

THE INVENTORY OF ARCHITECTURAL AND LANDSCAPE UNITS

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The poster presents a concept of using GIS in the inventory of architectural and landscape units for the territory of Poland.

Architectural and landscape units are identified based on topography, land cover and historical characteristics. The mosaic of these units is a record of the state of a landscape. To each architectural and landscape unit a specific form of protection is attributed.

National Heritage Board of Poland started work on building the infrastructure for spatial information about the monuments. One of the basic elements of this infrastructure was to develop and implement a geographic information system for architectural and landscape units. It was realized under the program for protection of Polish cultural landscape.

The work included: development of a database structure for architectural and landscape units, geometrization of raster maps, digitization of unit outlines, development of the data visualization standards, establishment of the schedule for implementation of the conceptual data structure model (SQL) and conceptual model of the data structure (UML).

The main problem during the realization of the project was the analog source material, which needed proper processing. Scanned maps of provinces with the outlines of architectural and landscape units (Fig. 1) were of very low quality and were geometrically distorted. For this reason each map sheet required suitable transformation.

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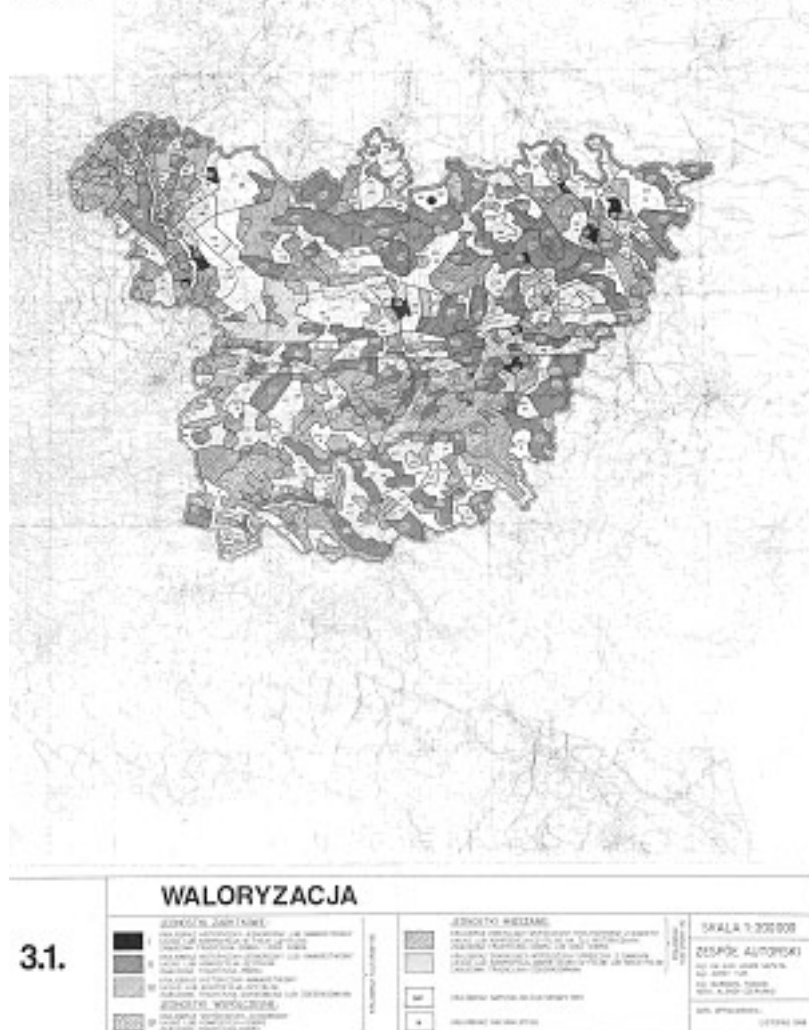


Figure 1. The example of source material – scanned analog map

Table 1 presents list of transformations used, number of control points and average mistakes for chosen study area.

| Map sweet name | Number of control points | Transformation | Average mistake [m] |
|----------------|--------------------------|---------------------|---------------------|
| Sieradz | 59 | projective | 40 |
| Koszalin | 36 | projective | 180 |
| | 62 | polynomial 2 degree | 206 |
| Krakow | 99 | polynomial 2 degree | 102 |
| | 47 | polynomial 2 degree | 157 |
| Szczecin | 15 | affine | 180 |
| Rzeszow | 16 | affine | 154 |
| Poznan | 60 | polynomial 3 degree | 216 |
| Wałbrzych | 14 | affine | 137 |

Table 1

The architectural and landscape unit features were stored in the analog tables which had different ranges of attributes and different symbols for various areas. This required to define the scope of the common attributes and common symbolisation for all areas. Numerical values for each attribute were also defined.

Coordinate system called "1992" was assumed as a cartographic environment of database. It is an official coordinate system used in Poland, based on Gauss-Kruger projection on the WGS'84 ellipsoid.

In the GeoMedia Professional, a database for the architectural and landscape units was established. This is a database saved in MicrosoftAccess format, which can be managed directly by GIS software, in this case by GeoMedia Professional (Fig. 2).

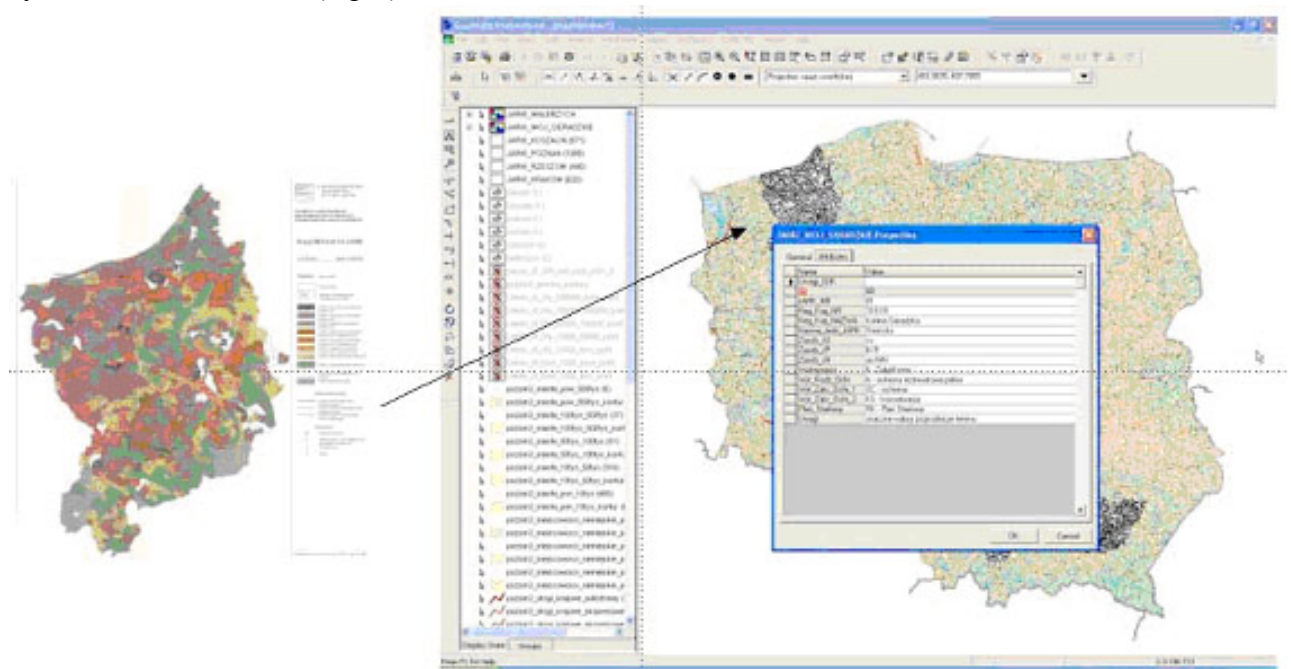


Figure 2. From analog map to the spatial database

Tables with descriptive information about architecture and landscape units for individual provinces, saved in xls format, were imported into the GeoMedia Professional software. This software joins the descriptive data with the contours of architecture and landscape units, through the use of - common for both databases - ID of architectural and landscape units.

The final result - complete and functional geographic information system for architectural and landscape units - allows to select and analyze data, collected for the whole territory of Poland, on the basis on:

- descriptive data (attributes) e. g. selection of architectural and landscape units with defined valorization degree
- spatial data (administrative units, selected region) e.g. selection of architectural and landscape units located in chosen districts or communities.

It is also possible to create advanced queries concerning one chosen attribute or few different unit properties. The most useful for the final users are simultaneous selections of descriptive and spatial data.

The use of GIS has enabled the replacement of analogue material collected in the National Heritage Board of Poland by a unified - spatial and descriptive - database for the whole territory of Poland.