

June 17, 1994

MEMORANDUM FOR: John A. Becker
Agency for International Development

FROM: Jon B. Abrams
Bureau of Land Management

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National Oceanic and Atmospheric Administration

SUBJECT: Needs Assessment Report -- Slovak Agricultural
Cadastre

At the request of the U.S. Agency for International Development (USAID), we traveled to Slovakia June 1-8, 1994. The objectives of our trip were to assess the status of policies, legislation, and technologies related to the Slovak agricultural cadastre and to provide recommendations on:

- 1)What needs to be done on the Slovak geodetic reference system to accelerate surveying and mapping,
- 2)What role the private sector can play in accelerating the cadastre, and
- 3)What technologies need to be introduced or enhanced.

Executive Summary

In one analysis of problems facing the Slovak agricultural land market, a statement is made that "No working, economic model similar to this system exists in any other country." Technical and managerial assistance from U.S. mapping, cadastral and geodetic surveying sources will not completely solve the complex issues and obstacles inherent to a transformation of the agricultural arena to privatization; however, survey and mapping resources are fundamental to successful privatization programs. Without them, initial efforts will stall, and serious impediments to the total program will eventually result.

To the credit of Slovak geodesy and cadastre officials, well designed plans and research in support of privatization objectives appear to exist. In conjunction with the European Community's PHARE program, excellent preparation is underway. Accordingly, U.S. objectives should reinforce present efforts, e.g., ensuring that schedules for PHARE's technical and financial assistance are maintained, and providing U.S. expertise and possibly some equipment for those areas not adequately addressed.

In the analysis and proposals which follow, U.S. participation is particularly recommended to:

- maintain contacts and coordination with Slovak and PHARE principals for awareness of progress,
- improve the accuracy of the Slovak geodetic reference system and enable Slovak surveyors to fully utilize the Global Positioning System (GPS) for control surveys,
- demonstrate the use of GPS rapid static survey techniques for small private farm and parcel boundary delineations,
- provide assistance in improving and refining the automated land records system to accommodate subdivision of parcels,
- supply the expertise and equipment for graphics production (automated ownership/survey plats), and
- develop and provide advice for the user side of Geographic Information Systems.

To fulfill these objectives, further on-site visits by U.S. personnel on a limited basis is desirable in order to gain more understanding of tenets of the Slovak survey and land ownership capabilities and needs.

Assessment Approach

We met with the individuals listed in Attachment A, as well as several others for which we did not obtain complete identification. In each meeting, we explained the nature of our visit, and our own expertise, and inquired as to their perspectives on the problems associated with the agricultural cadastre. During each interview, we asked for suggestions as to what technical assistance and/or equipment could be provided that would help to accelerate privatization and completion of the agricultural cadastre.

Findings

We understand that USAID's goal is to support Slovak efforts to privatize land ownership and create a functioning land market to:

- 1)establish equitable values for land to be traded, rented, sold, or otherwise separated from former State-owned collective farms; and
- 2)enable successful farming operations to accumulate land and thereby increase Slovak agricultural production.

Some excellent background materials were provided to us to explain the agricultural land situation in Slovakia (see Attachment B). These help present the scope and complexities of the problems.

After review of these materials and our numerous interviews, we find that the most immediate concerns are:

- a) identifying current ownership status for all agricultural parcels, and
- b) creating a functioning land market based on accurate appraisals of agricultural land.

At this time, we find that surveying and mapping issues are not yet hindering the Slovak agricultural cadastre. The priorities for surveying and mapping activities fall behind owner identification activities, in part because it is not yet legal to use land as collateral in financing arrangements.

When a functioning land market is established in Slovakia, we conclude that there will be increased concern for the accuracy of parcel identification and delineation. The U.S. mortgage banking system, with financial institutions requiring parcel surveys, provides an illustrative model of increased surveying requirements that will likely come to Slovakia.

The surveying requirements will add to current opportunities of the private sector for parcel subdivision surveys, and the responsibilities of the cadastral offices for approving boundary surveys and for adjudicating survey disputes. Our recommendations for the geodetic reference system, the role of the private sector, and technology transfer aim at supporting a Slovak land market.

Geodetic Reference System

A study financed with PHARE funds has proposed substantially improving the accuracy of the Slovak basic geodetic network and its integration into the European reference (EUREF) system. We were told that the PHARE effort will include using GPS techniques to tie primary points of the Slovak network into EUREF in coordination with Professor Hermann Seeger. We will follow-up with Professor Seeger to confirm the timing of these GPS observations.

When the GPS EUREF connections are completed, Slovakia will have an excellent basis for more accurate and more efficient surveying. Using the primary points and the latest improvements in rapid survey techniques, as well as GPS-controlled photogrammetry, Slovak surveyors could greatly accelerate positioning of parcel corners.

However, we understand that the PHARE equipment specifications are not yet complete. The technical specifications and procurement commitments must be finalized soon to begin preparing Slovak

surveyors for the time when parcel surveys will be critical to land financing.

RECOMMENDED ACTION -- BLM and NOAA will schedule a joint follow-up 1-week visit to: national and two or three district offices of geodesy, cartography, and cadastre; national and local land offices; and state-owned, cooperative, and other private farms.

In conjunction with this travel, BLM and NOAA will stop in Brussels and visit the appropriate PHARE offices. The purpose of these visits will be to track promised PHARE assistance, gather detailed information for further U.S. participation, and keep interested parties informed for maximum cooperation.

RECOMMENDED ACTION -- NOAA will contact Professor Seeger to confirm the timing of GPS observations to ensure the high accuracy connection of the Slovak geodetic reference system to EUREF.

If, after consultation with Professor Seeger, additional ties are required to EUREF, NOAA will propose a program of GPS surveying support including:

- reconnaissance at each of the primary points to be occupied with GPS receivers; and
- purchase of six appropriate GPS receivers, together with support equipment, to enable Slovak surveyors to upgrade their geodetic reference system.

Role of Private Sector

We are pleased to learn that the Slovak private sector includes an estimated 2,000 professional surveyors and technicians, approximately half employed in stock companies and half in small private firms. Much of the private sector work appears to be related to construction, but there is also a significant level of private sector surveying activity for the subdivision of land parcels. It is estimated that 50% of the private surveyors are university educated, an impressive statistic. Our recommendations are intended to expand the Slovak surveyors' experience levels, empower the private sector with needed equipment, and encourage expanded use of the private sector for parcel surveys.

RECOMMENDED ACTION -- NOAA will request copies of model surveying contracts compiled by American Congress on Surveying and Mapping (ACSM) to be shared with Slovak governmental offices through the Authority of Geodesy, Cartography, and Cadastre.

These model contracts may be helpful in Slovakia as contracting with the Slovak private sector is expanded.

RECOMMENDED ACTION -- NOAA will request that ACSM attempt to identify a Slovak organization that represents the interests of the Slovak private sector surveyors with the intent of establishing a cooperative relationship.

ACSM may find that contacts through the International Federation of Surveyors (FIG) will be useful in this endeavor. A particular state affiliate of ACSM's National Society of Professional Surveyors may also want to sponsor Slovak participation in FIG technical meetings when the United States hosts the FIG Bureau in 1999 through 2003.

RECOMMENDED ACTION -- BLM and NOAA will share this report with the Eastern Europe Business Information Center (U.S. Department of Commerce, International Trade Administration).

Contact with the Center may help U.S. businesses locate partnership opportunities where GPS equipment can be shared to enable Slovak surveying companies to participate in GPS surveying.

RECOMMENDED ACTION -- BLM and NOAA will share this report with International Executive Service Corps (IESC) and with Volunteers in Overseas Cooperative Assistance (VOCA).

There may be further opportunities for technology sharing with U.S. individuals under programs of these organizations.

Technology Enhancement - GIS

We are impressed with Slovakia's current land information system that includes an alpha-numeric data base with usage information for agricultural parcels. We witnessed a retrieval of updated information on selected parcels. We were told that due to resubdivisions, the number of parcels is growing rapidly, from an estimated 5.5 million parcels in 1990 to over 10 million today.

Slovak officials in the Ministry of Agriculture noted that the existing data bases need to be restructured to accommodate the resubdivisions and listed this task among the most critical problems.

A second problem cited is the limited ability to link the alpha-numeric and spatial information with graphical production capabilities. A third problem is that the existing data bases are compiled office-by-office, without linkage between offices.

In order to enhance Slovak capabilities and move towards more complete Geographic Information System (GIS) technology, assistance, advice, and consultation will be provided related to all four traditional components of a GIS: data, hardware, software, and users. The extent of this assistance will be contingent on the available GIS expertise in Slovakia.

RECOMMENDED ACTION--In order to analyze and determine more specifically what capabilities and potentials exist, a BLM needs assessment team will visit Bratislava for 1 to 2 weeks.

The BLM team will principally work with the Slovak Research Institute of Geodesy and Cartography, and the Authority of Geodesy, Cartography and Cadastre. However, other resource areas will be contacted, e.g., forestry and minerals.

The BLM needs assessment will be the most important step for GIS implementation. This step leads to collection of proper data sets, education of users in the technology and its role within the organization, and ensuring that proper analyses and output are generated. After an assessment of the needs, hardware and software requirements can be formulated, and a proposal can be prepared for training and data compilation.

Data will be considered as the central resource in the GIS. Data will be shared among many users in a multiple hardware/software environment, but collected and compiled by singular entities to support goals of the users.

Hardware acquisitions will support data input, output, storage, retrieval, display, and analysis. Possible hardware configurations involve a very wide range of start-up and acquisition costs, and will always carry associated costs for maintenance and support.

Many off-the-shelf GIS software packages exist. Some, or possibly much, of the Slovak GIS will require customization designed for specific user needs.

For this proposal, the "user" will be considered in the broadest sense, beyond just the realm of systems experts. Persons involved will be users in the processes of data collection, management, manipulation, and interpretation.

Pending management approval, this GIS proposal envisions using BLM resources. It includes all phases of GIS construction, i.e., both system and end user concepts. However, depending on the participation of other U.S. agencies, the BLM involvement can range from virtually no input to providing the total package. The area of technical assistance where BLM is best prepared and able to provide input is for the end user. BLM has extensive experience in developing GIS for natural resource and decision making as it pertains to the management of the public lands.

The general package of BLM assistance proposed includes:

- GIS needs assessment,
- preparation of standards and requirements,
- acquisition consultation for hardware and software,
- implementation of the system, and
- follow-up and availability for special needs.

Conclusions

During discussions with Slovak authorities, it was said that the nation is just over one year old and also over one thousand years old. The Slovak land ownership-privatization presents a seldom experienced opportunity to develop correctly structured programs by virtue of the country's youth, and to integrate this modernization with the pride and stability of a long standing, respected culture.

There is not one key solution to land market and privatization goals, there are many.

Cadastral and survey control elements are important to the success of the total privatization effort. While these elements are apparently in good condition now through the attention of Slovak academic and governmental authorities, it will be risky not to track and participate in their progress.

Attachment A
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***** Additional Organizations

American Congress on Surveying & Mapping
 5410 Grosvenor Lane, Suite 100
 Bethesda, MD 20814-2122
 tel: 301-493-0200 fax: 301-493-8245

Eastern Europe Business Information Ctr
 U. S. Department of Commerce
 14th & Constitution Ave, N.W., Room 7412
 Washington, DC 20230
 tel: 202-482-2645

International Executive Service Corps
 P. O. Box 10005
 Stamford, CT 06904-2005
 tel: 203-967-6000 fax: 203-324-2531

Volunteers in Overseas Cooperative
 Assistance
 50 F Street, N.W.
 Washington, DC 20001
 tel: 202-626-8750

Attachment B
Reference Materials

Privatization and Transformation of Agriculture, USAID Memorandum from Martin Brunovský thru Loren L. Schulze to Pat Lerner, May 31, 1994 (4 pages)

Terms of Reference, Support for Land Cadastration, Cartography and Geodesy (CLASSIC Project), PHARE (7 pages)

Land Owner Companies, Ownership Structure, etc., excerpts from status report on Slovakia, (6 pages)

EUREF, A Modern Geodetic Approach to Establish and All-European Reference System, Hermann Seeger, Institute for Applied Geodesy, Frankfurt, Germany, March 24-25, 1993 (17 pages)

Draft for a Conception of Settling Land Ownership in the Slovak Republic, with Annex (13 Pages)

Law No. 265 of April 28, 1992, regarding entries of ownership and other real property rights, enacted by the Federal Parliament of the Czech and Slovak Federal Republic, English translation (6 pages)

Law No. 266 of March 25, 1992, regarding real estate cadastre in the Slovak Republic enacted by the Slovak National Council, English translation (28 pages)