

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 2002. 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 ČGS-Geofond during 2002, produced on behalf of the Ministry of Environment of the Czech Republic. Based on statute No. 2/02 of the Ministry of Environment of the Czech Republic (document No. M/2000666/02 signed on March 27, 2002) the official name Geofond of the Czech Republic was changed to the Czech Geological Survey – Geofond on April 1, 2002.

As in previous years, Geofond carried out statutory tasks in compliance with its Charter of Foundation and laws of the Czech Republic, specifically, Law No. 62/1988 Coll. On Geological Works, Law no. 44/1988 Coll. On Protection and Use 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 Commerce on the use 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 Environment. Project "Documentographic processing of reports archived by Geofond during 1941-1978" continued from the previous year. Projects completed during 2002, including final reports, were "Compilation of the Database of main mine workings", "Complex processing of geological documents in archives acquired by Geofond", "Complex information system of Geofond", and "Compilation of the Database of mining waste dumps". The new project "Economic registers of SURIS (information subsystem of raw materials) / Enlargement and update of the economic branch of SURIS" was initiated during 2002. The study "Regional raw material policy in the Czech Republic", requested by the Ministry of Economy and Commerce, has continued as the project "Evaluation of regional mineral resources for regional raw material policy", financed by the Ministry of Environment.

Developments of information technology within Geofond during 2002 led to improvements in existing applications and the creation of a number of new ones to facilitate usage of databases on the local intranet and on the internet where Geofond's web pages www.geofond.cz, can be found, together with the present Annual Report.

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1. ACTIVITIES DESIGNATED BY THE MINISTRY OF ENVIRONMENT

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

These individual tasks were not specified at the beginning of the year and therefore were not formally listed as main projects. The main *ad hoc* tasks in 2002 were:

- Compilation of drafts of the Statements Hor (Ministry of Industry and Commerce)1-01 and Geo (Ministry of Environment) V3-01 for the year 2003, with commentaries. The wording of these Statements has been approved by the Czech Statistical Bureau for inclusion in the Program of collection of statistical data for 2003, published in the Collection of Laws (Czech Statistical Bureau).
- Compilation of signal information and hydrogeological data for the information systems of the newly established Středočeský (Central Bohemia), Pardubický, Karlovarský, Vysočina a Jihomoravský Region Authorities
- Compilation of data for the project "Basic geological mapping 1:25 000" of the Czech Geological Survey (financed partly from the budget of the Ministry of Environment, partly from the budget of the Czech Geological Survey)
- Preparation of a new edition of Maps of protection of mineral deposits for the purposes of State Mining Authority, and donation of the publication "Raw Materials of the Czech Republic – Mineral resources" and "Changes in the reserves of state controlled mineral deposits between 1992 – 2001" to the State Mining Authority and Czech Bureau of Mines.
- Update of hydrogeological information on spa sites and their protected zones (Ministry of the Health Care, Czech Spa Inspection)
- Compilation of data for the project "Vysočina Region – industrial zones" (Ministry of Environment, Geomin)
- Compilation of information on areas in the CR affected by the exploitation of mineral resources which were rehabilitated during 2001 (Czech Ecological Institute, Agency for Protection of Nature and Landscape)
- Compilation of information on areas in the CR affected by the exploitation of deposits of fossil-fuels and non-exclusive mineral resources which, during 2001, were in the process of restoration or where rehabilitation was completed, or where the decision to rehabilitate been made (Ministry of the Environment)
- Compilation of information for regional planning authorities in the Pardubický, Karlovarský, Jihomoravský and Pražský regions.

2. Compilation and publication of "Evaluation of reserves of state-controlled mineral deposits in the Czech Republic" and "Register of reserves of mineral deposits of the Czech Republic", up-dated versions as of January 1, 2002.

On May 31, 2002, three parts of the "Evaluation of reserves of state-controlled mineral deposits in the Czech Republic" were published (I. Ores, Trace Elements, II. Fossil Fuels, III. State-Controlled Non-metallic Mineral Deposits) and also the "Register of reserves of mineral deposits of the Czech Republic", containing non-exclusive building materials (i.e., those outside state control). 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 annual report "Raw Materials of the Czech Republic – Mineral Resources" - updated as of January 1, 2002.

This report, produced by Geofond and published by the Ministry of Environment, is the only generally accessible source of information on the mineral potential of the Czech Republic. It also gives a list of the main mining companies. Number of copies: 200 (in Czech), 250 (in English). Publication dates: June 30, 2002 (Czech edition) and July 31, 2002 (English edition). By September 30, 2002, it was issued in the form of a CD in Czech, English and German versions.

4. Preparation of the report "Status and changes in the reserves of state-controlled mineral deposits between 1992 and 2001".

This information, for internal use by the Ministry of Industry and Commerce, the Ministry of 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.

5. Compilation of "Reserves of non-exclusive industrial minerals within designated mining boundaries and other currently active mines"

A compilation of reserves of non-exclusive minerals was published on May 31, 2002. The data were collected using the statistical statement form Hor(MPO)-1-01. This publication was mailed by Geofond to relevant companies selected by the Ministry of Industry and Commerce.

6. Compilation of the chapter „Reserves and predicted resources of raw materials“ and part of the chapter “Economic potential of the regions” relating to mining of raw materials within the frame of the project “Regional raw material policy in the Czech Republic”, including outputs from databases SURIS, updated using field reconnaissance and documentation.

In 2001 the chapters “General regional characteristics”, “Economic potential of the regions” and „Reserves and predicted resources of raw materials“ for the regions of Vysočina and Olomouc were completed as part of the project “Regional raw material policy in the Czech Republic” (for the Ministry of Industry and Commerce in co-operation with the Czech Geological Survey). In 2002 this co-operation continued under the contract from the Ministry of Environment "Evaluation of regional mineral resources for regional raw material policy" within the Liberecký, Pardubický, Praha and Středočeský regions. The project will continue in 2003 compiling data from the remaining regions.

7. Providing registration of geological works in accord with § 7 Law No.62/1988 Coll. (on geological works), and the Act of the Ministry of Environment 282/2001 Coll. (governing registration of geological works), and all amendments to these laws.

In 2002, 150 organizations made submissions to the register of geological works. In total 2.069 geological projects were registered. Of these 616 were engineering-geological works, 1.441 were hydrogeological works, 20 works were related to mineral deposits, 11 were for research purposes and 11 were related to ground workings (30 registrations included two kinds of work). There was a remarkable increase in the number of registrations compared with the previous year in which only 941 projects were filled. 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 Environment.

8. Providing protection and registration of state-controlled mineral deposits in accord with § 8 Law No. 44/1988 Coll., On Protection and Use of Valuable 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 400 state-controlled mineral deposits. For 315 of these mineral deposits, a total of 330 protected areas have been designated. For the remaining 85 state-controlled mineral deposits, applications for the designation of 31 protected areas were lodged in 2002. Of 15 newly identified areas of protected mineral deposits in the Geofond register, 7 were defined during 2002. Representatives of Geofond take part in negotiations and on-site investigations in relation to the definition of these protected areas of mineral deposits. For the remaining 54 state-controlled deposits, proposals for designation of protected areas are being successively 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 82 designated protected areas have so far been cancelled on the recommendation of Geofond. Of these, 11 were cancelled in 2002.

9. 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 Environment (registration of old mine workings, maintaining the database, taking part in on-site investigations at the request of the Ministry of 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 was modernized, updated and presented at signal level on the Geofond intranet and on the internet. A total of 202 new reports on dangerous surface effects arising because of old mine workings were registered. As of December 31, 2002, 971 such reports had been registered, involving 849 old mine workings. From previous years, 7 reports of multiple events related to 2.417 sites without detailed specifications have been registered. Representatives of Geofond were present at on-site investigations and at inspections of safety measures, which were made at the request of the Ministry of Environment. An updated detailed list of old mine workings was produced by Geofond for the Geological Department of the Ministry of Environment. This serves as information in support of the Annual Report of the Ministry of the Environment.

10. 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 2002, 11 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.

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

In 2002, 882 requests for expert opinions regarding intended investments and local planning were received, 872 of these requests were fulfilled, the remaining 10 having been received at the end of the year, were finished in January 2003. In addition, 7 expert reports concerning

localities endangered by landslides, and 83 expert reports concerning undermined areas were compiled by the department in Kutná Hora during 2002.

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

The responsibility for supervising the compilation of specialised databases financed and contracted by the Ministry of Environment was delegated to Geofond. Supervisory one-day meetings and problem-solving meetings are held with the contractors and, in addition, yearly results and reports are evaluated by Geofond. Databases, created or updated in the context of these activities are passed to Geofond and subsequently incorporated in the geophysical subsystem of the Central Geoinformation Database.

In the case of Geofyzika Co., co-operation was significantly improved by re-negotiating the legal agreement between the Ministry of Environment as client, Geofyzika Co. as contractor and Geofond as supervisor, to include rules for data sharing. During 2002, numerous meetings were organized. As a result, partial data sets were received by Geofond, enabling data structures and content to be checked and amended where appropriate so that they could be incorporated in the geophysical subsystem of the Central Geoinformation Database of Geofond. The report, map supplements and data, not only for the 2002 phase, but also for all data acquired during the project “Database of geophysical works”, were received by Geofond on time.

Collaboration with Geomin Jihlava on compilation of a geochemical database was effective. Data were supplied fluently and there were no substantial delays. Progress was regularly reviewed during one-day meetings. As the data sets have been progressively incorporated in the Central Geoinformation Database within the context of the project “Complex Information System of Geofond”, mistakes and inconsistencies have been corrected. One remaining problem is that a database of geochemical investigations is lacking. The original version of the database, created by Geofond in the past, does not correspond with data from the geochemical database prepared by Geomin since 1990 under their contract with the Ministry of Economy and, subsequently, with the Ministry of Environment. Creation of a new database of geochemical investigations using this data should have been completed within the terms of the project submitted by Geomin at the end of 2001, but it was not accepted. This part of the database is urgently needed to provide the signal level of information enabling navigation to data in the geochemical subsystem.

13. Compilation and update of metadata for the metainformation system of the Ministry of 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 Environment. In 2002 their new updating and data management system was tested. Data are updated yearly, at the same time as the web pages of Geofond are updated.

14. Co-ordination and management of projects financed by the state budget from the Fund for Geological Works of the Ministry of Environment:

- ***Setting-up a Database of Main Mine Workings of CR***

Work on this project was continued for the fourth and final year. In accord with the contract, the project was completed in November 30, 2002, with compilation of the final report, which was submitted to the Ministry of Environment and approved by the Committee for Projects and Final Reports at the 1036 session on December 13, 2002.

- ***Complex processing of geological documentation from archives taken over by Geofond***

The main aim of this project was to compare newly acquired documentation with that already existing in Geofond archives and then to add to the archive those that were missing. The project was completed in November 30, 2002, in accord with the contract, with compilation of the final report, which was submitted to the Ministry of Environment and approved by the Committee for Projects and Final Reports at the 1036 session in December 13, 2002.

During 2002, the individual archives have been processed to the following extent:

- ***Středisko dokumentace ložisek zlata v Jílovém:*** (Center for documentation of gold deposits, Jílové): The remaining part of the archive of RD Jílové and documents from TVX Bohemia were catalogued and processed. In cooperation with Czech Geological Survey the processing of map documentation was begun.
- ***Intergeo:*** All the materials stored at Geofond were compared with the contents of Geofond archive and missing items were documentographically processed (583 records in ASGI database). These files were moved and stored in the Geofond remote archive in Kovanice.
- ***Česká geologická služba:*** (Czech Geological Survey): The processing of that part of the CGS archive registered in the database was completed and 1.056 ASGI records were annotated. That part of the CGS archive, documented only in card-index form, was partially processed without ASGI records being made.
- ***Stavební geologie*** (Engineering Geology) ***and Aquatest a.s.:*** The comparison of the recent part of their common archive with that information held in the Geofond archive was completed (7.570 items were compared). Subsequently 1.000 documentographic records were annotated.
- ***Geoindustria GMS:*** Acquisition and comparison of reports from the company archive and the remote archive in Vráž with those in the Geofond archive, together with appropriate documentographic processing, was completed. Part of the geodesic archive of Geoindustria was also processed and stored.
- ***Východočeské uhelné doly:*** (Eastern Bohemia Coal Mines): The company archive was moved to remote storage in Kovanice and compared with the Geofond database. A total of 254 final reports, duplicates of those already incorporated in the Geofond archive, were placed in storage.

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

The designated objective of this work is to ASGI-code all remaining reports and other manuscripts labelled V and MS preserved in Geofond. These items include reports on drilling submitted between 1941 and 1978. These reports formed the basis of the previous Register of drilling locations. In 2002, 12.500 files were processed to create records in ASGI.

- ***Complex Information System of Geofond CR***

This project was initiated in 1998 and work has continued through 2002 according to the approved plan. The project team consisted of Geofond expert staff and subcontractors, mainly MGE DATA s.r.o., GEOCEN s.r.o., AQUATEST a.s. together with some private experts employed on a temporary basis. The main objective of the project was to integrate databases maintained in Geofond with databases held externally to create one Central Relational Database (CRD). When necessary, the creation of new databases has been undertaken. Applications for input, maintenance, data management, outputs compilation and presentation have all been developed. Important progress has been made in the enlargement and further development of intranet and internet web technologies. The project was due to be completed in 2002, and much effort was put into the final stages. In accord with the contract the project was completed by January 15, 2003. The final report was submitted to the Ministry of

Environment and approved by the Committee for Projects and Final Reports at the 1040 session on February 14, 2003.

15. Coordination and management of projects financed from the state budget by the Fund for Geological Studies of the Ministry of Environment:

- ***Compilation of the Database of mining waste dumps***

The project, started in 2001, has continued through 2002. As a test, data from 4 localities (Kutnohorský rudní revír, Broumovsko, Plzeňsko and CHKO České středohoří), were entered. Data on 297 objects from these localities were collected, including digital photographic images. These localities have already been evaluated in the past, so the most important test was to incorporate these data in the structure of the new database. The functioning of new applications and their integration with the central database was successfully verified. Data at signal level is now accessible via the Geofond intranet.

- ***Specialised economic databases for the Information System on Raw Materials (SURIS).***

In 2002, a new project was awarded to Geofond by the Ministry of Environment, enabling continuation of work which, in previous years, 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 subregisters for crude oil, gas, ore metals, strategic (minor) metals and selected non-metallic 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 annual report “Raw Materials of the Czech Republic – Mineral Resources” were also undertaken, including translation to English and German versions which were published in digital form as a CD. This project also involved exchange of information, reports and expertise with foreign geological surveys and presentations of Czech work at international conferences concerned with these problems.

16. Collaboration on projects, financed from the Research and Development budget (VaV) and from the budget for Scientific Studies of the Ministry of Environment:

- ***VaV/630/3/99 „Potential use of geothermal systems for energy production.“ (leader Geomedia Ltd.)***

The main aim during 2002 has been the digital processing of drill logs and related hydrogeological and geophysical data for purposes of geothermal interpretation. Geofond audited, verified and processed the available geological, hydrogeological and geophysical logs in the digital format necessary to enable geothermal interpretation. Data-processing applications were upgraded, as required, to meet the demands of this project. In total, 744 objects with digitized thermometry from the whole territory of the Czech Republic were incorporated. Geophysical logging data were entered in the form of tables containing temperature measurements at depth intervals of 10 cm. For all selected objects, summary geological information concerning the percentage of particular rock types in the stratigraphic sequence was incorporated. In total, 2.122 records of “derived geology” were entered. In addition, full geological descriptions have been decoded to Czech language. A total of 64.098 log descriptions have been compiled. All basic hydrogeological information from boreholes has been processed. A total of 3.648 objects, deeper than 100 m, for which hydrogeological data, including hydrodynamic and hydrogeochemical information, were available, have been selected from the hydrogeological subsystem. 431 objects with temperature measurements have been processed. In addition, to provide information on areas

for which data was scarce, all recorded objects deeper than 100 m were selected. This resulted in a total of 34.679 objects, of which evidence for the existence of geophysical logs was proved for 14.510. However, in these cases the primary measurements have neither been located within the hard-copy archives stored in Geofond, nor has the data been digitally processed.

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

In 2002, the main effort was focused towards the creation of the special database needed for subsequent processing and interpretation. The criteria for data selection were defined, and the conversion to a format suited to interpretation applications and the creation of a new structural/stratigraphic model were discussed.

Verification of data using formal and logical controls has been undertaken according to the requirements imposed in specific areas. The principles by which problematic data can be assessed using primary documentation in the archive, were agreed. The first part of the data and documentation required by the project leader has been submitted. This comprised a summary of 2.015 boreholes with digitized geophysical logs from the Bohemian Cretaceous Basin with the first of the data in the required digital format (geophysical logs and basic borehole documentation). Following the request of the project leader, examples of detailed geological logs, together with primary archive documentation and samples of borehole logs, were submitted for laboratory tests.

17. Preparations for co-operation in the creation of the Czech part of a Multilingual Thesaurus, introduction of standards used in the EU and tests of compatibility with lexicons and dictionaries used in Geofond

As a member of the GIC (Geoscience Information Consortium), Geofond has been actively involved in plans for the creation of a multilingual Thesaurus, and for its implementation as an international tool for future 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.

18. International collaboration within the EULOGI consortium and the proposed e-Bore consortium on preparation of IST (Information Society Technologies) projects and e-Content programmes. Organization of working seminars with consortium members and attendance at international meetings for the purpose of shaping proposals and agreeing work packages.

Geofond is a member of the proposed e-Earth (former e-Bore) consortium taking the initiative in international projects forming part of the IST (Information Society Technologies). The aim is to develop the criteria and standards for a trans-national handling of data from borehole database and to promote procedures for e-commerce to enable marketing of this data. Some changes to the consortium took place during the year. The members at present are Geofond (CZ), BGS (UK), BGR (D), PGI (PL), NITG-NTO (NL), LGT (LT) together with the private multinational companies Golder Associates and Geodan. Seminars and working meetings with international participation were organized by the e-Earth consortium members during 2002. A project was submitted under the 3rd call of the e-Content programme prior to the deadline on March 21, 2003. Co-financing for Geofond will be provided by the Ministry of Environment in the form of a complementary grant to cover 50% of the project expenses as stipulated by e-Content programme regulations.

During 2002, Geofond was in contact with the other members of EULOGI, exploring new initiatives to fund international co-operation and development of IT.

2. INFORMATION SYSTEMS

Preservation and maintaining access to the results of geological works

This activity is undertaken in accord with §12 Law No. 62/1988 Coll., on geological works, and all amendments. In 2002, 2.686 reports and manuscripts were handed over to Geofond, of which 2.588 were new documents, submitted in accord with the law by persons or by organizations. This marks an increase of 10,3% over the 2.350 reports received during 2001. This increase is probably an effect of the amendment to the Geological Law. The remaining 98 reports are older reports acquired from archives of GMS a.s. (54), Rudné doly Příbram (29) and BS Most (15) within the frame of the project “Complex processing of geological documentation from archives taken over by Geofond”.

Breakdown of reports acquired by Geofond in 2002

	reports	%
Engineering geology	826	30,7
Hydrogeology	1 635	60,9
Research reports	49	1,8
Reports on Ore Deposits	131	4,9
Reports on Foreign Travel	8	0,3
Others	37	1,4
Total	2 686	100,0

Summary of the numbers of reports received by Geofond and lent by Geofond in the period 1981-2002

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

Year	items received	individual* authors	enquiries	reports lent	maps lent
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

*) *first authors or legal entities who produced the manuscript*

**) *change in procedure for counting loans and visitors*

By the end of 2002, 2.386 reports had been received and documentographically processed for inclusion in the Geofond archive. Of these, 1.554 were received during 2002 and 832 remained from the end of 2001. The 1.132 new reports, received at the end of 2002, will be processed during the first months of 2003.

In 2002, 533 visitors used the study room service making a total of 3.196 visits. In total, 14.799 reports and 3.962 maps were consulted. There was a significant increase in the number of visitors compared to 2001 when the total number of visitors was 341. However, the number of individual visits and the number of loans was lower. This is probably due to the increased use of information available on Geofond web pages. The daily average of visits (about 12-13) is a bit lower than the average over the period 1992 – 2001.

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

*) *CH I = type of sample boxes*

**) *minus pooled and discarded cores*

During 2002, 29 cores were acquired and permanently stored, of which 26 were holes drilled to investigate the gold deposit of Kašperské Hory. During the year, newly acquired core from 20 drill holes was stored and, simultaneously, transfer of core specimens from the original field boxes to unified storage in boxes of the CH-I type continued. Core from 1 drill hole was transferred.

As of 31 December 2002, the number of objects in storage was 1.457 (mainly drill cores), of these, 1.270 are permanently stored in 7.834 CH-I boxes, while the remaining cores are still in their original boxes. Of the 26 drill holes from the Kašperské Hory area, 17 were stored, while 3 of the 9 remaining holes will be given to the Centre for Documentation of Gold Deposits in Jílové; the last 6 will be stored in 2003.

In 2002, information on archived core material was used by 8 researchers, but there were no requests for permission to take subsamples for further scientific evaluation.

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 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 “Complex processing of geological documentation from archives taken over by Geofond”, a selection of material was also provided for two diploma students from the Faculty of Science of Charles University carrying out research on the geology and mining history of gold deposits. The collection of existing maps of the Jílovské pásmo were made available to the Czech Geological Survey to enable the revision of the geological mapping of the Jílové region. Records of mine workings and undermined areas were also provided for purposes of local planning in Jílové.

Creation, updating and usage 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 ensuring access to enable searches for reports and other geological results is part of the statutory requirement to preserve and maintain records of all geological works in the Czech Republic.

In 2002, 20.986 new documentographic records were added, compared to 18.185 new records in 2001. Of these, 2.386 new records originated from newly acquired reports (2.323 coded as P and 63 coded as FZ) and 18.600 from reports already archived (14.902 coded as V and 3.698 coded as external archives).

As of 31 December 2002, the ASGI database contained, in all, 173.236 records (99.862 coded as P (reports), 3.422 FZ (fund of mineral deposits), 10.367 ZC (foreign travel), 64.250 V (boreholes), 598 from CGU (reports from the Czech Geological Survey archive), 1.679 ITG (reports from 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), 589 SG (reports from the archives of Stavební geologie), 103 JIL (reports from archives of Středisko dokumentace ložisek zlata v Jílovém) and 88 UVR (reports from archives of Ústav pro výzkum rud). The number of items entered in the database is less than the total recorded because duplicate listings (P+V, P+FZ) and multiple listings (V) have been made in certain cases.

In 2002, a total of 6 searches were made for external users and 12 searches for Geofond staff projects. These contained a total of 15.990 references to unpublished documents in the Geofond archive.

The Factographic Information System

Database of boreholes

In 2002 the integration of the borehole database with the database of hydrogeological objects was completed so that both now form part of the subsystem of geologically documented objects. Annotation of new drilling was made using contractors who worked for the first three months compiling data from 378 reports. The remaining work was undertaken by external temps and the permanent staff of Geofond who compiled the data from 987 reports. The number of annotated drill logs was increased by 4.559. A total of 3.805 drill logs were added to the Central Information System and 547 duplicate records were removed. The 63 annotated drill core records from 20 reports were added to the database from external archives.

By the 31 December 2002 the total number of drill core logs in the database was 622.233, including 6.015 boreholes without geological log descriptions available in the archives of Geofond. Another 22.360 drill logs were also entered, however most of these were removed because of duplication.

The Table below shows a significant decrease in the numbers of annotated and stored drill core records in recent years. This is due primarily to the fact that the compilation of records from older cores was completed in 1990. The decrease in 1994 was related to delay in updates necessitated by work on improving the structure and removing the duplications in the database. 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	5 154
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

Over the period 1999 to 2002 the database of geophysical logs and inclinometric data was compiled as part of the project “Complex Information System of Geofond”. By December 31, 2002, the measurements from geophysical logs of 3.462 boreholes and inclinometric data for 2.470 boreholes had been entered.

There was a decrease of interest in the borehole database during 2002 as compared to previous years. Requests for data decreased from 188 in 2001 to 133 in 2002 (4 requests from the Czech Geological Survey, 5 for diploma works and other educational purposes, 1 from the Ministry of Health Care, 116 from private organizations and 7 from individual members of the public).

Use of the borehole database

Year	users	Number of boreholes
1984	87	45144
1985	142	81554
1986	163	155739
1987	133	77960
1988	75	84435
1989	121	116978
1990	97	78919
1991	126	155710
1992	75	81472
1993	51	44 922
1994	48	46391
1995	76	36180
1996	79	10009
1997	67	20972
1998	118	67311
1999	94	62293

2000	166	29978
2001	188	75449
2002	133	30516

Database of hydrogeological objects

In 2002, a total of 1.558 objects (boreholes, wells and springs) were entered on this database. Of these, 785 objects were from archived reports, 535 from the Fund of Reserves and 238 from new reports. 14 objects were removed because of duplication. By the 31 December 2002, the database contained 58.511 objects. A specialized database of potential geothermal energy sources also forms part of this database (1.210 objects). It comprises 875 records of thermal waters, for which the measured temperatures were higher than 20°C, and 335 production boreholes for extraction of crude oil and gas. A specialised database of objects describing the anthropogenic impact on groundwater contained 7.789 test wells, 1.247 remedial wells and 4.132 monitoring wells.

In 2002, 224 maps at a scale 1 : 25, 000 showing the locations of hydrogeological objects, as well as 4.339 data sheets were loaned to 166 customers. This service was requested only by the Czech Geological Survey. Data on 88.104 objects were provided to 87 users in digital form. Of these, 35 requests were from the Czech Geological Survey, 11 from regional councils, 2 from district councils and 1 from a local council. A further 9 were for educational purposes, 3 came from the Ministry of Health Care, 1 from the Inspectorate of Environment, 19 from private organizations and 6 from individual members of the public.

Database of material documentation (core logs)

In 2002, the integration of the database of evidence of material documentation within the subsystem of geologically documented objects has continued and 43 new objects were added. The total number of boreholes with material documentation (core logs), integrated into the subsystem was increased to 1.373 objects. There were no requests for information from this database during 2002.

Database of regional hydrogeological investigations

In recent years, regional hydrogeological investigations have been minimal, so that only archive reports have been processed into the database. In 2002, 35 outlines and related attributes were added to the database. By the 31 December 2002, the database contained 649 outlines of territories for which the reserves of drinking water have been calculated. In 2002, 7 users requested data from this database; of these 6 were regional councils and 1 was a private organization. Data from 506 investigations were submitted.

Database of radiometric anomalies

The database contains data on radiometric anomalies measured during exploration for uranium. Data were processed on behalf of Geofond by the survey organizations of the former ČSÚP (Czechoslovak Uranium Explorations) under the terms of the project: "Collection and Processing of Data obtained from Prospecting of Radioactive Materials for Environmental Purposes". Data from Cretaceous sediments and mineral deposit boreholes were not processed. In 2002, the database was not updated. By 31 December 2002, the database contained 16.203 objects. Requests from 4 users were fulfilled, in which data on 4.096 objects were processed to the required output (Geofyzika Brno Inc. – 4.083, Geomin Ltd. – 13).

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 radioecological effects. In 2002, the database was not updated. By 31 December 2002 the database contained 3.420 objects. Requests by 5 regional councils were fulfilled, in which data on 1.538 objects were processed to the required output (Středočeský – 619, Jihomoravský – 77, Pardubický – 132, Vysočina – 437, Karlovarský – 273).

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 2002, the database was not updated. By 31 December 2002 the database contained 466 objects. There were no outputs requested in 2002.

Database of landslides and other dangerous slope deformations

Regular updates continued during 2002, processing data from 23 expert reports. Priority was given to processing of reports produced by the Czech Geological Survey and the Academy of Science of the Czech Republic on mapping of landslides and slope deformation in North Moravia and in the Děčín area. There were 257 new objects entered into the database, while information on 87 objects was amended. In all, the database contained 6.963 objects by the 31 December 2002. A total of 19 requests for information was processed (regional councils – 5, local authorities – 2, district councils – 1, Czech Geological Survey – 2, Ministry of Economy and Commerce – 1, private organizations – 7, others – 1). The outputs contained basic information on 15.053 objects. 8 expert reports relating to particular localities or areas were provided by the department in Kutná Hora (1 for the local authority, 1 for the Czech Geological Survey, 5 for private companies and 1 for a member of the public).

Database of undermined areas

In 2002, 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 Středočeský a Liberecký areas, for which maps were produced in 2002. The database was continuously updated and data from 11 expert reports and assessments were added. As of 31 December 2002, the database contained 4.794 objects. A total of 21 requests were dealt with in which information on 10.354 objects were processed (regional councils – 7, local authorities – 1, district councils – 2, Czech Geological Survey – 1, Ministry of Economy and Commerce, private companies – 5, public – 4). 88 expert reports on particular localities or areas were provided to users by the department in Kutná Hora (local authorities – 39, private companies – 28, public – 14).

Database of main mine workings

The filling of this database has continued in the frame of the project “Setting-up a Database of Main Mine Workings in the CR”, which finished in 2002. During 2002, 1.057 objects were collected and added to the database. As of 31 December 2002, this database contained 10.961 objects. Information from this database is mainly used during 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 areas affected by the exploitation of mineral resources

Data on areas affected by the exploitation of mineral resources is part of the state statistical register Hor(MPO)1-01, collected since 1999. The data are related to mining claims or non-exclusive registered mineral deposits. The resulting information and a summary of the effects of exploitation of mineral resources, remediation, reclamations and creation of financial reserves are processed to the form of printed lists or tables in the database. By agreement, the information in this database remains confidential, so only summaries are given as outputs. Each year, complete data are passed to organizations selected by the Ministry of Industry and Commerce. Regular outputs are given to the Ministry of Environment, parts of this information are used by the Czech Bureau of Mines, the Czech Geological Survey and the Czech Agency for Protection of Nature and Countryside.

In 2002, 946 mining claims and 206 non-exclusive registered mineral deposits were added to the database. Data were requested by the following users:

- Czech Geological Survey (Dr. Mašek): A comparison of areas affected by the exploitation of mineral resources, where recultivation has been in progress or already completed during 1998, 1999 and 2000.
- Czech Agency for Protection of Nature and Countryside (Ing. Penk): Data on areas in the territory of the Czech Republic affected in 2001 by the exploitation of mineral resources, or where recultivation was in progress or already completed, classified into agricultural, forested, water-covered and other categories.
- Czech Ecological Institute (Dr. Křivánková): Information on the total area of the Czech Republic affected by the exploitation of mineral resources, or where recultivation is in progress or already completed, classified into agricultural, forested, water-covered and others categories.
- Ministry of Environment, Department of Geology (Dr. Dadák): Information on areas of brown coal and black coal mining in the Czech Republic now under recultivation, approved for recultivation or areas where recultivation had already been completed during 2001 (for the Annual Report of the Ministry of Environment).
- Ministry of Environment, Department of Countryside Ecology (Ing. Cibulka): Records from the state statistical register Hor(MPO)1-01 for the year 2001 for the following organizations: Severočeské doly a.s. Chomutov, Mostecká uhelná společnost a.s. Most, Sokolovská uhelná a.s. Sokolov, Palivový kombinát s.p. Ústí nad Labem, Důl Kohinoor a.s. Mariánské Radčice, OKD a.s. Ostrava, Českomoravské doly Kladno (organization in total, from the regions of Ostrava and Central Bohemia), Energie Kladno a.s., GEMEC-UNION a.s., Jívka, ZUD a.s. Zbůch, and records concerning the extent of areas affected by the exploitation non-exclusive registered mineral deposits, remedial work in progress or completed, fiscal reserves for recultivation, reserves of raw materials available for extraction and the annual production, and complete data on non-exclusive registered mineral deposits in the Czech Republic.
- Central Bohemia Municipal Services, Kladno (Mgr. Vrba): Information on recultivation and mining-technical safety conditions in Central Bohemia and in the Capital City, Prague, for the purpose of establishing a regional policy for waste management.

Database of mine waste dumps

Compilation of the database was begun in 2001 with the creation of the input application and in 2002 it has continued. Data from 4 selected areas has been processed under the terms of the project "Compilation of the Database of mine waste dumps", financed from the Fund for geological studies of the Ministry of Environment. By December 31, 2002 the database contained 297 objects. Subsequent input will depend on requests for processing of specific

areas and financial support from the Ministry of Environment. There were no requests for outputs from the database in 2002.

Database of exploration areas and projects

The database contains details of areas for which exploration licenses have been granted by the Ministry of Environment in accord with §4 Law No. 62/1988 Coll., on geological works. This license gives permission to undertake geological works for prospecting and surveying of registered mineral deposits and state-controlled non-exclusive mineral deposits. In 2002, data were updated in co-operation with Department of Geology of the Ministry of Environment and detailed data on mineral deposits were added. 55 applications for exploration licenses were removed from the database and 29 new records were added. By 31 December 2002, the database contained details of 501 sites. In 2002, a total of 8 requests were dealt with (regional councils – 4, Ministry of Economy and Commerce – 1, private companies – 3) and information on 438 sites was processed. In addition 7 requests for precise definition of boundaries by co-ordinates were received. Of these, 9 were for exploration sites for private organizations and 5 for exploration sites for Department of Geology of the Ministry of Environment.

Database of geological maps in the archive of Geofond

In 2001, this database was transferred to the Czech Geological Survey to form part of the project “Digital Map Archive of the Czech Geological Survey”, funded by the Ministry of Environment. The database lists maps, which should be added to the unified digital archive. No updating was undertaken in 2002. By 31 December 2002 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 is stored a collection of more than 9.000 mining maps, which form parts of separate special collections (funds). Their materials are of very different levels of 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.

Since 1990, references to these maps were entered into the 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. By December 31, 2002 the database contained records of 9.018 mining maps. There were no specific requests in 2002.

Information system on raw materials (SURIS)

All sub-databases were continuously updated during 2002. By 31 December 2002, the system contained:

- **Register of mineral deposits:** 9.250 objects, of which:
 - 1.618 are state-controlled deposits with calculated reserves (Subregister B)
 - 682 are non-exclusive registered deposits (Subregister D)
 - 800 are deposits without calculated reserves (Subregister N – deposits of exclusive and non-exclusive minerals, which are not under Evaluation, but which have calculated reserves). 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 Evaluation. These “deposits” are mostly 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.

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

1.440 are mineral occurrences and areas where exploration revealed industrial minerals in subeconomic amounts, they are not approved as mineral deposits in accord with §4 of Mining Law (Subregister V)

3.461 are cancelled or exhausted deposits (Subregisters Z and U).

In 2002, 144 new records were entered and 1399 were updated.

- **Register of protected zones surrounding deposits (CHLU)**

In total this register contains 1.178 objects of which 42 were added and 122 updated in 2002.

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

In total this contains 1.145 objects of which 9 were added and 274 updated in 2002.

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

In total this contains 634 objects of which 19 were added and 10 updated in 2002.

All registers are regularly updated. The sources of data used by Geofond are as follows:

- Annual statistical statements Geo (Ministry of Environment) V3-01
- Results of the project, Re-evaluation of deposits of state-controlled minerals in CR
- Results of the project, Re-evaluation of prognostic resources
- Audits of reserves
- Documents concerning state-controlled deposits
- Decisions concerning cancellation of reserves
- Documents concerning changes, establishment or cancellation of permitted spatial limits of mining operations
- Decisions on establishment/cancellation of protected areas surrounding deposits
- Final reports on exploration.

Administrative registers

- **Register of companies**

This database contains information on 2.817 organizations undertaking geological work, exploration for mineral resources and mining (including those no longer in existence). In 2002 128 new companies were added and data on 1.992 companies were revised using publically available sources of information sources 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 ruling approval and depreciation of reserves**

In 2002, existing files concerning approvals of reserves made by the Committee for Calculation of Reserves (KKZ) were updated, and 50 new reports approved by the Committee for Projects and Final Reports (KPZ) were entered. In total, this database contains 3.582 approved reserves.

In 2002, a total of 37 requests were dealt with, information on 15.148 mineral deposits, 4.568 mining claims and 4.873 protected areas of mineral deposits were processed (regional councils – 7, municipalities – 1, district councils – 1, Czech Geological Survey – 1, universities – 1, Ministry of Economy and Commerce – 1, Czech Bureau of Mines – 1, Land Fund – 3, private companies – 17, public - 4).

Summary of outputs from all databases in 2002

	Number of orders	Total costs according to price list	invoiced
Ministry of Environment	2	31 435,-	0,-
Czech Geological Survey ¹⁾	44	441 610,-	92 000,-
Ministry of Industry and Commerce	1	84 000,-	84 000,-
MZdr ²⁾	7	930 393,-	0,-
Czech Bureau of Mines ³⁾	4	24 875,-	0,-
Land Fund	4	9 950,-	130,-
District Councils ⁴⁾	4	15 670,-	7 670,-
Regional Councils ⁴⁾	13	993 920,-	60 000,-
Towns and Cities ⁴⁾	45	22 495,-	9 695,-
Universities ⁵⁾	20	163 302,-	0,-
Other users	216	279 966,-	225 972,-
Other users ⁶⁾	2	58 890,-	10 000,-
TOTAL	362	3 056 506,-	489 467,-

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

¹⁾ Invoiced sum includes 48.000 CZK, given as an addition to the Geofond budget to support co-operation on the project „Basic geological mapping 1:25.000 in the natural protected area Žďárské vrchy“.

²⁾ No invoice submitted because of the agreement between state organizations on free exchange of data. Under these terms, Geofond gives the Ministry of Health Care an updated copy of digital data on hydrogeological objects in protected areas of spas and in other specified areas for their use, in exchange for their copies of data on protected areas of spas and natural curative resources.

³⁾ No invoice submitted, because of the agreement on exchange of documents for updating the database of mining claims.

⁴⁾ For these councils, the lump sum is given for providing thematic coverage of signal information or, by request, some more detailed data (hydrogeological information).

⁵⁾ Outputs of databases were given free of charge for educational purposes and for diploma works.

⁶⁾ Exchange of data with MND (Moravian Oil Mines) was based on a co-operative agreement by which MND submitted to Geofond geophysical logging data from specified boreholes.

Compilation of specialized maps

Maps with special geological features

One of the most important functions of Geofond is the 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. According to this law,

the organizations responsible for the national geological service are obliged to collect and make available data on geological conditions over the area of the Czech Republic, on protection and use of raw material resources and ground water resources and on potential geological risks. 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 Environment, Regional Councils and, through them, to District Administrations and Building Offices. Maps of protection of mineral deposits are passed to the Ministry of Industry and Commerce and Regional Mining Offices.

In 2002, **Maps of Protection of Mineral Deposits** for the Regions Královéhradecký, Liberecký, Pardubický and Plzeňský 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 Environment.

A new edition of **Maps of Undermined Areas** has been started by preparation of maps for the regions Středočeský and Liberecký, following major updates of the Database of undermined areas and the Database of main mine workings.

A new edition of **Maps of Landslides and other Dangerous Slope Deformations** will be continued in 2003.

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. Since 2002 maps of old mine workings and main mine workings were added. All the maps are supplemented with "signal information" for individual objects. Signal data is used for basic orientation or to draw attention to the existence of a particular object in a given area. 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. Signal information is also available in the form of vector maps in GIS formats, suitable for use in local information systems. Updates are made on request.

3. OTHER ACTIVITIES

Evaluation of the potential investment construction

In 2002, 882 evaluations of the protection of natural mineral resources and ground water resources and potential geological risks (potential dangers caused by undermining and slope movements) were produced for the state administration, project organizations and other agencies. By request from the municipalities of Brno and Most, copies of Maps of Protection of Mineral Deposits for their areas were provided.

Purchase of geological magazines and other necessary periodicals

In 2002, the total number of geological magazines and other necessary periodicals purchased decreased to only 25 because the Czech Statistical Institute (ČSÚ) stopped publication of its 2 magazines after the flood disaster.

Publications

Based on the Plan of Publication, Geofond produced the following volumes in 2002:

- 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)
- Guidelines for entry of data to the ASGI documentographic database (20 pages)
- Annual Report of Geofond of the Czech Republic 2001 (Czech and English versions)

Geofilm and video library

Geofond is responsible for one of the video-rental facilities of the Ministry of Environment. The video library contains 319 videos, mainly ecologically-oriented. Geology is less well represented. In addition, 33 videos belonging to the ENvideo Foundation and seven video transcriptions of geological films from the former Czech Geological Bureau are available. In 2002, 45 new videos were acquired. Geofond also keeps 55 documentary films on geological topics (360 copies). In 2002, a total of 68 videos were rented to 23 users and one user rented 5 films.

4. INTERNATIONAL ACTIVITIES

Because of infrequent use and the expenses incurred in providing the GeoRef database service (license fees, provision of new entries), the contract made on April 4, 1992 with the American Geological Institute, Alexandria, VA, USA was cancelled in 2002. The agreement was based on the delivery of information in the GeoRef database on CD-ROM in exchange for an index of geological literature from Czech and Slovak journals. The contract was terminated by agreement with the Czech Geological Survey, which will continue the co-operation with the American Geological Institute.

In November 2002 the renewed Agreement on geological co-operation between the Slovak State Geological Institute of Dionýz Štúr and the Czech Geological Survey – Geofond was signed in Bratislava. On this occasion, new initiatives for joint participation in international projects were discussed.

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

- ◆ Provision of information on raw materials in the Czech Republic to international journals and to other publications (e.g., Industrial Minerals, Metals Bulletin, EU publications of Roskill Information Services, USGS etc.). Exchange of the English and German versions of "Raw Materials of the Czech Republic – Mineral Resources" with geological surveys mainly in European countries.
- ◆ Regular systematic exchange of information and consultations with the U.S. Geological Survey, Mineral Resources Section.
- ◆ From 26 to 28 June 2002, representatives of Geofond, together with representatives from geological surveys of most of central and eastern Europe countries, took part in the international conference „Mineral Economy: Present and Future“, organized by the Polish Academy of Science in Swieradów Zdrój, Poland. The conference was focused on problems of mineral resources and foreign trade. The Geofond representative gave a

presentation on „Foreign trade in Mineral Raw Material between the Czech Republic and Poland during 1997 – 2001“.

- ◆ From September 30 to October 3 2002, representatives of Geofond travelled to Spišská Nová Ves (Slovakia), where they visited the regional branch of the State Geological Institute of Dionýz Štúr. The journey was linked to a visit by representatives of this branch to Prague in Autumn 2001. Discussions were held on the building of information systems for raw materials, the development of regional raw materials resources policy, and on the compilation of annual reports on raw material resources for both countries.
- ◆ From 8 to 10 October 2002 representatives of Geofond took part in the international conference „The Third European Conference on Mineral Planning (ECMP02)“, organized by the Geological Survey of North Rhein-Westfalen, the Ministry of Economy, Trade, Energy and Transport of North Rhein-Westfalen, the European Association of Building Materials and the firms Sparkasse Krefeld, GfW, DEBRIV, Kies und Sand and RAG. Experts from the European Union, Norway, Slovenia and the Ukraine took part in this conference. The themes were the ecological and social impacts caused by mining of raw materials, mainly building materials, the role of geological surveys and government agencies in forming mining policy and controlling the impact of mining on the environment, policies for sustainable development and the possibilities for substitution and recycling of mineral resources, together with questions concerning recent and future legislation affecting extraction of raw materials in EU countries.

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

- ◆ From 18 to 21 April representative of Geofond took part in the meeting of the steering group of the consortium preparing the proposal e-Boreholes for submission to the e-Content programme of the EU. This programme has been designed specifically to encourage European initiatives in the use of digital information. The meeting was organized by the Polish Geological Survey (Panstwowy Instytut Geologiczny) in Warsaw (Poland) and was linked to the meeting organized by Geofond in Prague on December 14, 2001. Geofond also sent a representative to the next meeting of the steering group held in Hannover (Germany) from 19 to 21 September, 2002. The project was renamed to e-EARTH and a summary was prepared outlining the programme of work entailed in the proposal. The Geological Survey of Lower Saxony gave a demonstration of their „Internet service of borehole maps at NLfB“. From November 27 to December 1, 2002 a representative from Geofond took part in a meeting in London (United Kingdom). Areas of responsibility and programmes of work to be undertaken by members of the e-EARTH consortium were defined.
- ◆ From 4 to 9 June 2002 a representative of Geofond participated in the 17th Meeting of GIC (Geoscience Information Consortium, former ICGSECS - The International Consortium of Geological Surveys for Earth Computer Science) in Uppsala (Sweden). The annual meetings are devoted to exchange of information on the activities of geological surveys in the field of information technologies and the co-ordination of management of geological information systems, publication of geoscience information on the web, development of electronic commerce for distribution of this information and problems of copyright. The Czech Geological Survey and Czech Geological Survey-Geofond were elected to host the next meeting in the Czech Republic in 2003.

5. ECONOMIC STATEMENT FOR 2002

The budget for non-capital expenses was 31,296.000 CZK; of which 31,020.000 CZK, i.e., 99.12% of the total, were actually spent.

Most of this was spent on salaries. The financial allocation for salaries (13,422.000 CZK) was fully used. Relative to the year 2001, there was an increase of about 1,024.000 CZK in the sum of paid salaries and the sum paid back to the state as mandatory social and health insurance also increased to 4,664.000 CZK. In 2002, the average monthly salary increased to 16.424 CZK, which marks an increase of 13.1% compared with 2001. This was influenced by fact that 79% of the quota of employees were in post during 2002 (equivalent of 67 full-time employees). The average salary bracket number for all Geofond employees was 8.25 which is comparable with previous years.

The highest expenses (9,422.000 CZK) were those for services purchased from other institutions. This was only half the amount spent in 2001 because of the completion of a number of projects financed from the funds for Geological Works and Geological Studies of the Department of Geology of the Ministry of Environment. For the remaining projects, subcontracts were arranged amounting to a total 4,242.000 CZK (Complex Processing of Geological Documentation from Archives taken over by Geofond – 363.000 CZK, Complex Information System of Geofond – 2,981.000 CZK, Setting-up a Database of Main Mine Workings – 45.000 CZK, Documentographic Processing of Reports from 1941-1978 in the possession of Geofond – 561.000 CZK, Specialized Economic Databases for the Information System on Raw Materials – 132.000 CZK, Compilation of mining waste dumps – 160.000 CZK).

Expenses in most of the other categories decreased during 2002. The most notable decrease was in maintenance and repair costs which were reduced from 1,785.000 CZK in 2001 to 781.000 CZK in 2002. The high cost in 2001 was exceptional because of the need to repair and decorate buildings owned by Geofond. There was a decrease in travel expenses from 452.000 CZK to 191.000 CZK. Installation of a phone monitoring system resulted in a remarkable decrease in the amount paid for telecommunication services which fell from 754.00 CZK to 406.000 CZK. Water and energy costs were reduced from 721.000 CZK in 2001 to 565.000 CZK in 2002. These savings were the result of reconstruction of the heating system and diminished use of energy-wasteful equipment. Costs of gasoline also decreased from 100.000 CZK in 2001 to 82.000 CZK in 2002 as a result of lower gasoline prices and a decrease in the total distance travelled by car (5.808 km less than in 2001). The expenses for material supplies were also down from 1.898.000 CZK in 2001 to 1.498.000 CZK in 2002.

Saving of 253.000 CZK from the budget of the project “Complex Information System of Geofond” was due to the purchase of a new license for the Oracle database system. Under the new agreement, the yearly maintenance fee paid under the terms of the previous licence has been waived.

The increase of expenses for external reprographic services from 137.000 CZK to 365.000 CZK was caused by the fact that, in previous years, these services were financed from the budget of projects which ended in 2001.

Applications for capital investments during 2002 were partly approved. Geofond was granted part of the requested 1,300.000 CZK capital investment budget for the purchase of the database system „Oracle Database Enterprise Edition“. The order was placed with Oracle Czech, the national distributor of this product.

The target of 1,700.000 CZK set for income earned by Geofond activities in 2002 was exceeded and reached 1,731.000 CZK, mainly due to increased income from factographic system services which increased from 78.000 CZK in 2001 to 371.000 CZK in 2002.

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 30,896.000 CZK. Thanks to increases in earned income and saving some costs on the project

“Complex Information System of Geofond” the budget deficit was decreased to 30,535.000 CZK, which was 361.000 CZK lower than anticipated.

6. ORGANISATIONAL STRUCTURE OF GEOFOND

There were no organisational changes during 2002. The present structure has been in operation since it was established on 1 July 2000. Planned numbers of employees are given in brackets; middle and high-level managers are denoted as +1, while heads of lower units are included in the single staff number.

100 DIRECTORATE (15+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 (12+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 Environment, Internet).

122 Unit for Operation and Development of Computer Systems and Applications (5)

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 (5)

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.

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 (54+1)

Responsible for all activities of the expert departments, collaboration with the Department of Geology and Regional Departments of the Ministry of 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 (17+1)

311 Documentography Unit (7)

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 Environment, runs film and video rentals.

312 Material Documentation and Material Archives Unit (4)

Collects and preserves material documentation and makes it accessible. Participates in destruction of unnecessary rock samples at other institutions/companies and selects material for preservation in Geofond (core logs and rock samples). In charge of the Database of material documentation. Co-ordinates take-over 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 (13+1)

321 Boreholes Database Unit (7)

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 (10+1)

Administers deposits of industrial minerals in compliance with the Geological and Mining Law (in collaboration with the Ministry of 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 (6)

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 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: state-

controlled deposits with calculated reserves (subregister B), uncontrolled registered deposits (subregister D), deposits without calculated reserves (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 state-controlled deposits, registers reserves of uncontrolled 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 Environment) V-3/01. 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 (4)

Prepares statistical evaluation of imports and exports of industrial minerals, 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 Commerce. Prepares the publication of specialized booklets: Raw Materials of the Czech Republic – Mineral Resources, Securing the Czech Republic with Industrial Minerals, Quantification 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 Commerce); responsible for the Database of main mine workings (joint assignment by the Ministry of Environment, Ministry of Industry and Commerce 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 specialized work places.

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 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.

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