No.1. The main tasks of the project were maintenance of the geophysical database, compilation of databases of geophysical exploration, airborne geophysical measurements, gravimetry, petrophysical measurements and analyses, electrical and seismic measurements. In relation to the aquisition of archives (expert reports, maps, primary seismic and geoelectrical documentation) by Geofond, revision and registration of these materials were added to the list of tasks undertaken within this project.

Collaboration with Geomin Jihlava Coop. on compilation of a geochemical database was effective. New versions of data were supplied. Under the terms of the project "Management, maintenance and testing of possible developments of the information system of Geofond in 2003", errors and inconsistencies in the data sets have been systematically corrected as they were progressively

incorporated in the central relational database. The new database of geochemical investigations, previously lacking for financial reasons, was created in the frame of this project. This new database forms a part of the subsystem of explorations areas, which provides the signal level of information enabling navigation to large collections of data in the geochemical subsystem. Corrected geochemical data were transformed to the new database with some modifications, creating a new data structure. A new application (created by subcontractor MGE Data Ltd.) dynamically generates polygons of geochemically surveyed areas from the primary geochemical data.

12. Compilation and update of metadata for the meta-information system of the Ministry of the Environment (MIS) in accord with commission No. 22/2000 Minister of Environment

Metadata records are updated under instructions from the Department of Informatics of the Ministry of the Environment. In 2003 some changes and enlargement of the data management system were made. Geofond metadata are updated annually at the same time as the web pages of Geofond are updated.

13. Co-ordination and management of projects financed from the state budget by the Ministry of the Environment (Fund for Geological Works, Fund for Studies):

- ***Documentographic processing of reports from 1941-1978 in the possession of Geofond***

The designated objective of this work is to process documentographically and put into the database (ASGI-code) all remaining reports and other manuscripts labelled V and MS and preserved in Geofond. These archive documents were submitted between 1941 and 1978 and are a non-systematic selection of documents and reports on drilling. These reports formed the basis of the previous Register of Drilling Locations. In 2003, 11.833 files were processed and recorded in the ASGI database. This work was completed, thus fulfilling the terms of the project. In 2004 the final report on this project will be compiled.

- ***Evaluation of regional mineral resources for regional raw material policy***

This task is linked to the project "Analysis of use of mineral resources, including secondary materials, in the regions of the CR", undertaken by the Czech Geological Survey and Geofond, based on public order No.51/00 of the Department of Raw Material Policy of the Ministry of Industry and Trade. During the years 2002 and 2003 Geofond undertook the specific project „Evaluation of regional mineral resources for regional raw material policy", which was approved by the Ministry of the Environment. Geofond contributed by compiling the chapters "Reserves and predicted resources of raw materials" and part of the chapter "Economic potential of the regions" using information relating to raw material resources compiled under the terms of the project "Regional raw material policy in the Czech Republic". Outputs from databases of the Information System on Raw Materials (SurIS) were included, updated using field reconnaissance and documentation. In 2001, the results for the regions of Vysočina and Olomouc were completed and submitted. In 2002 the Liberecký, Pardubický, Praha and Středočeský regions were completed. In 2003 information from the remaining Moravskoslezský, Jihočeský, Královéhradecký, Plzeňský, Jihomoravský, Zlínský, Ústecký and Karlovarský regions were processed. The results of the whole project were successfully compiled into the final report, which was approved by the Ministry of the Environment.

Thanks to outputs from the project, the regions have received up-to-date, coherent and complete summaries of the mineral resource potential in their areas. The economic potential of the mineral resources in the region and perspectives on their usage with regard to the protection of the natural environment were also evaluated. The outputs of the project, together with the maps of protection of mineral deposits, serve as information support for all levels of land use planning.

- ***Management, maintenance and testing of possible developments of the information system of Geofond in 2003***

This project was based on the analysis of needs for fully secure operation and sustainable development of the information system in Geofond which was originally developed in the frame of the project "Complex information system of Geofond CR". The latter project was initiated in 1998 and ended in 2002. The main objective of the present project was to continue the work to ensure all conditions for management, maintenance, operation and future development of the information system. The main focus was on creation and integration of new parts of the information system, specifically the geochemical database, the geochemically surveyed areas, and data on inclinometry of boreholes. Applications for input, maintenance, data management, outputs, compilation and presentation have all been developed. The requests for incorporation of new categories of data and changes or enlargement of existing databases in the Information Subsystem on Raw Materials (SurIS) were fulfilled. The main development was the testing of a loaned trial version of ArcIMS (ESRI) for possible future use. This would enable integration of data from external sources into applications for presentation of that data, and adaptation to modern and widely used Internet and intranet technologies, which will replace the existing technology developed in the last decade. This work was complicated by problems caused by old equipment with limited capacity. Despite these complications, the system was operated successfully, and the suitability of ArcIMS (ESRI) for future use was verified. In accord with the contract, the project was completed by January 15, 2004. The final report was submitted to the Ministry of the Environment and approved by the Committee for Projects and Final Reports at the 1061 session on February 20, 2004.

- ***Completion of the Documentographic Information Subsystem during 2003 – 2006***

This project is linked to the project "Complex processing of geological documentation from archives acquired by Geofond", completed in 2002. The main aim of this project was to complete the processing of archives transferred from other organizations.

- ***SG Geotechnika (Engineering Geology) and Aquatest:*** A comparison of their archives with the archive at Geofond was completed. As a result, a total of 1.000 reports not referenced in the Geofond database were identified. For these, documentographic records were annotated and put into the ASGI database.
- ***Středisko dokumentace ložisek zlata v Jílovém:*** (Centre for Documentation of Gold Deposits, Jílové): The application for processing the archive of maps of gold deposits was created, and the processing itself was begun. The processing of all the documentation from the Vacíkov – Petráčkova Hora deposit continued.
- ***Báňské stavby Most*** (Mine Construction Co., Most): The work of processing the large archive of borehole documentation was begun.

- ***Geoindustria GMS – Archive of geodetic measurements:*** The loose map sheets were processed and catalogued for future use in co-operation with state authorities (cadastral offices). In total 110 map sheets were processed, comprising 1.520 separate items. Most of these maps were at the most used scale of 1:5 000.
- ***Geologicko – měřická dokumentace bývalé jámy Slaný*** (Documentation of geological measurements at the former Slaný Pit): All the materials from the archive of Českomoravské doly a.s. (Czech-Moravian Mines Co.), a member of the Karboninvest Co., were acquired and moved to Geofond. Acquisition of the large archive of geological files and reports from Energie Kladno was not approved by the company management, and negotiations continue.
- ***Česká geologická služba:*** (Czech Geological Survey): 800 reports, missing from the archive of Geofond, were identified. These records were therefore referenced in ASGI in the documentographic database.
- ***Geomin Jihlava družstvo:*** (Geomin Jihlava Coop.): 1.207 files and reports were acquired by Geofond and were compared with the Geofond database so that missing items could be incorporated. By the approval of the Ministry of the Environment, the file of maps at 1:50 000 scale depicting compilations of data on heavy mineral prospecting, prepared in the frame of the project "Regional heavy mineral prospecting of the Czech Republic" (1991-1999) was acquired. This file also included topographical base maps, original master plates (350 sheets), atlases of maps of heavy minerals including 18 original masters and 160 issues of printed maps, the file of heavy mineral prospecting maps from the regional surveys carried out in the 1980s (about 400 sheets) and a file of topographic basemaps. In addition, the large file of spectral analyses (about 30 000 sets) and the collection of samples made during the regional heavy mineral surveys carried out from 1960 to 1999 (about 85 000 samples) were also acquired.
- ***DIAMO Stráž pod Ralskem:*** In October a list of duplicate reports held by DIAMO was received. 20 reports were selected for acquisition.

- ***Economic registers of SurIS (information subsystem of raw materials) / Enlargement and update of the economic branch of SurIS***

The Ministry of the Environment awarded the project to Geofond for a period from 2003 to 2006, enabling continuation of work, which, up to 2001, was funded under the terms of the project on "Specialized databases for the Information System on Raw Materials (SurIS)". This work entails a daily survey of world prices and the compilation of a price register (with sub-registers for crude oil, gas, ore metals, rare metals, strategic (minor) metals and selected industrial minerals). A commentary on the major fluctuations in prices of particular monitored commodities and an annual survey of prices of raw materials processed and produced in the Czech Republic are also included. Improvement and enlargement of the yearbook "Mineral Commodity Summaries of the Czech Republic" were also undertaken, including translation to English and German versions, which were published in digital form as a CD. Compilation of the annual report "Balance and changes in the reserves of exclusive state-controlled mineral deposits" was also provided. Under this project there was exchange of information, reports and expertise on raw materials with foreign geological surveys and presentations of Czech work at international conferences, as well as publication in international specialist journals,

- ***Evaluation of state-controlled mineral deposits in the state reserve (Re-evaluation)***

The Ministry of the Environment approved this project for a period from 2003 to 2006. This is linked to the project "Re-evaluation of mineral deposits in the Czech Republic"(1993 – 2001). The aim is to re-evaluate unused state-controlled mineral deposits which, for various reasons, were not covered by the previous project. Re-evaluations of particular mineral deposits were made by independent geological companies contracted by Geofond. Geofond co-ordinated the work and specified the methods used, and also managed the discussion and approval of special conditions for the utilization of the deposits, as well as compilation of expert reports and submission of the results of re-evaluation for approval by the Committee for Projects and Final Reports of the Ministry of the Environment. In 2003 re-evaluations of 24 state-controlled mineral deposits were completed. Of these, 15 were shown to have no economic reserves, for 2 deposits there are prognostic reserves, the reserves for 6 deposits remain to be calculated, and, for 1 deposit only, the conditions of use were prepared and qualitative technological parameters were processed and incorporated in the database. By the end of 2003 the Committee for Projects and Final Reports had discussed and approved all conditions for utilization and all the contractors had submitted final reports.

- ***Database of Main Mine Workings II.***

During 2003, work on this database continued thanks to the approval of the project which is linked to the previous project "Setting-up the database of main mine workings in the CR" (1999 – 2002). Under the terms of this 2nd stage of investigation of mine workings, using information provided by external organisations, 1.653 records were collected and put into the database. These records were obtained from the Středočeský, Jihočeský, Jihomoravský and Moravskoslezský regions. The records from the remaining regions of the CR will be submitted to the Ministry of the Environment for inspection and then added to the database in 2004. In addition, updating of records was continuously maintained, 242 duplicate records were detected and corrected. By December 31, 2003 the database contained 12.494 records.

- ***Database of mine waste dumps II.***

In 2003, work on this database was continued thanks to the approval of the project, linked to the previous project "Compilation of database of mine waste dumps" (2001 – 2002). Records of 530 dumps from the Trutnovsko, Rakovnicko and Kladensko areas provided by private firms were successfully compiled and entered in the database. The data from other areas is due to be submitted to the Ministry of the Environment for inspection and will be added to the database in 2004. The subseqent completion of the database depends on future financial support from the Ministry of the Environment, which issues orders for the processing of specific areas. By December 31, 2003 the database contained 827 records.

14. Collaboration on projects financed from the state budget by the Ministry of the Environment (Fund for Geological Works, Fund for Studies), and managed by other organisations:

- ***Stratigraphic architecture of the Cenomanian in the Bohemian Cretaceous Basin: relationship between sedimentary systems and reactivation of structures in the basement underlying the Cretaceous strata (Led by the Geophysical Institute of the Czech Academy of Science)***

The collaboration on this project was based on the creation of the special database needed for subsequent processing and interpretation. In 2003, the main effort was focused towards selection and pre-processing of the second part of the data as specified in the previous stage of the project. The basic technical data, geological and geophysical logs from boreholes have been compiled and converted to a format suitable for interpretation and the creation of a new structural and stratigraphic model of the Cenomanian in the Bohemian Cretaceous Basin. Verification of data using formal and logical controls has been undertaken in accord with the requirements imposed in specific areas, including comparison with the primary documentation in archives and the correction of errors. Applications for selection, conversion and systematic audit of data were improved. In accord with the contract, that part of the data and documentation required by the project leader was submitted by October 21, 2003. This comprised a summary of 2.015 boreholes (basic data) and 1.997 boreholes with digitized geophysical logs (GR, RapS, RapL, laterolog, NN, and other methods as required) from sites in the area covered by twelve map sheets at 1:50 000 scale. Also, the list of boreholes from selected areas for which actual core samples are held in Geofond storage was provided. In total 1.142 boreholes were identified. Down-hole geophysical logs are available for 217 of these boreholes. Missing geological logs were processed and added to the database as required by the leader. Records of 13.392 entries from geological log descriptions were submitted in the first phase, and 28.474 in the second phase. The re-processing and transformation of data from down-hole geophysical logs submitted in 2002 was completed as requested.

- **Mineral resource potential of Natural Protected Areas in the CR and limits of their use (leader Czech Geological Survey)**

The main aim of the project was to produce a summary evaluation and analyze the conclusions of work undertaken by separate geological organisations in specified Natural Protected Areas. In accord with the requirements of the Ministry of the Environment and Czech Geological Survey, Geofond provided summaries with updates and verification of data relating to the mineral resource potential of natural protected areas and these were submitted to the Czech Geological Survey in the format required for the compilation of the final report. The work was done during the period March to May 2003 using information from Geo V3-01 (Ministry of the Environment), Hor 1-01 (Ministry of Industry and Commerce), results of re-evaluations, new decisions on approvals or depreciation of reserves of mineral deposits etc.

- ***Digitization of borehole geophysical logs from selected boreholes and input of these to the Central relational database of Geofond (leader Aquatest Inc.)***

- ***Processing the borehole geophysical measurements from DIAMO s.p. and the transfer of these to the Central relational database of Geofond – Crystalline formations of the South-Western part of Bohemia (leader První Příbramská Ltd.)***

- ***Digitization of borehole geophysical measurements from DIAMO s.p. – Moravia (leader DIAMO s.p., GEAM Dolní Rožínka branch)***

All three projects for processing of borehole geophysical measurements were approved in June 2003, when contracts between the project leaders and the Ministry of the Environment were signed. The co-operation of Geofond was based on a dedicated supplement to the Geofond budget. The projects

will be undertaken during the period 2003 – 2006. Geofond has provided the participants with all the information necessary for identification of particular boreholes for which geophysical logs have been digitally processed. Geofond also took part in the selection of boreholes from the point of view of the representative coverage of borehole geophysical data over the territory of the CR and in checking for duplication of the same data processed by different participants. In cases where multiple logs of the same borehole were found, Geofond took the decision on which data to use. The files of digitized geophysical measurements submitted by project participants were revised and have subsequently been put into the central relational database of Geofond. Where inconsistencies were found, appropriate corrections were made in discussion with the experts concerned. Aquatest Inc. processed a total of 103 boreholes with an average depth of 292 m, that is to say that data from a total of 30.102 m of down-hole geophysical logs were processed. Diamo s.p. submitted two files of data, containing data from 161 and 156 boreholes. During 2003, a total of 420 boreholes were processed. Subsequently, other tasks involving changes to applications, revision and incorporation of information in the archive were also completed.

15. Collaboration with the GIC in the creation of a Czech section of a Multilingual Thesaurus, and testing of the compatibility of lexicons and dictionaries used in Geofond in relation to standards used in other EU countries.

Under the auspices of the GIC (Geoscience Information Consortium) the introduction of updated versions of a Multilingual Thesaurus has been discussed, taking into account its future function and use. It has been agreed to include work on the Thesaurus and other multilingual applications in the proposed e-EARTH project as part of the EU e-Content programme. Geofond will act as leader responsible for co-ordination of this workpackage. The project has been approved by the EC and is expected to start officially at the beginning of 2004. The other activities connected with this theme were discussed by the new Working Group for International Collaboration on Geological Data Models, which was established in November 2003 at a meeting in Edinburgh. One of its specialist groups is the Science Language Group. Dr. Čápová from Geofond is one of the members of this interim group taking responsibility for the co-ordination of future activities and the organization of the next meeting.

16. International collaboration within the EULOGI consortium and the e-Earth consortium on preparation of projects within the IST (Information Society Technologies) and e-Content programmes. Organization of working seminars with consortium members and attendance at international meetings for the purpose of creation of the common projects.

The e-Earth Project was based on the need to ensure pan-European access to the data from borehole investigations. At meetings of the GIC working groups (Geoscience Information Consortium), the e-Earth consortium was established and the project was compiled. It was submitted on March 21, 2003, under the 3rd call of the e-Content programme, Action Line 1.2 (European Commission, Information Society, Directorate – General, Luxembourg). The project was approved by the Commissioners, and the contract will commence at the beginning 2004. Co-financing for Geofond will be provided by the Ministry of the Environment in the form of a complementary grant to cover 50% of the project expenses, as stipulated by e-Content programme regulations.

The activities of the EULOGI consortium continued through discussions in the form of e-mail conferences. The main idea of the project, originally prepared for the 5th Framework Program IST, is still judged to be relevant and a suitable platform for its realization will be sought. The consortium members remain committed to this objective.

Under the leadership of the Polish Geological Survey, the new project proposal IT-Carta was compiled. The main aim of the proposal is to enable cross-border access to geophysical data for use in collaborative projects. Members of the consortium are Geofond, the Czech Geological Survey, Miligal Ltd., and other organizations from Slovakia, Poland, Hungary, Lithuania and Greece. The project was originally intended for the Craft program, but further work is required before submission.

2. INFORMATION SYSTEMS

PRESERVATION OF, AND MAINTAINING ACCESS TO, THE RESULTS OF GEOLOGICAL WORKS

This task is undertaken in accord with §12 Law No. 62/1988 Coll., on Geological Works, and all amendments. In 2003, 2.765 reports and manuscripts were handed over to Geofond, of which 2.553 were new documents, submitted by persons or by organizations in accord with the above law. This is about the same number as in the previous year (2.588). Of these, 2.701 were reports of category "P", 33 of category "FZ", 3 of category "ZC" (foreign travel reports) and 28 reports which were submitted under the terms of the project "Re-evaluation", forming appendices to already existing reports of categories "P" and "FZ". The remaining 212 reports are older reports acquired from archives of GMS a.s. (127), Rudné doly Příbram (21), Geomin (63) and BS Most (1) under the terms of the project "Completion of Documentographic information subsystem in 2003 – 2006".

Breakdown of reports acquired by Geofond in 2003

	reports	%
Engineering geology	976	35,3
Hydrogeology	1 378	49,8
Research reports	28	1,0
Reports on Ore Deposits	318	11,5
Reports on Foreign Travel	3	0,1
Others	62	2,3
Total	**2 765**	**100,0**

By the end of 2003, 2.820 reports had been received and documentographically processed for inclusion in the Geofond archive. Of these, 1.680 were received during 2003 and 1.140 remained from the end of 2002. The 1.085 new reports received at the end of 2003 will be processed during the first months of 2004. In 2003, the total number of reports put into the Geofond archive was 434 more than in 2002.

In 2003, 467 visitors used the study room service, making a total of 3.044 visits. In total, 14.314 reports and 3.105 maps were consulted. Compared to 2002, when the total number of visitors was 533, the number decreased slightly. Also, the number of individual visits was lower (152 less) and the number of loans decreased (485 fewer reports and 857 fewer maps). This is probably due to the increased use of information accessed through Geofond web pages.

Summary of the numbers of reports received by Geofond and lent by Geofond in the period 1981-2003

Year	items received	individual*) authors	enquiries	reports lent	maps lent
1981	3.030	not recorded	5.034	14.853	9.730
1982	2.968	not recorded	7.439	20.987	13.218
1983	3.180	not recorded	7.366	19.882	12.526
1984	4.018	not recorded	8.178	21.562	19.736
1985	3.631	not recorded	7.648	21.500	12.564
1986	3.835	not recorded	7.609	23.272	15.790
1987	4.311	not recorded	7.907	25.624	12.797
1988	3.582	not recorded	7.736	24.847	10.774
1989	4.956	not recorded	7.283	22.467	11.351
1990	4.503	102	7.375	21.524	13.334
1991	3.508	83	6.044	21.041	12.603
1992**)	2.971	77	3.947	28.083	7.505
1993	3.003	141	3.570	19.408	7.053
1994	3.122	138	3.794	19.347	7.027
1995	3.143	142	3.709	16.035	5.385
1996	3.411	123	3.743	18.148	4.741
1997	2.786	110	3.445	14.934	4.763
1998	4.234	114	3.638	15.217	4.460
1999	2.868	100	3.436	14.913	4.800
2000	2.862	90	3.668	15.777	5.185
2001	1.869	131	3.591	16.183	4.283
2002	2.386	149	3.196	14.799	3.962
2003	2.820	181	3.044	14.314	3.105

**) first authors or legal entities who produced the manuscript*
***) change in procedure for counting loans and visitors*

In 2003, the documentation of the 102 m deep monitoring borehole in the Poděbrady – Sadská area of the Czech Cretaceous Basin was acquired for permanent storage.

During the year, core from 10 newly acquired boreholes was stored and, simultaneously, transfer of core specimens from the original field boxes to unified storage in boxes of the CH-I type continued. Cores from 8 boreholes were transferred.

As of 31 December 2003, the number of objects in storage was 1.458 (mainly drill cores). Of these, 1.288 have been permanently stored in 8.050 CH-I boxes, while the remaining cores are still in their original boxes. In 2003, a set of 1.001 samples from the regional heavy mineral prospecting program was acquired from Geomin Jihlava Co-op. The collection will be moved to permanent storage in Kamenná during 2004.

In 2003, information on archived core material was used by 6 researchers during 3 visits. They studied 33 borehole cores and took 88 sub-samples for further scientific evaluation.

Summary of activities of the Material Documentation Unit

Year	Number of drill cores stored	Total cores	Cores except for CHI-type boxes	Filled boxes	Proposals to discard cores
1982	12	793	196	181	131
1983	43	836	196	221	114
1984	34	870	196	173	106
1985	5	875	196	209	116
1986	12	887	196	149	133
1987	12	899	196	201	93
1988	16	915	196	187	88
1989	24	939	196	706	99
1990	31	970	196	347	84
1991	38	1.008	196	320	54
1992	43	1.051	196	579	87
1993	24	1.075	196	420	19
1994	74	1.149	196	435	9
1995	42	1.191	196	200	16
1996	47	1.238	196	138	14
1997	34	1.272**)	188	224	3
1998	5	1.276**)	169	234	2
1999	34	1.310	188	350	7
2000	116	1.426	241	388	2
2001	2	1.428	190	344	1
2002	29	1.457	198	229	4
2003	1	1.458	181	216	1

*) *CH I = type of sample boxes*
**) *minus pooled and discarded cores*

The Centre for Documentation of Gold Deposits at the Regional Museum in Jílové u Prahy gathers primary geological and material documentation from exploration and mining work on gold deposits in the Czech Republic. The collection includes samples of minerals, ores and host rocks with alteration types, selected segments of drill core (halved cores, thin sections of rocks and veins, and polished sections of gangue and ore minerals). The collection also includes original geological reports and geological maps, and especially old maps of gold-bearing districts. The material has been classified according to locality and comprises 5.500 samples of minerals, ores and rocks, 2.000 thin sections and 400 polished sections.

In addition to work undertaken on the project "Completion of the Documentographic Information Subsystem in 2003 – 2006", a selection of material for research work on the geology and mining history of gold deposits was also provided for two diploma students from the University of Munich and also for the Industrial School at Příbram. Details of mine workings and undermined areas was also provided for purposes of local planning in Jílové. In addition, the materials necessary for the proclamation of the protected industrial monument in the Halířovské pásmo area of the Jílové mining district were selected.

Under the terms of the above project, the original maps and documents relating to geological-prospecting work undertaken by Geoindustria GMS during the 1990's in the Vacíkov – Petráčkova Hora areas, were acquired. Also, the materials from the Voltýřov deposit in Sedlčany area were acquired and they are now being processed.

CREATION, UPDATING AND USE OF DATABASES IN THE INFORMATION SYSTEM

Systematic filing and updating of data concerning geological conditions and ground water resources in the territory of the Czech Republic is carried out under the terms of § 17 Law No. 62/1988 Coll., on Geological Works, and all amendments.

The Documentographic Information System

Compilation of an ASGI documentographic database and its use for searches for reports and other geological information is a part of the routine system for storing and ensuring access to the results of geological work.

In 2003, 16.476 new documentographic records were added. Of these, 2.820 new records originated from newly acquired reports (2.759 coded as "P", 55 coded as "FZ: and 6 coded as "ZC") and 13.656 from reports already archived (6.310 coded as "V", 5.950 coded as "MS", 350 coded as "KT" and 1.046 coded as external archives); 8 duplicated records were deleted.

As of 31 December 2003, the ASGI database contained, in all, 189.704 records (102.627 coded as "P" (reports), 3.477 "FZ" (fund of mineral deposits), 10.377 "ZC" (foreign travel), 72.454 "V" (boreholes), 5.975 "MS" (shallow pits), 349 "KT" (down-hole geophysical logs), 598 "CGU" (reports from the Czech Geological Survey archive), 1.694 "ITG" (reports from the Intergeo archive), 1.162 "DIAMO" (reports from archives of the uranium exploration organizations), 377 "RDP" (reports from archives of Rudné doly Příbram), 900 "MND" (reports from the archive of Moravské naftové doly), 1.407 "SG" (reports from the archives

of Stavební geologie), 128 "JIL" (reports from archives of Středisko dokumentace ložisek zlata v Jílovém), 202 "UNIG" (reports from archives of Unigeo Ostrava) and 88 "UVR" (reports from archives of Ústav pro výzkum rud). The number of items entered in the database is 12.111 less than the total sum of listed entries. This is because duplicate listings (P+V, P+FZ) and multiple listings (V) have been made in certain cases.

In 2003, a total of 10 searches containing 2.645 records were made for external users and 5 searches contained of 712 records were made for Geofond staff projects.

The Factographic Information System

Database of boreholes

Annotation of new drilling was made both by permanent staff at Geofond and by external contractors. In total, 4.354 boreholes were coded. After formal and factual revision, 4.786 boreholes, compiled from 1.460 reports, were added to the Central Information System. The remaining 335 annotated borehole records taken from 39 external reports were added to the database.

By the 31 December 2003 a total of 629.635 boreholes were in the database, including 6.671 boreholes without geological log descriptions in the archives of Geofond. This is 19.744 less than were originally entered; some were removed because of duplication and others because the quality of the geological logs was not acceptable.

The Table below shows a significant decrease in the numbers of borehole records annotated and stored in recent years. This is due mainly to the fact that the compilation of records from older cores was completed in 1990. The decrease in 1994 was related to a delay in updates due to work on improving the structure of the database and removing duplicated entries. In 1998 and 1999, lower numbers of entries reflect a general decline in geological exploration, and a decrease in the number of project reports sent to Geofond.

Temporal trends in the numbers of annotated and stored drill cores

Year	Annotated boreholes		Stored boreholes	
	per year	total	per year	total
1976	4 055	4 055	-	-
1977	4 803	8 858	2 095	2 095
1978	8 257	17 115	3 059	5 145
1979	5 098	22 213	10 639	15 793
1980	9 147	31 360	8 220	24 013
1981	13 840	45 200	5 816	29 829
1982	42 331	87 531	17 167	46 996
1983	43 782	131 313	43 351	90 347
1984	48 812	180 125	47 898	138 245
1985	51 819	231 944	46 556	184 801
1986	60 378	292 322	53 903	238 704
1987	60 089	352 411	52 414	291 118
1988	52 243	404 654	55 124	346 242
1989	54 285	458 939	60 200	406 442
1990	58 927	517 866	50 713	457 155
1991	24 926	542 792	48 971	506 126
1992	14 107	556 899	21 706	527 832
1993	11 872	568 771	14 618	542 450
1994	9 701	578 472	6 725	549 175
1995	12 725	591 197	20 679	569 854
1996	10 647	601 844	11 953	581 807
1997	11 138	612 982	13 628	595 435
1998	8 692	621 674	13 387	608 818
1999	7 718	629 392	9 724	618 542
2000	5 753	635 145	15 955	634 497
2001	5 019	640 164	6 291	640 788
2002	4 559	644 723	3 805	644 593
2003	4 354	649 077	4 786	649 379

There was an increase of interest in the borehole database during 2003 as compared to the previous year. Requests for information increased from 133 in 2002 to 179 (3 requests from the Czech Geological Survey, 10 for diploma works and other educational purposes, 1 from a regional authority, 1 from a local authority and 164 from private organizations and individuals). Other requests, fulfilled for particular projects ("Stratigraphic architecture of the Cenomanian in the Bohemian Cretaceous Basin" and three projects for digitisation of down-hole geophysical logs) are not included in this number.

Use of the borehole database

Year	users	Number of boreholes
1984	87	45.144
1985	142	81.554
1986	163	155.739
1987	133	77.960
1988	75	84.435
1989	121	116.978
1990	97	78.919
1991	126	155.710
1992	75	81.472
1993	51	44.922
1994	48	46.391
1995	76	36.180
1996	79	10.009
1997	67	20.972
1998	118	67.311
1999	94	62.293
2000	166	29.978
2001	188	75.449
2002	133	30.516
2003	179	32.812

Database of hydrogeological objects

In 2003, a total of 2.982 objects (boreholes, wells and springs) were entered in this database. Of these, 421 objects were from archived reports, 769 from the Fund of Reserves and 1.792 from new reports. By the 31 December 2003, the database contained 61.493 objects. A specialized database of potential geothermal energy sources also forms part of this database (1.218 objects). It contains 873 records of thermal waters, for which the measured temperatures were higher than 20°C, and 345 production boreholes for extraction of crude oil and gas. The specialised database of objects relating to anthropogenic impact on groundwater now contains 8.343 test wells, 1.232 remedial wells and 4.312 monitoring wells.

In 2003, 123 maps at a scale 1:25.000 showing the locations of hydrogeological objects, as well as 645 data sheets, were loaned to 122 customers. This service was requested only by the Czech Geological Survey. Digital data on 22.859 objects were provided to 67 users. Of these, 20 requests were from the Czech Geological Survey, 4 from regional councils and 5 from local authorities. A further 4 were for educational purposes, 1 came from the Ministry of Health Care and 33 from private organizations and individuals.

Database of down-hole geophysical logs

In the period 1999-2002, under the terms of project "Complex Information System of Geofond CR", down-hole geophysical and inclinometric measurements were processed. The boreholes were selected from original documents on structural, hydrogeological and exploration drilling for black coal made by the former Geophysical Logging Centre Tuchlovice acquired from the GMS archive. Geophysical logs made by the former Liberec Uranium Exploration, Hamr Uranium Mines, and other organizations working in the Czech Cretaceous Basin were also checked and digitised. The data were processed under contract by Aquatest and Diamo. Files of old data, processed in 1995 by GMS, Aquatest and Geotrend by order of the Ministry of Economy and Trade, were also incorporated. These were mainly data from deep boreholes in the Permo-Carboniferous basins, drilled during exploration for black coal and from hydrogeological boreholes.

In 2003, three projects were started with the main aim of processing down-hole geophysical logging data from other sources and putting them into the Central Relational Database. These were data from measurements made by the former uranium exploration branch UP-IV Nové Město na Moravě (Moravian area –Rožínka), compiled by Diamo s.p. and the former Liberec UP (Uranium Exploration), Branch VIII Příbram (Crystalline Terrain of South-West Bohemia), processed by 1.Příbramská Ltd. Also, other boreholes from archives of the former GMS made for hydrogeological purposes and investigation of non-metallic resources were processed by Aquatest Inc. In 2003, data from 420 boreholes were processed. By December 31, 2003 geophysical data from 3.094 boreholes and inclinometric data from 2.334 boreholes were incorporated.

Subsequently, data on boreholes from Vídeňská Pánev and the Carpathian Basin have been acquired from Moravské naftové doly Hodonín. A new project, proposed in co-operation with Geofyzika GP Ltd., is aimed at digitizing and incorporating data from boreholes drilled in North Moravia, financed in the past from the state budget.

In 2003, data from 14 boreholes from South Moravia were processed fulfilling two requests for diploma works. A large amount of data was also requested for use in the project "Stratigraphic architecture of the Cenomanian in the Bohemian Cretaceous Basin".

Database of geological specimens (diamond drill core, samples)

In 2003, the integration of the database of geological specimens within the subsystem of geologically documented objects has continued, 3 new boreholes were incorporated. Localities of 33 boreholes had to be corrected and for these the geological logs were added and other minor corrections made. The total number of boreholes for which samples of core are stored and the records integrated into the subsystem was increased to 1.376. There were no requests for information from this database during 2003.

Database of regional hydrogeological investigations

In recent years, regional hydrogeological investigations have been minimal, so that only archived reports have been put into the database. In 2003, 55 outlines and related attributes were processed. By the 31 December 2003, the database contained 649 outlines of areas taken from 607 reports for which the reserves of drinking water were calculated in the past. New calculations of usable reserves of drinking water were made. For 15 areas results were in the category "A", for 62 in the category "B", for 82 in the category C1 and for 85 in

the category C2. In 2003, 5 users requested data from this database; of these 3 were regional councils, 1 was a local council and 1 was a university. Data from 186 investigations were delivered.

Database of radiometric anomalies

This database contains information on radiometric anomalies measured during exploration for uranium by the former ČSUP (Czechoslovak Uranium Explorations). Data from Cretaceous sediments and boreholes in mineral deposits were not included. In 2003, the database was not updated. By 31 December 2003, the database contained 16.203 objects. Requests from 3 users were fulfilled, in which data on 4.293 objects were processed to the output required (1 regional council, 1 private organization, 1 individual).

Database of radiometrically anomalous areas

Maps of radiometrically anomalous areas show the effects of radiation over designated regions. The surveyed areas are classified into three categories with respect to radiation. These are, respectively, areas with high, middle and low radio-ecological effects. In 2003, the database was not updated. By 31 December 2003 the database contained 3.420 objects. Requests by 1 regional council and 1 local council were fulfilled, in which data on 726 objects were processed to the required output.

Database of radiometric investigations

This database contains information on radiometric mapping and shows the boundaries of areas where prospecting for radioactive materials has been carried out using various survey methods. In 2003, the database was not updated. By 31 December 2003 the database contained 466 objects. There were no outputs requested in 2003.

Database of landslides and other dangerous slope deformations

Regular updates continued during 2003, and data from 50 expert reports were processed. Priority was given to processing of reports on mapping of landslides and slope deformation in North Moravia and in the Ústí nad Labem Region produced by the Czech Geological Survey and the Academy of Science of the Czech Republic. There were 108 new objects put into the database, while information on 137 objects was amended. In all, by the 31 December 2003, the database contained 7.071 objects. A total of 20 requests for information were processed. The outputs contained basic information on 9.395 objects. Expert reports relating to 8 particular localities or areas were provided by the department in Kutná Hora (3 for private companies and 5 for individuals).

Database of undermined areas

In 2003, the database maintained by the department in Kutná Hora was given a major update. Significant changes to object outlines of undermined areas were made by reference to new data from the database of main mine workings. Most attention was given to the processing of information from the Královéhradecký, Pardubický and Vysočina Regions, for which maps and reports were produced in 2003. The database was continuously updated and 90 new objects from 68 expert reports and assessments were added. As of 31 December 2003, the database contained 4.884 objects. A total of 25 requests were dealt with in which information on 11.704 objects were processed (Czech Geological Survey – 1, Ministry of Economy and Trade –1, Ministry of the Environment – 1,

universities – 2, regional councils – 3, local authorities – 4, private companies and individuals – 13). 89 expert reports on particular localities or areas were provided to users by the department in Kutná Hora (Ministry of Agriculture – 1, local authorities – 34, private companies – 34, individuals – 20).

Database of main mine workings

The filling of this database has continued under the terms of the project "Database of Main Mine Workings II", following on from the previous project and enabling incorporation of data acquired from external organizations to continue. During 2003, 1.653 objects were collected and added to the database. As of 31 December 2003, this database contained 12.494 objects. Information from this database is mainly used during the inspection of mine workings in accord with §35 of the Mining Law, for purposes of local planning, and for improving the knowledge of undermined areas.

Database of mine waste dumps

The filling of this database has continued under the terms of the project "Database of mine waste dumps II", a sequel to the previous project enabling input of data acquired from external organizations to continue. During 2003, 530 objects were collected and added to the database. As of 31 December 2003, this database contained 827 objects. Information from this database was only accessed in the form of signal information through the Internet. Interest in these data is expected to increase when more objects are incorporated and the area covered by this survey is enlarged.

Database of areas affected by the exploitation of mineral resources

Data on areas affected by the exploitation of mineral resources form part of the state statistical register Hor(MPO)1-01, technical information on mining operations. The data are related to mining claims and registered non-exclusive mineral deposits. This information, together with a summary describing the impact of exploitation of mineral resources, remediation and reclamation works and the creation of funds for restoration, are compiled in the form of printed lists or tables in the database. As the information in this database is confidential, only summaries are given as outputs. Complete data are circulated to organizations selected by the Ministry of Industry and Commerce.

In 2003, data relating to 932 mining claims and 232 registered non-exclusive mineral deposits were listed and used by the following users:

- Regional Council of the Středočeský Region (Ing. Bauerová): information on a building stone deposit in Pyšely – output of related registered organizations, protected areas of mineral deposits and mining claims.
- Czech Geological Survey (P.Kopecký): for a regional mineral resources study - data from Hor 1-01 (MPO) on areas affected by the exploitation of mineral resources and on areas where recultivation has been in progress or already completed, grouped by regions.
- Czech Geological Survey (J.Havránek): for a mineral resources study of the Plzeň Region – information from Hor (MPO) 1-01 on areas affected by the exploitation of mineral resources, on areas where recultivation is in progress or already completed. Information was grouped for the entire region by the following categories: fuels, non-metallic raw materials and building materials.

- Czech Geological Survey (A.Vymazalová): for a mineral resources study of the Liberec Region – information from Hor (MPO) 1-01 on areas affected by the exploitation of mineral resources, on areas where recultivation is in progress or already completed, grouped by the following categories for the entire region: fuels, non-metallic raw materials and building materials, and also grouped by the main mining companies.
- Czech Geological Survey (A.Vymazalová): for a mineral resources study of the Liberec Region – information from Hor (MPO) 1-01 on areas affected by the exploitation of mineral resources, on areas where recultivation is in progress or already completed, grouped by separate commodities and non-exclusive mineral deposits.
- Czech Geological Survey (Poňovič): for a mineral resources study of the Jihočeský Region – information from Hor (MPO) 1-01 on areas affected by the exploitation of mineral resources, on areas where recultivation is in progress or already completed, grouped in categories for the entire region as follows: fuels, non-metallic raw materials and building materials, by the main mining companies and by particular commodities.
- Czech Geological Survey (P.Lhotský): for a mineral resources study of the Středočeský Region and the Prague Region – information from Hor (MPO) 1-01 on recultivation of mine workings in exclusive mineral deposits across the entire region, together with information grouped by commodity, by non-exclusive mineral deposits and by the main mining companies.
- Ministry of Agriculture: comprehensive outputs from Hor (MPO) covering the whole CR- information in the following categories: areas affected by the exploitation of mineral resources, and areas where recultivation is in progress or already completed.
- Czech Agency for Protection of Nature and Countryside (Ing. Penk): for the compilation of a report requested by the Ministry of the Environment- data on areas in the territory of the Czech Republic affected by the exploitation of mineral resources, or where recultivation is in progress or already completed, classified under agricultural land, forested land, water-covered areas and other categories.
- Czech Ecological Institute (Dr.Křivánková): for the annual report summarizing information on the total area of the Czech Republic affected by the exploitation of mineral resources, and for areas where recultivation is in progress or already completed, classified under agricultural land, forested land, water-covered areas and others categories. In addition, sub-totals of the affected areas in each of the Czech Regions were also compiled.
- Czech Geological Survey (J.Godány): information on areas in all 24 Natural Protected Areas of the CR affected by the exploitation of mineral resources, on areas where recultivation is in progress or already completed, and on mining claims and deposits of non-exclusive minerals in and out of production.
- Ministry of the Environment (for the Annual Report of the Ministry of the Environment): Information on areas in the Czech Republic affected by brown coal and black coal mining - the state of exploitation, whether recultivation is in progress, or already completed.
- Czech Geological Survey (P.Kopecký): output from Hor (MPO) for the Královéhradecký Region – information on the total area affected by the exploitation of mineral resources, and on areas where recultivation is in progress or already completed, also grouped by separate commodities for mining claims on deposits of exclusive minerals and the totals for deposits of non-exclusive minerals.

Database of geological maps in the archive of Geofond

In 2001, this database was transferred to the Czech Geological Survey under the terms of the project "Digital Map Archive of the Czech Geological Survey", funded by the Ministry of the Environment. The database consists of a list of maps which should be added to the unified digital archive. No updating was undertaken in 2003. By 31 December 2003 the database contained information on 9.135 geological maps at different scales.

Database of historical mining maps

In the Kutná Hora department of the Czech Geological Survey - Geofond a collection of more than 9.000 mining maps is stored. These form parts of separate special collections. The material varies greatly in content and quality. There are originals or copies of various printed or hand-drawn maps, most of them dating from the 20th century, but there are many maps from the 17th - 19th centuries.

Beginning in 1990, references to these maps were entered into a database, which was modified and improved several times. In 2002 the database was transformed into Oracle and Access and incorporated on the Intranet and Internet pages of Geofond. In 2003, the structure of the database was changed to enable the individual historical maps to be related to the existing database of undermined areas. In addition, 2.473 records of the "M" category were put into the database. By December 31, 2003 the database contained records of 9.156 mining maps.

In 2003, thanks to internet access, the number of requests for information on historical mining maps increased. Searches on particular mining maps requested by 32 users were undertaken at the Kutná Hora branch. In total, 450 archive maps were used. There was a marked increase in requests for copies for which a charge was made.

Database "Library of Kutná Hora branch"

The specialist library located at the Kutná Hora branch contains more than 7.000 publications and other historical documents related to mining, technology and the geological sciences. Since 1992, a database containing references to these documents has been created, changed and modernized several times. In 2002, the entire database was transformed into Access 2000. In 2003 the structure of the database was modified to enable entries to be related to the database of undermined areas and 547 records were updated. By December 31, 2003 the database contained records of 7.015 publications.

In 2003, the database was only in use at the Kutná Hora branch where updating of information on undermined areas and searches for publications for visitors to the branch were undertaken. In 2004, the Internet and intranet presentation of the database will be prepared.

Information System on Raw Materials (SurIS)

All available data on the raw materials potential of the CR is gathered and comprehensively presented in this information system. All sub-databases were continuously updated during 2003. By 31 December 2003, the system contained:

Register of mineral deposits: 9.348 objects, of which:

1.589 are exclusive state-controlled deposits with calculated reserves (Subregister B)

710 are non-exclusive registered deposits (Subregister D)

809 are other non-exclusive deposits (Subregister N – deposits of exclusive and non-exclusive minerals, which are not under Evaluation, but which have calculated reserves in any category). Mostly they are smaller deposits of non-exclusive minerals, for which calculations were not approved, so they are not included in subregister D. There are also former state-controlled deposits, which were excluded from review, or reserves of exclusive minerals, which, for a particular reason (mostly non-approval of reserve calculations) were not included in the evaluation. Mostly these "deposits" are not viable under present economic conditions, but because they have historically calculated reserves, which have not yet been extracted, they were not included in subregisters V, Z or U.

182 are approved prognostic resources (subregisters P, R)

1.076 are other prognostic resources (Subregister Q – other registered prognostic sources)

1.416 are areas for which the results of exploration were negative, or areas which were not prospective or with sub-economic mineral occurrences, and areas where exploration revealed industrial minerals in sub-economic amounts. In accord with §4 of Mining Law (Subregister V) these are not approved as mineral deposits

3.566 are cancelled or abandoned deposits (Subregisters Z and U).

In 2003, 99 new records were entered and 1.704 were updated.

- **Register of protected areas of mineral deposits (CHLU)**

In total this register contains 1.232 objects of which 54 were added and 74 updated in 2003.

- **Register of mining claims (permits delineating mining operations - DP)**

In total this contains 1.155 objects of which 10 were added and 240 updated in 2003.

- **Register of preliminary permits delineating mining operations (PS DP)**

In total this contains 652 objects of which 18 were added and 15 updated in 2003.

- **Register of exploration areas and projects (PÚ)**

In total this contains details of 527 sites of which 26 were added and 39 updated in 2003.

- **Register of graphical objects (GO)**

This register is common for all sub-registers. In total it contains 15.404 objects. These are polygons, lines and points graphically delineating the boundaries of mineral deposits, mining claims etc., and in addition, co-ordinates of districts in the CR. In 2003, 425 new graphical objects were added and 280 updated. All data relating to a former file of geochemically surveyed areas were deleted.

- **Economic register (ER)**

This contains data on prices of the main mineral commodities in the domestic and world markets, and on the value and volume of foreign trade in raw materials.

All registers are regularly updated using the following sources of information :

- Annual statistical statements Geo (Ministry of the Environment) V3-01
- Results of the project, Re-evaluation of deposits of state-controlled minerals in the CR

- Results of the project, Re-evaluation of prognostic resources
- Audits of reserve approvals
- Documents concerning state-controlled deposits
- Decisions concerning cancellation of reserves
- Documents concerning transfers, changes, establishment or cancellation of mining claims
- Decisions on establishment or cancellation of protected areas of mineral deposits
- Final reports on exploration

Administrative registers

- **Register of companies**

This database contains information on 2.857 organizations undertaking geological work, exploration for mineral resources and mining (including those no longer in existence). In 2003 55 new companies were added, 15 duplications were deleted and data on 857 companies were revised using publically available sources of information and statistical statements. Names and registration numbers, together with other general information on existing organizations are listed in accord with the Trade and Business Register.

- **Register of decisions governing approval and depreciation of reserves**

In 2003, existing files concerning approvals of reserves made by the Committee for Calculation of Reserves (KKZ) were updated, and 39 new reports approved by the Committee for Projects and Final Reports (KPZ) were entered. In total, this database contains information on 3.621 approved reserves.

In 2003, SurIS was used extensively for tasks connected with the project "Evaluation of regional mineral resources for regional raw material policy". In addition, a total of 34 requests were dealt with and information on 13.985 mineral deposits, 3.854 mining claims and 3.645 protected areas of mineral deposits was delivered (the Ministry of the Environment – 1, the Ministry of Economy and Trade – 1, universities – 2, regional councils – 4, municipalities – 6, private companies and individuals - 20). In fulfilling 6 requests, data on 72 exploration areas and projects were submitted (regional councils – 3, municipalities – 1, universities – 1, private companies – 1).

Summary of outputs from all databases in 2003

	Number of orders	Total costs according to price list	Invoiced
Ministry of Environment [1]	1	113.000,---	0,---
Czech Geological Survey [2]	36	320.007,---	179.456,---
Ministry of Industry and Trade	1	84.000,---	84.000,---
Ministry of Health Care	2	100,---	0,---
Ministry of Agriculture	2	1.100,---	0,---
Land Fund	1	2.200,---	2.200,---
Academy of Science	5	38.888,---	38.879,---
Regional Councils [3]	8	148.453,---	58.593,---
Towns and Cities [3]	49	25.620,---	14.327,---
Universities [4]	19	109.233,---	14.925,---
Other users [5]	331	527.476,---	323.999,---
TOTAL	**455**	**1,483.077,---**	**571.379,---**

Note: 'Total costs according to price list' means the price calculated in accord with the Geofond Price list for work and services.

[1)] Update of GIS data for use by Department of Informatics of the Ministry of the Environment

[2)] The invoiced sum includes the supplementary budget given to Geofond by the Geological Department of the Ministry of the Environment. This was in accord with Provision No. 6, to support collaboration on the projects "Basic geological mapping 1:25 000 in the natural protected area of Žďárské vrchy" (95.000 CZK) and "Landslides in the CR" (50.000 CZK).

[3)] For these councils, a fixed charge is levied for providing thematic coverage of signal information or, by request, some more detailed data (hydrogeological information).

[4)] Outputs from databases were given free of charge for educational purposes and for diploma work.

[5)] The difference of about 200.000 CZK between the total costs according to the price list and the amount invoiced for services is due to some services not being chargeable, e.g. the order from Lesy ČR s.p. which was completed under the terms of their contract with the Ministry of the Environment (list price 84.000 CZK), and minor requests for information which gave negative results, and when the price was set by previous agreement, as in the case of the contract between Diamo s.p. and the Ministry of the Environment. In the latter case the invoiced price was only 42.000 CZK instead of the list price of 109.395 CZK, a difference of 67.395 CZK. Information support services for certain projects (mainly providing data for projects on digitisation of down-hole geophysical logs) were not invoiced.

COMPILATION OF SPECIALIZED MAPS

Maps with special geological features

One of the most important functions of Geofond is the regular publication of maps depicting areas with special geological features, such as protection of mineral deposits, landslide hazards and undermined areas, which could affect regional and local planning and environmental protection. These maps at a scale of 1:50.000 are published in revised editions every 1 - 3 years and are produced in accord with §17 of Law No.62/1988 Coll., and all amendments. According to this law, the organizations responsible for the national geological service are obliged to collect and make available data on geological conditions, on protection and use of raw material resources and ground water resources and on potential geological risks within the territory of the Czech Republic. These maps are designated as a primary source of information to support state authorities responsible for regional and local planning and decision making in the preparation of technical documents concerning land use. These maps are passed to the Department of Geology and the Regional Departments of the Ministry of the Environment, Regional Councils and, through them, to District Administrations and Building Offices. Maps of protection of mineral deposits are also passed to the Ministry of Industry and Commerce and Regional Mining Offices.

In 2003, **Maps of Protection of Mineral Deposits** for the Jihomoravský, Vysočina, Olomoucký, Moravskoslezský and Zlínský Regions were published. These maps take into account the results of the project „Re-evaluation of

deposits of state-controlled minerals in the Czech Republic“ and „Re-evaluation of prognostic resources“. A revision of measures to protect state-controlled deposits was also considered. This was carried out by the Regional Departments of the Ministry of the Environment.

A new edition of **Maps of Undermined Areas** was made for the Vysočina, Královéhradecký and Pardubický Regions.

A new edition of **Maps of Landslides and other Dangerous Slope Deformations** for the Ústecký Region and for Děčín District was published.

Additional large-scale maps and digital maps

Since 1999, maps showing the locations of boreholes and basic data are accessible on-line using Internet applications. Since 2000, maps with special geological features (protection of mineral deposits, landslide hazards and undermined areas) were made accessible using the same technology. Maps of other mineral deposits, which were not included in the previously completed sets, and maps of exploration areas and projects were also added in 2001. Since 2002, maps of old mine workings and main mine workings were also added. All the maps are supplemented with “signal information” for individual objects. All the applications, which mediate access to the maps, together with the ASGI documentographic database and the database of historical mining maps, are accessible on the Internet (www.geofond.cz - Czech version only) or available on the intranet in the study room for visitors to Geofond.

If required, signal information can be provided in the form of vector maps and data files in GIS formats suitable for use in local information systems. These can be updated yearly on request.

3. OTHER ACTIVITIES

Purchase of geological magazines and other necessary periodicals

In 2003, the total number of geological magazines and other necessary periodicals purchased was 27.

Expert library

Geofond maintains a library of publications used by specialists for their activities. In 2003, Geofond received a donation of 105 geological books, mainly concerning hydrogeology, from RNDr. Pavel Hoppe. The books were placed in some of the departmental libraries at Geofond.

Publications

Based on the Plan of Publication, Geofond produced the following publications in 2003:

- Re-edition of codes and dictionaries used in the Database of boreholes (120 pages)
- List of organizations and codes used in the ASGI database (37 pages)
- Lexicon of keywords, used in ASGI – sorted by codes
- Lexicon of keywords, used in ASGI – sorted by explanations

- Annual Report of Geofond of the Czech Republic 2002 (Czech and English versions)
- Updated web pages of Geofond (Czech and English versions)

Geofilm and Video Library

Geofond is responsible for one of the video-rental facilities of the Ministry of the Environment. The video library contains 351 videos, mainly ecologically-oriented. Geology is less well represented. In addition, 33 videos belonging to the ENvideo Foundation and 7 video transcriptions of geological films from the former Czech Geological Bureau are available. In 2003, 32 new videos were acquired. Geofond also keeps 55 documentary films on geological topics (360 copies). In 2003, a total of 74 videos were rented to 21 users. A list of films held by Geofond was published on the Geofond web pages.

4. INTERNATIONAL ACTIVITIES

In the field of mineral resources, international collaboration proceeded as follows:

- Provision of information on the balance and changes of raw material resources in the Czech Republic to international journals and to other publications (e.g., Industrial Minerals, Metals Bulletin, EU publications produced by Roskill Information Services, USGS etc.). The English and German versions of "Mineral Commodity Summaries of the Czech Republic" were exchanged for reports from other geological surveys, mainly in European countries.
- Regular systematic exchange of information and consultations with the U.S. Geological Survey, Mineral Resources Section.
- From 16 to 25 May 2003, a representative from Geofond took part in the international conference „Sustainable Development Indicators in the Mineral Industry (SDIMI 2003)" on the Greek island of Milos. The conference was focused on problems of planning, mining technologies and processing of mineral deposits in the context of sustainable development. It was organised by the Greek Ministry of the Environment, Land-use Planning and Public Works. A field excursion, focused on the geology and mineral resources of Milos island took place before the conference. The yearbook "Mineral Commodity Summaries of the CR", was presented by the representative from Geofond. Attendance was financed from the budget of the project "Economic registers of SurIS (information subsystem of raw materials) / Enlargement and update of the economic branch of SurIS".
- From 3 to 6 June 2003, representatives of Geofond took part in the 45th Forum for Industrial Minerals, which was devoted to resources of industrial minerals and construction materials in neo-volcanic rocks in Eastern Slovakia. A field excursion to the Slánské and Zemplínské vrchy localities took place. The Forum is an annual international event, organized alternately by the Czech partners in the CR and by the Slovak partners in the SR. The travel was financed from the Geofond budget.
- From 19 to 21 November 2003, representatives of Geofond travelled to Spišská Nová Ves (Slovakia), where they visited the regional branch of the Geological Survey of the Slovak Republic (Štátny geologický ústav Dionýza Štúra).

The journey was made under the Agreement on Geological Co-operation between Geofond and the Geological Survey of the Slovak Republic. The main aim of the visit was to discuss progress on development of information systems on raw material resources, and strategies for regional raw materials resources policy, and the compilation of annual reports on raw material resources for both countries. The journey was financed from the Geofond budget.

In the field of information technologies, international collaboration proceeded as follows:

- Geofond took part in e-mail conferences, discussion forums, seminars and workshops with international participation and meetings with corresponding partners were organized in the CR.
- In 2003, Geofond and the Czech Geological Survey jointly organized the annual meeting of GIC (Geoscience Information Consortium, former ICGSECS - The International Consortium of Geological Surveys for Earth Computer Science). The 18th Meeting of GIC was held in Průhonice (CR) from 15 to 19 June 2003. Dr. Čápová was elected as a member of the Steering Committee (the elected council for co-ordination of the consortium).
- At the beginning of 2003 the proposal for the e-Earth project was completed and submitted to the e-Content programme on 21 March 2003, under the terms of the 3rd Call, Action Line 1.2 (European Commission, Information Society Directorate-General, Luxembourg).
- On September 5, 2003, a representative from Geofond took part in the workshop meeting of the international working group in Krakow (Poland). The meeting was focused on the preparation of the project IT-Carta, proposed for the Craft programme under the terms of the 6th Framework IST (EU programme for support of development and use of digital content). The meeting was organized by the Polish Geological Survey (Panstwowy Instytut Geologiczny). The consortium subsequently decided not to submit the project for the Craft Programme. Travel was financed from the Geofond budget.
- From 19 to 22 November 2003, a representative from Geofond participated in the Inaugural Meeting of the international working group on "Geological Data Model International Collaboration" in Edinburgh (UK). This newly established group of specialists from various national geological surveys will attempt to solve the problems of standardization, management and exchange of data in the web environment. The main aim of the meeting was to identify the possibilities of collaboration in the field of data models and standards for geological information and define needs, targets, and future strategy in this field. Dr. Čápová became a member of the interim group responsible for organizing the future meetings and co-ordination of related activities in the Science Language Working Group. Travel was financed from the Geofond budget.
- From 23 to 24 September 2003, representatives from Geofond travelled to the State Central Mining Archive in Banská Štiavnica (Slovakia) where they acquired final reports on geological work undertaken at Czech localities. On the return journey a visit was made to the department of Informatics of the Geological Survey of the Slovak Republic in Bratislava, where the problems of creation and maintenance of documentographic databases were discussed.

5. ECONOMIC STATEMENT FOR 2003

The budget for non-capital expenses was 34,684.000 CZK, of which 34,601.000 CZK, i.e. 99.76% of the total, was actually used.

Most of this was spent on salaries. The financial allocation for salaries (14,792.000 CZK) was overspent by 0.05 %. Overspending by 7.000 CZK on salaries for employees was due to the use of non-budget resources from the Special Payments Fund, in accord with § 25 par. 1 part b) of Act No. 218/2000 Coll. Relative to the year 2002, there was an increase of about 1,370.000 CZK in the sum of salaries paid. This increase includes the cost of paying employees at the Department of Geophysical data in Brno, established on September 1, 2003; for this Geofond received additional funding. The sum paid back to the state as mandatory social and health insurance also increased from 4,664.000 CZK to 5,113.000 CZK. From 2002 to 2003, the average monthly salary increased from 16.424 CZK to 17.107 CZK, which marks an increase of 4.2%. This was influenced by fact that only 84% of the quota of employees was in post during 2003 (equivalent of 71 full-time employees). The average salary bracket number for all Geofond employees was 8.34, which is comparable with previous years.

The highest expenses (9,426.000 CZK) were those for services purchased from other institutions. This was about the same as the amount spent in 2002. Of these, for the completion of projects financed from the funds of the Department of Geology of the Ministry of the Environment there was a total of 4,603.000 CZK ("Completion of Documentographic information subsystem in 2003 – 2006" (D) – 100.000 CZK, "Economic registers of SurIS (Information Subsystem of Raw Materials) / Enlargement and update of the economic branch of SurIS" (E) – 174.000 CZK, "Database of mine waste dumps II" (X) – 63.000 CZK, "Database of main mine workings II" (H) – 79.000 CZK, "Evaluation of state-controlled mine ral deposits in the state reserve" (R) – 560.000 CZK, "Management, maintenance and testing of possible developments of the information system of Geofond in 2003" (K) – 1.580.000 CZK, "Digitisation of borehole geophysical logs from selected boreholes and putting them into the Central relational database of Geofond" (KA) – 38.000 CZK, "Processing the borehole geophysical measurements from DIAMO s.p. and transferring them to the Central relational database of Geofond – Crystalline formations of the South-Western part of Bohemia" (KP) – 40.000 CZK, "Digitization of borehole geophysical measurements of DIAMO s.p. – Moravia" (KD) – 40.000 CZK, "Documentographic processing of reports from 1941-1978 in the possession of Geofond" (Z) – 610.000 CZK, "Landslides in the CR" (S) – 20.000 CZK, "Stratigraphic architecture of the Cenomanian in the Bohemian Cretaceous Basin" (T) – 76.000 CZK, "Basic geological mapping at 1:25 000 scale of the natural protected area of Žďárské vrchy" (G) – 45.999 CZK, "Potential of mineral resources in the Natural Protected Areas of the CR and limits of their exploitation" (N) – 120.000 CZK, "Compilation and use of geophysical data, obtained with finance from the state budget" (GF) – 1.058.000 CZK).

The need to equip the newly established Department of Geophysical Data in Brno resulted in increased spending. The cost of software purchased increased from 98.000 CZK in 2002 to 435.000 CZK in 2003. For the same reason, the expenses for material equipment also increased from 528.000 CZK in 2002 to 2,266.000 CZK in 2003 (hardware, map storage cases, archive racks, card-index cases etc.). These expenses were partly covered by an additional budget from the Ministry of the Environment.

Increase of rents from 1,049.000 CZK in 2002 to 1,298.000 CZK in 2003, was partly due to additional rent for the new offices in Brno, paid from September 1, 2003 (80.000 CZK). The new rental contract between Geofond and the Council of Prague 7 for the space in Kostelní 26 was signed on April 1, 2003. A refundable deposit of 350.000 CZK was required. By comparison, expenses for hired hardware and equipment decreased.

Water, energy and fuel costs increased slightly from 565.000 CZK in 2002 to 573.000 CZK in 2003. The reduction in heating costs from 247.000 CZK in 2002 to 162.000 CZK in 2003 was the result of renovation of the heating system. Other energy costs increased. This was due to price increases introduced by Pražská energetika, the provider of electricity. Low deposits were paid for the service in 2003, so the new tariff will cause a marked increase in costs, mainly seen in the accounts for 2004. There was an increase in expenses for gasoline from 82.000 CZK in 2002 to 100.000 CZK in 2003 and for travel expenses from 191.000 CZK in 2002 to 273.000 CZK in 2003, due to more frequent and long-distance travel in the CR under the terms of various projects financed from the state budget. The increase in expenses for external reprographic services from 365.000 CZK in 2002 to 437.000 CZK in 2003 was mainly related to the printing of the publication "Mineral resources of the CR in 2002". The increase in expenses for educational purposes from 43.000 CZK in 2002 to 80.000 CZK in 2003 is related to refund of the cost of English courses to those employees who successfully passed the required exams.

Installation of a phone monitoring system resulted in a further decrease in the amount paid for telecommunication services, which fell from 406.000 CZK in 2002 to 327.000 CZK in 2003. There was a notable decrease in maintenance and repair costs which were reduced from 781.000 CZK in 2002 to 360.000 CZK in 2003. This was because the intention is to sell the buildings in Chotěboř owned by Geofond, so no major repairs or maintenance were undertaken. The saving on sundry services was reduced by 535.000 CZK from 2,633.000 CZK in 2002 to 2,098.000 CZK in 2003.

The applications for capital investments submitted during 2003 were all approved by the end of 2003. Geofond was granted 3,250.000 CZK for capital investment. It was used mainly for replacing the central database server (825.220 CZK), and upgrading the web services equipment with a new server (150.000 CZK) and software ArcIMS (219.450 CZK). Also, a new scanning workplace was established and equipped with a book scanner (682.156 CZK), a large-size scanner (696.189 CZK) and a file server (299.998 CZK). A new Škoda Fabia Combi 1,21 (298.400 CZK) was also purchased to provide reliable transport. A saving of 78.588 CZK on the original grant was made by purchasing directly through the electronic market system. This was returned to the state budget.

Small increases in income from all services provided by Geofond meant that the target of 1,700.000 CZK set for income earned by Geofond activities in 2003 was exceeded. Total income reached 2,026.000 CZK,

The budget deficit is determined by the difference between income and expenditure. After calculation of the final budget provision, the budget deficit was expected to be in the order of 36,234.000 CZK. Thanks to increases in earned income and savings on some non-capital costs and on the capital investment budget, the deficit decreased to 35,474.000 CZK, which was 487.000 CZK lower than anticipated.

6. ORGANISATIONAL STRUCTURE OF GEOFOND

There were some organisational changes, related to the establishment of the new Unit for Geophysical Data in Brno on September 1, 2003. The new structure is described below. Planned numbers of staff are given in brackets; middle and high-level managers are denoted as +1, while heads of lower units are included in the staff number.

100 DIRECTORATE (20+1)

110 Secretariat and Offices reporting directly to the Director (2)

Co-ordinates the agenda for which the Director is ultimately responsible. This unit includes the Secretariat, Personnel Department, Accounts Department, Office of Foreign Affairs, Legal Department, Civil Defence Unit, Fire Prevention Office and an Occupational Health and Safety Unit. Part of this agenda is set by law. Some services are carried out under contract. This unit is also responsible for the editorial policy of Geofond.

120 Department of Information Systems (17+1)

121 Computer Services (2)

Responsible for the maintenance of the local computer network (Intranet) of Geofond and its connection with the Internet, looking after computer operation systems and hardware, keeping an inventory of computers and software, co-ordinating requests for new computer equipment, periodically making back-up copies of databases and operation systems which are archived, ensuring data is protected from unauthorised users and ensuring compatibility of the information system of Geofond with higher-level information systems (SIS, Intranet of the Ministry of the Environment, Internet).

122 Unit for Operation and Development of Computer Systems and Applications (6)

Ensures development, maintenance and updating of methodology for the information system of Geofond (indexes, coding manuals, operation manuals). Implements new systems, maintains software for running databases, develops software applications, maintains programming and user's documentation, organises training of employees, implements new technologies (WWW, GIS) and uses these technologies to allow user-friendly access to databases, supervises building and development of the Complex Information System of Geofond, supervises compilation of external specialised databases and information subsystems, ensures integration of these subsystems into the Central Information System, provides information on specific use of the Geofond Information System, provides non-standard outputs from databases, co-ordinates research, grant or other projects in the field of development and use of modern technologies and data processing in geology.

123 Data Processing Unit (4)

Responsible for acquisition and pre-processing of data, including digitisation, provides standard outputs from databases, collaborates in maintenance and updating of individual databases of the Information System.

124 Unit for Geophysical Data (5)

Responsible for compilation and use of geophysical data, established with finance from the state budget. Tasks involve the creation, maintenance, management and updating of the geophysical database, maintenance of an archive of geophysical reports and measurements, and provision of the most common outputs from the databases.

200 Division of the Deputy Director of Finance (13+1)

In charge of all activities necessary for the financial and logistical operation of the organisation. The Deputy Director for Finance manages the budget, supervises civil defence and fire protection, presides over the investment panel, and oversees building activities and purchase of machinery and equipment.

210 Department of Accounts (4+1)

Responsible for the operation of the complex payroll and invoicing, registering orders and contracts, controlling the cash-flow within these contracts, preparing statistical statements, running an accounting information system to enable control of the budget, and for implementation of software for accounting and operations, carrying out money transfers, ensuring cash payments, calculating travel expenses and destroying accounting papers and other old documents.

220 Department of Operations (7+1)

Administers assets, takes inventories of property and equipment, prepares contracts on property leases, manages the use of telephones, radio, television, water, electrical energy, and the payment of municipal fees, oversees utility payments and prevents budget deficits, supplies materials, ensures maintenance of buildings, office equipment, technical equipment, destroys obsolete equipment, organises audits of selected technical appliances and repairs, supervises company cars, night guards, switchboard and fire alarms.

300 Division of the Deputy Director for Geology (49+1)

Responsible for all activities of the expert departments, collaboration with the Department of Geology and Regional Departments of the Ministry of the Environment in the field of geological information and ecogeological aspects of territorial planning. Undertakes compilations of manuscripts on past geological projects, and reports on special geological phenomena, on protection, contamination and destruction of bedrock and on conflicts of interest between mineral exploitation and environmental protection.

310 Department of Geological Documentation (15+1)

311 Documentography Unit (6)

Collects and compiles observations, documentographically processes and stores written and graphical documentation. Carries out annotation of unpublished reports and enters data into the ASGI documentographic database; maintains and regularly updates the ASGI database, registers new geological works; processes reports on foreign travel for the Ministry of the Environment, runs film and video rentals.

312 Geological Specimens and Material Archives Unit (3)

Collects and preserves geological samples and makes them accessible. Participates in destruction of unnecessary rock samples at other institutions/ companies and selects material for preservation by Geofond (diamond drill core and rock samples). In charge of the Database of material specimens. Co-ordinates acquisition and transfer of abolished external archives.

313 Loans and Reprographic Services Unit (6)

Provides reprographic services and all services related to in-house loans, registers reports delivered to Geofond, checks on completeness of accepted manuscripts, tracks manuscripts between departments during processing, generates invoices.

320 Department of Factographic Information (12+1)

321 Boreholes Database Unit (6)

Builds, maintains and updates the Database of boreholes, Database of radioactive anomalies and Database of radioactively anomalous areas.

322 Hydrogeological Unit (6)?

Builds, maintains and updates the Database of hydrogeological objects, groundwater pollution (test wells), geothermal energy, mineral springs and their zones of protection, zones of protection surrounding spas, water resources and past hydrogeological projects.

330 Department of Mineral Resources Information (8+1)

Administers deposits of industrial minerals in compliance with the Geological and Mining Law (in collaboration with the Ministry of the Environment and Ministry of Industry and Commerce). Supports the protection and use of mineral resources by providing information, provides basic data for the state policy on raw materials and geological exploration, runs SurIS (Information System on Mineral Resources), provides outputs from SurIS and literature searches including sources of primary data with confidential access.

331 Unit for Protection and Registration of Mineral Resources (5)

Registers deposits forming state reserves and ensures protection of these deposits. Maintains archives of rulings of the former Commission for Rating of Reserves, rulings on reserves by the Ministry of the Environment, rulings on cancellation of reserves by the Ministry of Industry and Commerce, certificates of state-controlled deposits, decisions on protected land surrounding deposits, further documents on state-controlled deposits in compliance with the Mining Law, drafts on establishment and changes in the protected land surrounding deposits in cases registered and managed by Geofond. Maintains the Register of protected areas surrounding deposits, limits of mining operations, preliminary mining permits, exploration licenses, licenses to carry out geological work, and a register of geological and mining companies. Prepares basic documents on cancellation of reserves for the relevant Commission of the Ministry of Industry and Commerce. Collaborates with the State Mining Bureau, provides information related to administrative documents, participates in state-financed projects aimed at changing quantitative and qualitative parameters of reserves resulting from economic trends. Updates information systems on past mineral exploration

projects in the Czech Republic, maintains the Register of mineral raw materials and all its sections: Exclusive (state-controlled) deposits with calculated reserves (subregister B), non-exclusive registered deposits (subregister D), other non-exclusive deposits (subregister N), approved prognostic resources (subregisters P and R), other prognostic resources (subregister Q), and mineral occurrences and areas with industrial minerals in sub-economic amounts (subregister V). Calculates reserves of exclusive (state-controlled) deposits, registers reserves of non-exclusive deposits, compiles maps of protection of deposits for individual regions in compliance with the Geological Law. Provides outputs, including graphics, on the raw material basis of the Czech Republic to bodies of the central state administration, the State Geological Service and businesses. Uses GIS at a specialized workplace, prepares compilations of data from unpublished reports. Participates in state-financed projects aimed at enlarging the information base on mineral deposits, maintains archives of registration sheets of mineral deposits and Statistical Statements GEO (Ministry of the Environment) V3-01. Updates lists of numeric codes for mineral deposits in the territory of the Czech Republic, delivers these codes to the Complex Information System of Geofond.

332 Raw Materials Policy Unit (3)

Prepares statistical evaluation of imports and exports of mineral raw materials, follows prices of selected commodities both in the Czech Republic and at foreign commodity exchanges, prepares regular documentary summaries for the Department of Raw Materials Policy of the Ministry of Industry and Trade. Prepares the publication of specialized booklets: Mineral Commodity Summaries of the Czech Republic, Securing the Czech Republic with Industrial Minerals, Balance and Changes of Reserves of Mineral Raw Materials in the Czech Republic, and Summary of Pricing of Mineral Raw Materials in the Czech Republic. Participates in international collaboration in the field of mineral raw materials and pricing. Carries out market-oriented studies on selected industrial minerals.

340 Department for Support of State Administration (10+1)

Administers old mine workings in compliance with the Mining Law. Responsible for the processing of the Statistical Statement Hor(MPO)1-01 (assignment by the Ministry of Industry and Trade); responsible for the Database of main mine workings (joined assignment by the Ministry of the Environment, Ministry of Industry and Trade and Czech Mining Bureau). Provides information sensu Law No. 123/1998 Coll. and 106/1999 Coll., responds to specific queries by state administrative bodies at all levels and/or co-ordinates such response through specialist organisations.

341 Land Information Unit (5)

Carries out complex processing of the Statistical Statement Hor(MPO)1-01, passes on data to all relevant Registers (Institutions, Reclamation, Deposits, Spatial limits of mining operations). Produces customised outputs from these Registers for ministries and the Czech Mining Bureau. Publishes the annual „Summary of reserves of non-exclusive industrial minerals in active mines“. Maintains and updates the Register of main mine workings and old mines, provides basic documents to the Ministry of the Environment for categorisation and securing of mines, deals with requests made by the state administration

and other institutions, provides evaluations for developers, land-use planners and the Land Fund of the Czech Republic with respect to special geological features in target areas.

342 Risk Assessment Unit (5)

Builds the Database of landslides and other dangerous slope movements, Database of undermined areas and specialized databases on historical mining activities. Periodically issues reports for land-use planners in compliance with Section 13 of the Geological Law. Offers evaluations of geological hazards, runs specialized library and archives on historical mining and ore processing.

ORGANISATIONAL STRUCTURE OF GEOFOND

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