

CONFERENCE OF EUROPEAN STATISTICIANS

UN/ECE Work Session on Methodological Issues Involving the Integration of Statistics and Geography

(Neuchâtel, Switzerland, 10-12 April 2000)

Topic (i): Policy and organisational aspects in GIS and statistics

ORGANISATIONAL ASPECTS OF SUPPLYING GIS TECHNOLOGY IN CSO IN POLAND

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Contributed paper

I. INTRODUCTION

1. Over the last few years we have observed an increasing demand by customers for the presentation of statistical information in the spatial dimension. This means a greater demand by statistical offices and units for geographical information for spatial analysis and the visualisation of statistical data. To meet these demands, and to bring Polish public statistics into accordance with European Union standards, the Central Statistical Office of Poland (CSO) intends to implement GIS technology and to begin a project to present statistical data on the map and to disseminate it via Internet and on CDs.

2. The present paper concerns organisational problems related to adopting uniform tools in the CSO of Poland, building a geographical base for statistics, and adjusting to the future European network "GIS in statistics".

II. BACKGROUND

3. Geographical information systems in statistical offices in Poland are single desktops with different GIS tools, and their use resolves itself into making thematic maps accompanying office publications. We have no geographical database for statistics. Local projects on GIS were started within the framework of a feasibility study: in SO Poznan to support the territorial register, in SO Wroclaw to present the statistics of the city, and two Polish/Canadian projects (MERA-95 and PCAP) with the co-operation of the Institute of Geodesy and Cartography for a satellite monitoring of agricultural cultivation.

4. In 1997 the president of CSO established a working group to prepare the implementation of GIS in our office. The result of this work is Project GISTAT (GIS in Polish public statistics). The implementation of this project will enable our office to apply GIS technology according to EU standards and to share in common projects.

5. One of the first tasks of the new project will be building and developing regional statistics to form an information system to monitor the use of Structural Funds in Poland.

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III. OBJECTIVES AND TASKS OF THE PROJECT

6. The objective of the project is the development and adjustment of Polish public statistics to customers' demands and to enable direct communication with the corresponding systems in Eurostat in the field of applying new technology to processing, visualisation and dissemination of statistical data in the spatial dimension. This project involves developing a dedicated information system, applying uniform tools, building a central geographical database for statistics and an aggregation data set with the final result accessible via Internet. A special unit will be established to manage the project.

7. The basic tasks to be accomplished during the realisation of the project are:

- building a central geographical database,
- building a dedicated information system for collecting, managing and using common data,
- preparing statisticians' workspace for applying GIS tools,
- providing maps, data sets and service to users,
- building the network "GIS for statisticians",
- harmonisation of geographical information at the domestic and European level.

IV. DEVELOPMENT PLAN

8. The application of GIS in Polish public statistics began a few years ago. At that time, there were single desktops for the presentation of statistical data on the map. There was not yet a plan to apply GIS in the office, but rather a willingness to present selected statistical data on the map.

9. Interest in this kind of presentation of statistical data necessitated the preparation of a project plan to present all statistical data on the map in accordance with NUTS levels. The data visualisation extended to new kinds of electronic publication (CD and Internet). During the preparatory phase of the project, subsequent objectives were added. The statistical data (only aggregated) would be made available via Internet for making spatial analyses and thematic maps. That would mean networking and access to data sets by users. Based on these objectives, the GISTAT project (GIS in Polish public statistics) was elaborated. This project established a central spatial database for all statistical offices and units, aggregated data delivered from other thematic databases and different sources, a dedicated information system, service for customers for making thematic maps, and the dissemination of data. The computing architecture made for the GISTAT project and the central spatial database will enable our office to share in building the European network "GIS for statisticians", the common project organised and financed by Eurostat.

10. On the basis of this project we anticipate applying GIS in regional statistics as a tool for monitoring regional development and the use of the EU Structural Funds in Poland.

V. GISTAT PROJECT AS AN ATTEMPT TO APPLY THE NEWEST TECHNOLOGY IN CSO

11. Implementation of geographical information systems in public statistics according to the GISTAT project is an attempt to apply the newest technology to spatial analysis and the visualisation of statistical data on the basis of a centrally operated dedicated information system. This would serve as a common geographical database enabling access via network to CSO resources to various users. The implementation of this technology will enable our office to present statistical data on maps and in the form of electronic publications, as well as via Internet. The users of this new technology will be departments of CSO, as well as statistical units which allow access to data to interested departments and external users. We have to establish both organisational frameworks for the above-mentioned actions and a working group of specialists.

12. The next step in the project implementation is to build a central geographical database, to create a dedicated information system enabling its use, and to start a service for users.

13. The architecture of applying GIS tools in statistics is to enable the integration of geographical and statistical data in one environment and, on the basis of a computing system, to enable the use of common GISTAT database resources via network for all statisticians. This implies the creation of a GISTAT database management server and statistician workstations with software tools. GISTAT database is a central database for statisticians' needs, which will include data sets grouped in the following fields: administration borders of the country, territorial units of the country for statistical purposes, grounds, hydrology, land use, land cover, population and buildings.

14. The aim of the project is to create a central database supported from various sources, together with thematic maps, thus centralising analyses and visualisation of statistical data. There will be limited access to the base and presentation of statistical data on the maps to all users of the CSO network, and via Internet to other external users.

15. The computing system built according to this project will enable future co-operation with Eurostat and will allow CSO to participate in future common projects.

16. A GISTAT working group will be appointed to manage the project and the maintenance of the base. This working group (team) will consist of specialists responsible for organisational and legal actions, co-ordination and harmonisation of actions on the domestic and the European level, for the current operation of the base and for rendering services to statisticians and external users.

17. The implementation of GIS in statistics will be divided into stages:

- appointing the team and building a limited-access spatial base for statisticians
- making aggregated data sets in spatial dimension available to external users via Internet
- development of central and thematic databases
- participation in building the European network "GIS for statisticians"

We anticipate that work will be finished by the end of year 2003.

VI. GIS AND REGIONAL STATISTICS

18. The work on the implementation of GIS in the office started with the development and adjustment of the Polish regional statistics to the EU demands. Regional statistics are supposed to supply data needed for the creation of state policy of regional development as well as to programme and monitor for the use of the EU Structural Funds in Poland. Because the project to adjust the Polish regional statistics to the EU demands implies the use of GIS as a tool for its monitoring and visualisation, the scheme for GIS implementation in the office will take into account their first application in regional statistics.

19. Applying GIS in regional statistics will integrate statistical data from various fields of research into one geographical environment. Data gained from research conducted within the frame of regional statistics will be placed in the central base of GIS and made accessible to interested users.

20. Within the frame of modernisation of the Polish public statistics, the nomenclature of territorial statistical units (NUTS) will be implemented for research of regional statistics in Poland. Public statistics infrastructure to fulfil the information needs of the EU Structural Funds will be prepared (including computing infrastructure). Territorial register, with national NUTS nomenclature included, and the aggregated database of regional statistics will be modernised. Running databases and geographical systems will be accessible via Internet and will enable direct communication with corresponding systems of regional statistics in Eurostat.

21. Thus, the realisation of the project on GIS application in public statistics will be carried out as an undertaking supporting regional statistics, in accordance with the schedule of its development. To support the realisation of the project, twinning agreements will be realised with selected National Statistical Institutes of the EU member states. In 2000 we anticipate the acceptance of selected areas of GIS application, the elaboration of the project and an announcement of a tendering procedure to buy equipment and software. The following year we would like to begin realisation of this project. We plan to finish this work by the end of 2003.

VII. SUMMARY

22. The implementation of GIS in CSO is carried out within the framework of building and modernising information systems in the process of adjusting the Polish public statistics to the European statistical system. We are aware that it is only the first step in building an infrastructure enabling the use of GIS, and that the previous work was suited to the current organisational and financial abilities of our office.