Country Profile: Hungary

Country Profile (PDF)

Country Resources

Topographic

Series	Publisher	Scale	Years	Sheets
Hungary 1:200,000 Scale Topographic Maps	KV	1:200,000	1986 – 1988	5
Hungary 1:25,000 Scale Topographic Maps	MHV	1:25,000	1983 – 1992	1,166
Hungary 1:100,000 Scale Topographic Maps	MHV	1:100,000	1986 – 1992	71
Yugoslavia 1:750,000 Scale Topographic Maps	VGI	1:750,000	1968	2

Aeronautical

Series	Publisher	Scale	Years	Sheets
Austria 1:500,000 Scale Aeronautical Chart	DFS	1:500,000	2016	1

Geoscientific

Series	Publisher	Scale	Years	Sheets
Romania 1:500,000 Scale Geological Maps (12 Sheets)	CG	1:500,000	1964	1
Romania 1:1,000,000 Scale Geological Map (2 sheets)	IGG	1:1,000,000	1978	1
Romania 1:1,000,000 Scale Metallogenic Map	IGG	1:1,000,000	1969	1

Thematic

Series	Publisher	Scale	Years	Sheets
The World 1:30,000,000 Scale Topographic Map Series 1145 (NGA)	DMA	1:30,000,000		2

Global Census Archive: GIS Census Data

East View Geospatial has an ongoing effort to add GIS census data to our Global Census Archive program. Please contact us for the status and availability of Hungary census resources.

Global Resources

Topographic

Series	Publisher	Scale	Years	Sheets
Soviet Military City Plans	VTU GSh	Varies	1944 – 2003	3,020
Soviet Military 1:100,000 Scale Topographic Maps	VTU GSh	1:100,000	1947 – 1999	24,897
Soviet Military 1:200,000 Scale Topographic Maps	VTU GSh	1:200,000	1949 – 2009	17,799
Soviet Military 1:500,000 Scale Topographic Maps	VTU GSh	1:500,000	1953 – 1998	3,093

Nautical

Series	Publisher	Scale	Years	Sheets
NGA Nautical Charts POD Certified (All Scales)	NGA	Varies	1943 – 2013	4,517

Aeronautical

Series	Publisher	Scale	Years	Sheets
Joint Operations Graphic (JOG 1501A) 1:250,000 – Aeronautical	DMA	1:250,000	1958 – 2007	4,204
Tactical Pilotage Chart (TPC) 1:500,000 Scale – Aeronautical	DMA	1:500,000	1967 – 2006	598
Operational Navigation Chart (ONC) 1:1,000,000 Scale – Aeronautical	DMA	1:1,000,000	1969 – 2001	243
Jet Navigation Chart (JNC) 1:2,000,000 Scale – Aeronautical	DMA	1:2,000,000	1971 – 1999	117
Global Navigation and Planning Chart (GNC) 1:5,000,000 Scale – Aeronautical	DMA	1:5,000,000	1981 – 1999	27

Geoscientific

Series	Publisher	Scale	Years	Sheets
Soviet Military 1:1,000,000 Scale Topographic Maps	VTU GSh	1:1,000,000	1948 – 1994	1,089

Note: East View Geospatial is continuously sourcing new resources that may not yet be listed in Global Explorer. Please contact us if you have geodata needs beyond what is listed above and we will be happy to discuss available off-the-shelf and custom solutions.

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Country Profile (PDF)

Topographic

Contemporary topographic mapping of Hungary reflects the policies introduced after World War II, when government mapping was reorganized and separate military and civilian mapping authorities were established. The two agencies developed distinctive mapping systems, using different ellipsoids, projections and sheet lines.

The post-war civilian mapping organization was established in 1951, becoming in 1967 an office within the **Ministry of Agriculture**, and over succeeding years, the topographic mapping issuing from this organization underwent a number of changes in specification. Finally, in 1972, an oblique secant cylindrical projection, designated the Uniform National Projection (EOV) was introduced, and the IUGG GRS 1967 ellipsoid adopted, and these form part of the Uniform National Map System (Hungarian abbreviation: EOTR), currently used for the civilian map series. Series of topographic maps on the EOTR were initiated at scales of 1:10,000, 1:25,000 and 1:100,000 using grid-based sheet lines. The civil map series at 1:100,000 scale was completed in 1987 in collaboration with the military survey and a 1:200,000 scale map was also produced by generalization from it.

The military mapping organization provided the country's defence mapping requirements, publishing and maintaining topographic maps in the scale range 1:25,000 to 1:200,000. The sheets of these series were graticule-based, conforming to the Soviet-1942 coordinate system common to the former Eastern bloc countries. The projection was Gauss-Krüger (GK), Krassovsky ellipsoid, and sheet lines followed the International map of the World format.

Soviet military topographic mapping of Hungary is available at the following scales: 1:1,000,000 (4 sheets, complete coverage, published 1979-1990); 1:500,000 (8 sheets, complete coverage, published 1977-1989); 1:200,000 (28 sheets, complete coverage, published 1977-1989); 1:100,000 (92 sheets, complete coverage, published 1973-1991); 1:50,000 (320 sheets, complete coverage, published 1971-1993) and city (1:10,000 to 1:25,000) topographic mapping of 11 major cities from Budapest to Zalaegerszeg published between 1962 and 1997. These products are available in print, digital raster and digital vector GIS formats from **East View Geospatial**.

During the 1990s, there was considerable restructuring of government mapping agencies. In 1994, the military mapping organization was divided into two institutes, one (**Tóth Ágoston Térképészeti Intézet** (**MH TÁTI**)) concerned entirely with defence survey and mapping,

while the other (**MH KARTÜ**), began to diversify into the preparation of 1:50,000 scale tourist maps based on the military series as well as producing city street maps, general maps of the country and plastic relief maps. In 1996 a new Surveying and Mapping Act was passed which set out the country's future mapping requirements, including cadastral and defence needs, and the requirements for digital data. This Act came into force on March 1,1997, and has resulted in further structural adjustments to government mapping. To avoid unnecessary duplication, responsibility for topographic mapping will now be shared between the civilian agency, the **Department of Lands and Mapping** of the **Ministry of Agriculture** (**Földmüvelésügyi Minisztérium, Földmérési és Térképészeti Föosztály** (**FM FTFO**)) and a new **Mapping Agency of the Hungarian Defence Forces** (**Magyar Honvédség Térképészeti Hivatal** (**MH TÉHI**)), which replaces **TÁTI**. The former will be responsible only for the 1:10,000 series and for cadastral mapping, while the latter will in future maintain all the smaller scale series (i.e. scales of 1:25,000, 1:50,000, 1:100,000 and 1:200,000). At present, some series are available in both the EOTR and the Gauss-Krüger versions, but it is possible that the small scales will eventually only be published on the Gauss-Krüger projection, or perhaps UTM, while the 1:10 000 scale series will continue to use the EOTR. New versions of the 1:50,000 and 1:100,000 scale maps have recently been issued with UTM grid computed on the WGS 84 ellipsoid.

The 1:10,000 scale series is the basic scale survey, requiring 4,025 sheets to cover the country, and the ground survey has been completed, although only about 84 percent cover has so far been published. Sheets have a 1 m contour interval or 2 m in hilly areas, and use the grid-based EOTR system.

A complete 1:25,000 scale series in 1,166 sheets in Gauss-Krüger projection was published by the military survey, beginning in 1959, and about one half of this series has been revised since 1988. A version by the **Ministry of Agriculture** began in 1982 in 1,047 sheets in Hungarian Uniform (EOV) projection, but covers only about 25 percent of the country. This series is in seven colors with 5 m contours.

The 1:50,000 map was originally only published as a military map on the Gauss-Krüger projection in 319 sheets. In 1993, interactive vector digitizing of color separated drafts of the 1:50,000 military map began, and is now complete. The data are available in several formats, for Microstation, AUTOCAD, MapInfo and ARC/INFO. A digital topographic database (DTA-50) and a digital elevation model (DDM-50) have been produced, and are available also in EOV projection.

The 1:100,000 scale series exists in a Gauss-Krüger version in 92 sheets and an EOTR version in 84 sheets. The latter was completed in the mid-1980s, and has recently been digitized to create the DTT-100 database. Complete raster data are available for contours, planimetry, and hydrography. Vector data are also being created, and are complete for contours. There is also a 1:100,000 scale 100 m-gridded DTM. Both series have a 20 m contour interval. There is also a 1:100,000 scale agro-topographic map (Agrotopográfiai térkép), which uses the EOTR version as a base map.

The 1:200,000 scale series is complete in 23 sheets, published 1986-88, in the EOTR edition. The map has 20 m contours and an 8 km interval grid. A range of land uses are shown in yellows and greens. A military version of the map on Gauss-Krüger projection is also available in 28 sheets. The data are available in both EOV and Gauss-Krüger projections.

Maps of Budapest have been produced by the military survey at scales of 1:30,000 and 1:15,000, the latter available in a digital version. Large scale base maps for urban planning and development are produced at scales of 1:1,000 for cities, 1:2,000 for urban residential areas and 1:4,000 for rural areas. **MH TÉHI** have also produced 1:10,000 scale orthophoto maps of 89 Hungarian cities.

Since the break-up of the Soviet bloc, major effort has gone into the mapping requirements of land reform. The divisions of the civilian **FM FTFO** are concerned not only with land surveying and mapping but also with land registration, land valuation and conservation. As a result of the Land Compensation Program, over two million new land parcels have been created, and there is a need for land consolidation. Since 1992, a major European Union sponsored project, the PHARE Computerization of Land Offices Project has been in progress, and this will include the conversion of cadastral maps and land registration records to digital format. In addition, the German and Hungarian agricultural ministries are cooperating in a land consolidation project which involves digital image processing and digital cartography to identify land use problems.

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GIS/Vector

Geometria GIS Systems House Ltd of Budapest is the leading provider of GIS services in Hungary. In 1990 it created a National GIS Database (OTAB) for the **Department of Lands and Mapping**, using the 1:100,000 scale EOTR maps. This does not include contours,

and was designed to serve as a background database for thematic mapping. It is structured at three levels: the most detailed (OTAB 1) provides a data resolution suitable for adding thematic data at scales of 1:100,000 to 1:250,000; OTAB 2 is designed for thematic mapping at 1:500,000 to 1:1,000,000; OTAB 3 is still less detailed, and provides for presentational maps of 1:1,000,000 to 1:2,000,000. A variety of data formats are available. A 1:4,000 scale digital base map of Budapest (Budapest-4000) has also been produced. This includes street names and property numbers.

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Geological/Scientific

Along with other reforms of national public administration, the government geological services in Hungary were restructured in 1993–94. The former **Central Office of Geology** has been replaced by the **Hungarian Geological Survey** (**Magyar Geológiai Szolgálat** (**MGSz**)), Budapest. Its function is to direct state geological activity but not actually to publish the maps. Two institutes operate under the survey, the **Hungarian Geological Institute** (**Magyar Állami Földtani Intézet** (**MÁFI**)), which is the principal producer of earth science mapping, and the **Hungarian Eötvös Loránd Geophysical Institute** (**Magyar Állami Eötvös Loránd Geofizikai Intézet** (**ELGI**)), whose role is to undertake geophysical surveys and apply geophysical methods to such tasks as mineral and water prospecting. A large range of earth science mapping is available, including several 1:500,000 scale sheets which together comprise the Geological atlas of Hungary. A 1:200,000 scale geological map cover of the country was completed in 1977 in 24 sheets. There are also series of detailed regional geological maps covering the Bakony and Keszthely Mountains (1:20,000 scale), the Mecsek and Mátra Mountains (1:10,000), the Tokaji Mountains (1:25,000) and the Dorog Basin (1:10,000). The Great Hungarian Plain is covering by a geological atlas series in 34 volumes with maps at 1:200,000 scale and with explanatory notes and legends in Hungarian and English. A seven-volume cover of the Little Hungarian Plain is also in progress. Some geological sheets from the 1989 national atlas are also available as separates. Geological forecast maps provide assessments of coal and bauxite reserves, water resources and of sand and gravel supplies for the building industry.

MÁFI has a GIS department, and has digitized many of the existing geological maps. The digital map data are linked to other attribute data, such as borehole records, held in an Oracle database. GIS software has also been used in two experimental projects, one involving multiple-thematic mapping of the Danube basin, and the other the development of an information system for the municipal authorities of Budapest incorporating engineering geological and groundwater level parameters.

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Imagery

The **Institute of Geodesy, Cartography and Remote Sensing** (**Földmérési és Távérzékelési Intézet** (**FÖMI**)) was founded in 1967 and supports the **Department of Lands and Mapping**. It supervises government contracts in mapping and cadastral survey, carries out geodetic observations, undertakes research and development, archives cartographic data and maintains a cartographic reference service. In 1981, a Remote Sensing Center was established under its wing, and in 1988 a Department of Land Information Systems. The former provides enhanced and geometrically rectified satellite imagery for topographic map revision, and is working on programs concerned with remotely sensed crop monitoring, monitoring of land reform impact, and on the CORINE land cover program of the European Union. The latter was completed in 1996 and is available in both digital and hard copy format; corresponding satellite image maps are also available digitally and in the form of color prints. Some experimental 1:50,000 scale mapping has also been undertaken under the CORINE program using a combination of LANDSAT TM and SPOT panchromatic imagery.

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Soil

Soil mapping is undertaken by the **Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences** (**MTA Talajtani és Agrokémiai Kutató Intézete** (**MTA TAKI**)).

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Thematic

The largest publisher of maps for travel, tourism and education is **Cartographia Ltd**. It was founded in 1954 as **Kartográfiai Vállalat**, and known abroad by its trade mark **Cartographia**, serving originally as the government's primary outlet for maps produced for the general public, and as a trading organization with other European countries. In 1993 the company's official name became **Cartographia Ltd**. It has invested heavily in modern digital technology. For Hungary, **Cartographia** produces a variety of road maps and small scale administrative, physical and base maps. It also publishes a complete set of regularly updated county maps at 1:150,000 scale, and some 35 local area tourist maps at scales of 1:40,000 or similar. There are street maps of Budapest in a number of different formats and scales, and in recent years an extended range of city maps has been made. In 1995 a digital map of Budapest was completed, and several printed maps have been derived from this. A CD-Atlas of Budapest has also been produced. More recently, a digital database of Hungary has been completed and has been used to produce a printed map at 1:450,000 scale. A printed atlas and a CD-atlas of Hungary have also been released, and in 1998 a CD-atlas of Hungarian towns.

Cartographia's output is not limited to Hungarian mapping and there are useful travel maps of many countries and cities. The company has partnerships with several other prominent European commercial map publishers, and many maps badged by **Freytag-Berndt**, **Hallwag**, **Falk**, **Ravenstein**, **HarperCollins**, **Michelin**, **Mair**, and even **Rand McNally** have been produced by **Cartographia**.

A large number of new private cartographic companies have been formed in recent years (estimated between 100 and 200). Some of these provide cartographic services for other publishers, others have their own publication list. For example, **Dimap** publishes and trades in both printed and digital mapping. It publishes up-to-date road and tourist mapping of Hungary and some adjacent areas of Slovakia and Romania, and urban street mapping of Budapest and several other Hungarian cities, and also sells its digital data for use by other map makers. **TOP-O-GRAF** prepares high quality mapping. It provides a contract service to other publishers, and also produces maps for the educational market and a number of tourist maps. **Ábel Térképészeti Ltd**, founded in 1996, publishes hiking and tourist maps of parts of Hungary and of adjacent countries. The map design and publishing company **GiziMap**, Budapest, founded in 1992, has published good quality general maps of the Caucasus, Ukraine, Latvia, Estonia, North Macedonia and Yugoslavia. Some of these maps are packaged and sold by **HarperCollins Cartographic** (UK), **East View Map Link** (USA) and **Freytag-Berndt** (Austria), and the company also makes maps for these and other publishers which are sold to them inclusive of copyright. **Hiszi-Map Ltd** publishes maps of about 3,000 Hungarian towns and villages contained in a series of county atlases, and also sells the data for use in GIS. **Stiefel Falitérkép Kiadó** is an important publisher of educational mapping, especially wall maps.

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Tourist/Reference

The **Geographical Research Institute of the Hungarian Academy of Sciences** (**MTA Földrajztudományi Kutató Intézet** (**MTA-FKI**)) has also made important contributions to thematic mapping in Hungary, including a 1:500,000 scale geomorphological map published in 1972, and maps of loess and of village types in the 1980s. The institute was also involved in the preparation of the first national atlas of Hungary, published in 1967. A second edition of the National atlas of Hungary was published in 1989, its preparation also coordinated by the institute. Since the publication of the main volume, five supplements have been published and prepared with the aid of ARC/INFO software.

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Census/Demography/Statistics

The **Central Statistical Office of Hungary** (**Központi Statisztikai Hivatal** (**KSH**)) publishes gazetteers of place names in association with the demographic census. In collaboration with Cartographia and with Landinfo Ltd, it has also developed MATÉRIA, a PC-based

package of statistical data derived inter alia from the 1990 census, but subject to annual updates. It incorporates a digital version of Cartographia's 1:500,000 scale administrative map and requires MapInfo software. Landinfo has also created a digital map of Budapest at 1:10 000 scale.

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