Abstract

The paper presents the general concept of a multiresolution database and methodology of harmonisation of reference databases, which create the resources of geodetic and cartographic data in Poland. Utilisation of a coherent conceptual model of a reference database is of key importance for development of spatial data infrastructure in Poland. Such coherent mechanisms of spatial data exchange between many state registers have not existed in Poland. This situation may be changed as a result of introduction of one, coherent topographic database; this will also allow to synchronise those registers.

The authors have developed a concept of the multiresolution database, using the general concept of the MRDB type database, as well as Polish experiences existing in this area. The most important features of the Multiresolution Topographic Database (WTBD) are: possibility to integrate various information resources, systematisation of data integration processes, automation of map production processes and limitation of multiple data gathering by various map producers.

The authors have also proposed the concept of integrated systems of topographic and thematic map production basing on collected reference data and have implemented systems of management of elevation data, thematic data and a set of data stored in the National Register of Geographic Names. A prototype of geoinformation website have been also developed within the frames of the discussed Project.

Keywords: MRDB, reference database, thematic database, visualisation
28.1 Introduction

The concept of development of a multiresolution database, as a key component of
the NSDI appeared in Poland several years ago. The outline of the first ideas in this
field was presented during the ICA Conference in A Coruna (Gotlib et al. 2005a,
Gotlib et al. 2006). The concept of harmonization of reference databases resulted in
launching the research and implementation project: “Methodology and procedures
of integration, visualisation, generalisation and standardisation of reference data-
bases, which are accessible in state geodetic and cartographic resources, as well as
their utilisation for development of thematic databases”.

The main purpose of this Project was to propose the rules of development of
a multiresolution reference database for the entire country. The second aim was
to develop the project of integration of various spatial data registers. The existing
registers are maintained by various state institutions and co-operation of those
registers has been considerably limited. The reference topographic database would
be a platform of integration of state spatial data and should become the basis for
development of official thematic databases.

Between many activities approved to be realized in the project there are:
• harmonization of conceptual model of the TBD and VMAP L2 of the second
  edition,
• integration of the DTM and thematic databases with vector data in MRDB refer-
  ence database,
• implementation of the gazetteer (with hydrographic names, number of roads and
  names of localities),
• cartographic presentation of various levels of generalization,
• publication of geoinformation services with reference and thematic data.

The paper summarises the final results of research stage of the Project carried out
by the Wroclaw University of Environmental and Life Sciences (formerly: Wroclaw
Academy of Agriculture) and commissioned by the Ministry of Science and the

28.2 Multiresolution Reference Database

In Poland many institutions deal with development and management of spatial
databases and public registers, which depend on appropriate legal regulations.
Such institutions include: the Head Office of Geodesy and Cartography (GUGiK),
the State Geological Institute (PIG), the Institute of Meteorology and Water
Management (IMiGW), as well as voivodship and marshal offices. The GUGiK
maintains the state resources of geodetic and cartographic data, which comprises