ELECTRONIC NATIONAL ATLAS OF THE REPUBLIC OF POLAND: FRAMEWORK, DEVELOPMENT AND CHALLENGES

Michal Okonek
Map1
Piotrkowska 23
Lodz 90406
Poland

Phone (+48) 601 225 224
Fax (+48) 42 632 67 54
Email okonek@map1.pl
www.map1.pl

Abstract: The paper presents a brief overview of the preliminary project of the Electronic Atlas of the Republic of Poland prepared by *Map1,* contracted by the Glowny Urzad Geodezji i Kartografii (Head Office of Geodesy and Cartography) - Poland's national mapping organization. This paper discusses both the thematic contents of the future electronic atlas as well as its thematic structure and interactive functions.

1. Introduction

The *Atlas of the Republic of Poland* (Atlas Rzeczypospolitej Polskiej) in printed form has been in existence since 1998. It has been designed as a continuous project; new maps are being printed to depict all important changes to the country's environment and economy. The publisher of the national atlas – Head Office of Geodesy and Cartography - initiated a new project aiming at preparation of a new product in the form of an electronic atlas. The project was started in 1999.

2. The Technology

The Electronic Atlas of the Republic of Poland is planned to be published as a stan-alone application designed for the compuers comatible with the IBM PC standard and using the MS Windows operating system. The intention is to prepare an atlas that would combine general-reference and thematic maps with a geo-relational database management system.

Its first edition is projected to be distributed in the form of CD-ROM disks, however in future, a new on-line atlas is projected to be launched in the next couple of years.

Maps included in the *Atlas* will generally be prepared and distributed in the vector form. The software used for the *Atlas* is supposed to meet the following criteria:

- must allow for the selection of individual thematic layers
- should have the possibilty of selecting the cartographic projection
- should also support the exchange of data with most popular GIS software platforms.

The projceted features of the *Atlas* include:

- preparation of particular maps in several levels of detail
- the possibility of individual visualization of thematic layers of maps
- map data included in the atlas are planned to be attached to a geo-referenced database.
- Internet links to the external geographic resources collected by other state agencies will be included in the Atlas
- the atlas will also contain additional multimedia content, which will enhance the cartographic content.

3. Thematic Structure

The *Electronic Atlas of the Republic of Poland* will contain the following 3 types of cartographic representations:

- General Reference Map
- Thematic Maps
- Statistical Maps

Each category will be visualized with a specially designed interface, and interactive function included for each class will be different, which is the result of different kind of data used to prepare maps in each category.

3.1 General Reference Map

This map is intended to serve as the main cartographic presentation in the Atlas. It will combine vector with raster data. While the largest part of the map content is intended to be distributed in vector form, the following raster images will also be added:

- Topographic Maps. While the vector data are intended to be drawn at the primary scale of 1:500,000, it is planned to add raster images of official topographic maps at 1:100,000. The intention is to provide a more detailed topographic coverage of the entire country. These raster maps will be made available through the use of the zoom

function. After reaching the maximum level of detail of the vector map, the users will gain access to the detailed raster topographic maps.

- Aerial and Satellite Imagery. This raster layer will aslo be accessible from the General Reference Map inteface and is intended to enable the comparison between topographic and aerial/satellite data.

The General Refernce Map is intended to be the initial step toward a more detailed Geographic Information System designed to provide typical topographic data for the entire country. The future on-line editions of the Atlas include more detailed topographic coverage in vector form.

The General Reference Map Interface will offer the following interactive functions:

- layer selection
- zooming in and out
- zooming in to a predefined area (administrative unit etc.)
- panning
- centering
- refreshing / reloading
- indentification of objects included in maps
- locator map
- the possibility of creating a DTM based on contour map
- terrain profile
- distance and surface measuring tools
- query tool
- scale and map legend will be created separately for each thematic layer and each level of detail
- geographic coordinated will be displayed for each object pionted by the cursor
- it will be possible to add user-defined pushpins and notes to each cartographic representation and thematic layer
- printing
- conversion to other GIS formats
- export to a raster image

The General Refernce Map will contain the following thematic layers:

1. Mathematical Base (Geographic Coordinates)
2. Relief (Contourlines)
3. Settlement
4. Hydrography
5. Road and Rail-Road Network
6. Forests
7. Administrative Boundaries
8. Geographic Names
9. Satellite / Aerial Images (Raster)
10. 1:100,000- scale Topographic Map Images (Raster)

4. Thematic Maps

All thematic map (layers) included in the atlas will be accessible through a separate interfece. This section will include all thematic mapa having been previously published in the printed edition (except statistical map, which will be made available through a separate inteface).

The interactive function offerd by this interface will generally be based on the structure of the General Reference Map Interface. The main difference between the two subsystems consists in the fact that the maximum level of detail will be lower in the thematic map category (approx. 1:2,000,000)

5. Statistical Maps

All *Atlas* maps having the form of choropleth or graduate symbol maps will be accessible throuh this inteface. This sub-system will offer the following functions:

-   dataset selection
-   zooming in to a predefined area (administrative unit etc.)
-   class selection method (choropleth maps only)
-   diagram
-   identification of administarative units
-   query tool
-   printing
-   export to a raster format

6. The Future

The first edition of the atlas is planned to be released on a CD-ROM. The future on-line edition would greatly benefit if it were supported by a partnership program between the Head Office of Geodesy and Cartography and other government depatrment and institutions responsible for the collection of geospatial data. The current electronic Atlas development will continue for several years of the 21th century.