

REPORT ON THE ACTIVITIES OF THE INSTITUTE OF GEOGRAPHY OF THE  
CZECHOSLOVAK ACADEMY OF SCIENCES

In 1983 the Institute of Geography of the Czechoslovak Academy of Sciences completed the 20th year of its existence. In this period it has worked out a number of significant works, some of which have been given high State Awards.

After having elaborated and approved of a new conception of the development, the Institute of Geography started to work on the projects of the scientific tasks for the years 1981—1985 (7th Five-Year Plan). The main aim of the tasks of the 7th Five-Year Plan was to improve the team work of the scientific departments of the institute in the tasks important for the national economy.

In the period of 1981—1985 the Institute of Geography is to solve the following problems:

- Physico-geographical potential of the landscape
- Socio-economic potential of the landscape
- Methods of research of geographical objects by means of remote sensing of the Earth
- Series of thematic maps and cartographic methods
- Geographical modelling in the automation process of cartography
- Karst map of Cuba
- Modelling of the state, development and interactions of the factors of the human environment on the territory of the Czech Socialist Republic
- Socio-economic and ecological appraisals of the changes in the natural-technical territorial structures.

All the tasks result from the agreed conception of the Institute of Geography which includes the problems of the international program of a remote sensing of the Earth — „INTERCOSMOS“ and the environmental problems of COMECON.

The achieved results of the Institute of Geography are as follows:

1. The theoretical basis for the research of the potential of the landscape was worked out to be used for concrete areas according to the users' demands:

- In the area of Teplice the Institute of Geography worked out a study of the physico-geographical evaluation of the territory with an extensive surface lignite mining for the needs of power engineering. The study outlines further work in open-pit mines, and the development of methods of reclamation.
- In the sphere of the socio-economic potential of the landscape, the study of the socio-economic differentiation and territorial typology of the South-Moravian area was worked out. It deals with three partial problems, i. e. the territorial structure of agriculture, the territorial structure of industry and the settlement pattern.

In agriculture, attention was mostly paid to the determination of objective spatial laws of the formation of superplant structures in the agricultural production in the region.

In industry, the analysis of the internal structure of the above delimited elementary areas and their configuration into larger industrial complexes were concerned.

In the case of settlement patterns, the study dealt with the evaluation of the existing state of settlement; with the analysis of the main features of functional characteristics of settlement, and with the delimitation of territorial units conceived as complexes in the settlement pattern.

In the study 46 cartograms on the scale of 1 : 500 000 were included in the cartographic laboratory of the Institute of Geography.

2. In the sphere of remote sensing of the Earth, the Institute of Geography worked out three studies:

- Methods of multispectral photography from low and medium altitudes and for practical use by the application of 6-channel camera, a model aerial camera carrier „Rogallo 81“, and a container to fasten the multispectral camera on aeroplanes.
- Preliminary catalogue of spectral characteristics which — apart from theory — contains the initial characteristics for the interpretation of agricultural and wood cultures.
- Methods of determination of soil erosion suggesting antierosional measures.

In July 1982 the Institute of Geography organized multispectral photographing of the Czechoslovak research polygons carried out by the Soviet flying laboratory AN-30. The materials gained from this photographing are being elaborated in cooperation with the Academy of Sciences of the U.S.S.R.

3. In 1981 the Institute of Geography built a cartographical laboratory equipped with the Czechoslovak automatic cartographical system DIGIKART. This helped to expedite the compilation of maps, as follows:

— the first result of this compilation was a „Series of maps compiled for the needs of the territorial planning of the development of heavy and metallurgical industries in Czechoslovakia“ on the scale of 1 : 1 000 000 including the following maps and text:

- metallurgical and heavy industries in Czechoslovakia
- efficient capacity of railway lines with a regular traffic of trains
- forecast of the increase of labour demand in individual regions till 2000
- water resources in Czechoslovakia
- selected factors of the human environment in Czechoslovakia.

— In the series of thematic maps on the scale of 1 : 500 000 for the territory of the Czech Socialist Republic uniform cartographical data and the following maps are included:

- an administrative map
- a physical map
- a map of climatic regions
- a map of potential erosion
- a map of the types of agricultural landscape
- a map of the types of communities according to the movement of the population
- industrial regions
- gravitational territories of industrial towns
- economic-geographical regions
- agricultural regions
- maps of commuting to work
  - a) daily commuting to work in the communities
  - b) regions of daily commuting to work
  - c) commuting to selected centres
  - d) regions of daily commuting of women to work
  - e) commuting of women to selected centres
- map of tourism and recreation
- map of retail network

The „Atlas of the census of the Czech Socialist Republic 1980“ has been compiled in cooperation with the Czech Office of Statistics and will be published in 1984. This atlas has three parts and contains 30 map sheets with the text on the back page. The basic maps on each map sheet are on the scale of 1 : 500 000, supplementary maps on the scale of 1 : 3 000 000.

— Principles of karst mapping, a legend of the karst map and a characteristic sheet of this map — Santiago de Cuba on the scale of 1 : 250 000 — were elaborated in cooperation with the Institute of Geography of the Cuban Academy of Sciences.

At present the Institute of Geography in cooperation with the Federal Office of Statistics has been working on the „Atlas of population and quality of housing in the Czechoslovak Socialist Republic“. In cooperation with the Ministry of Health of the Czech Socialist Republic it has been working on a project of the „Atlas of the health of the population“, and in cooperation with the Federal Commission on Scientific-Technological Investment Development on the „Map of ecological general plan of the Czech Socialist Republic“ on the scale of 1 : 500 000. Together with the Group of Geomorphology of the IGU the Institute of Geography prepares for print the international geomorphological map of Europe on the scale of 1 : 2 500 000.

4. In the sphere of the human environment, the Institute of Geography carried out a number of studies, the most important of which are:

- Geographical data for ecological optimization of management in the surroundings of the spa Luhačovice. The study deals with the specification of the restricting factors of the agricultural management stressing soil erosion, landslide, mesoclimate, water regime and ecological stability of the territory. The maps on the scale of 1 : 10 000 are included.
- Geographical differentiation of some social factors of the human environment on the example of selected cities of the Czech Socialist Republic. The study suggests a new typology and regionalization of the selected towns in the Czech Socialist Republic according to socio-pathological phenomena. Relationships of social factors of the human environment, demographic and economic characteristics have been also represented.
- Methods of economic evaluation of the interactions „society-environment“ which have been elaborated for the needs of COMECON as an instruction for the central management and planning authorities of the participating countries.

— The geographical evaluation of the present state of the human environment in the region of Ostrava where new mines are under construction.

The study is based on the work of the Institute of Geography carried out in the agglomeration of Ostrava since 1967. In this case the territories in the neighbourhood of Frenštát pod Radhoštěm are concerned. Their predominantly recreational character will have to be changed into the character of a mining locality. In this period it is necessary to avoid the negative impact on the environment as much as possible.

The second stage of the research work will be based on this regional geographical study. Its aim will be the elaboration of a forecast of environmental changes connected with the change in the function of this territory.

— Theoretical and methodological data of the geographical research of the human environment. The character of this study is theoretical:

- Geographical approach to the problem of the human environment
- Geographical research of the elements of the environmental system (relief, soil, water, atmosphere, biota, population, settlement, industry, agriculture, forest management, water management, transport, recreation).
- Interactions in the environmental system and their appraisal
- Approaches to the geographical synthesis of the human environment
- Complex geographical evaluation of the human environment
- Outline of the application of the geographical research results of the human environment in practical experience.

5. Apart from the main tasks the Institute of Geography worked out a number of other works the most important of which are:

- a two-volume study „Geocology of the agglomeration of Brno“ worked out in cooperation with the Institute of Vertebrata Zoology
- Methods of forecasting the labour potential
- Series of maps for the territorial classification of Czechoslovakia from the point of view of ecological optimization of the land use
- Climate in South Moravia
- Physico-geographical evaluation of landscape changes in the lignite mining area of Jezeří, North Bohemia
- Hydrogeographical conditions of the wide surroundings of Třešť
- Climatic characteristics of the region of Břeclav
- Map of the atmosphere of Czechoslovakia.

### Conclusion

To make use of the results of the research work of the Institute of Geography, the majority of the solved problems have been included in the objective projects of the State Plan of the basic research of Czechoslovak Academy of Sciences, the most important of which is the project of the „Ecological optimization of management in the landscape“. This position is binding for the Institute and expects to accomplish every task in time so that it can become a good basis for the following tasks.

At present all tasks for the period of 1986—1990 (i. e. the 8th Five-Year Plan) are in preparation. The Institute of Geography will take part in solving problems associated with the regional and territorial planning. The integration of scientific departments will be inevitable.

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