

BUILDING MANAGEMENT IN PUBLIC SECTOR OF HEALTH CARE, WITH AND WITHOUT GIS

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ABSTRACT

Gestion d'immeubles dans le secteur public de la santé, avec et sans le G.I.S. Il y a 16 unités de santé avec les lits dans le comté de Bihor qui ont un impact important sur des coûts de santé. Là l'efficacité comporte l'amélioration continue de la gestion, tous les deux unités d'intérieur et tous les deux au niveau du comté. Les données comparatives actuelles de papier concernant la gestion d'immeubles dans la santé dans le secteur public. Nous présentons notre expérience d'employer le G.I.S. dans la gestion de santé au niveau du comté. Nous concluons cela qui fait les cartes topographiques devons être point de départ dans l'investissement d'infrastructure de santé.

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The buildings from the public sector of health care have intrinsic characteristics such as location, size, spatial interrelations which make possible their spatial depiction and representation. From the point of view of the health care management a building is one of the factors which influence the characteristics of the medical service that can be offered. In order to offer adequate medical services the buildings from the health sector must comply with a set of hygienic and sanitary conditions in order to be authorized.

1. TYPES OF PUBLIC CARE BUILDINGS

Law 95/2006 defines the types of sanitary units and the conditions which must be completed in order for them to be classified in a certain typology. Other juridical documents, related to the above mentioned law, offer details and stipulate the types of buildings nominally. Each county has several types of sanitary units intended for different medical needs and services.

Bihor County has a total number of 16 sanitary units classified into five categories according to the hereby table (Table 1).

Types and names of hospitals from Bihor County

Table 1

Hospital type	Hospital's name
Clinical hospitals	The County Clinical Hospital Oradea „Dr. Gavril Curteanu” Children's Clinic Oradea The Obstetrics and Gynaecology Clinic Oradea The Psychiatric and Neurology Clinic Oradea The Pneumophtisiology Clinic Oradea The recovery Clinic Felix Spa
City and Municipal hospitals	„Ep. N. Popovici” Municipal Hospital Beiuş „Dr. Pop Mircea” Municipal Hospital Marghita Salonta Municipal Hospital Aleşd City Hospital
Specialized hospitals	The Psychiatric and the Safety Measures Hospital The Psychiatric Hospital Nucet
Health centres	Ştei Health Centre Bratca Health Centre Valea lui Mihai Health Centre

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The overall capacity for providing medical services by the hospitals is expressed in the total number of beds and in the number of ambulatory units. The total number of beds in the above mentioned hospitals is of 4527. Apart from the compartments and the sections with beds, the hospitals, under the current conditions from Romania, manage other auxiliary services such as: kitchens, laundry, but also installations serving the whole structure of the hospital: the electrical network, the water and sterile water supplies, the sewage.

2. MANAGING BUILDINGS WITHOUT GIS

There is an interested on the part of the medical authorities for creating adequate conditions for providing health services in the public sanitary units. The current legislation requires minimal functioning conditions, which must be met by both the sections with beds and the auxiliary services of the hospital.

The paper evaluates the characteristics of the public care units from Bihor County based on a questioner realized in order to evaluate the needs for rehabilitating the infrastructure. The questionnaire focuses on identifying the information which can be used in accomplishing the rehabilitation projects of the hospital infrastructure and for assessing the current situation of the rehabilitation projects.

The characteristics evaluated for each hospital are shown in the above table (Table 2).

The components of questionnaire for evaluating the infrastructure of the public health units

Table 2

Has the hospital an permanent authorization? If not state the main reasons.	
Hospital type	Monoblock
	Sections (no of sections)
Building year	
Seismic expertise	
Heating unit	Installation year
	Used fossils
	Efficiency
Laundry	Internal / External
	Age
Eating unit	Internal / External
	Age
Incinerator	Internal / External
	Accreditation according the UE norms
Water supply deficiency	
Electrical installation deficiency	
Sterilization	Internal / External
	Age
Functional operating rooms	
Modernization of the infrastructure projects, stage	Feasibility stage
	Ongoing financing
Enumeration	
Investment plan	Main directions
	Estimated sum

The answer of the medical units was introduce in a tabular computer program (Excel) in a synthetic form and thus provided the synthetic image of the hospital units Based on the excel tables one can have a synthesis of the medical buildings' characteristics at county level. The sanitary authorization for functioning exists in 75% of cases. The monoblock

hospitals represent: 31 % from the units, the rest are pavilion units with a number of units comprised between 2 and 9.

The year of the construction varies between: 1806 and 1994.

Without GIS one can have descriptive characteristics of the sanitary units which can be useful to a manager for developing the infrastructure but which do not offer a complete picture. The data gathering in a table form can be the starting point for a geoinformational database. GIS was already successfully used (Tirt 2006) in the national sanitary domain.

3. MANAGING BUILDINGS WITH GIS.

Using GIS in managing building supposes the creation of the graphical and attribute database (Mureşan 2005).

In order to create the graphical database a declassified cartographic support was used which was scanned, georeferenced. The scale used was one 1:100000. The distance between the digitized topographic curves is 40 m. The topographic map was compiled for the whole Bihor County through digitization, including the township centres, the roads, the railways, and the hydrographical network.

The attribute database was compiled through the construction of a complex table comprising several lines and columns. The lines represent the name of the hospital, and the column the parameters considered to be important for the study of which we enumerate: the total number of beds, the existing highly performance medical apparatus, the hospital financing differentiated on types of sources etc

The buildings of the public medical units with topographic coordinates based on the Stereo 1970 georeferential system are represented on the digital map. (Figure 1).

Using GIS in building management is based on identifying the hospitals which agree to certain criteria and then on their depiction on an interactive map (Mureşan 2005). For instance if we intend to identify the hospitals corresponding to a certain criteria we choose from the rolling menu the option (apparatus in use or criterion) and then we push the Search Button. All hospitals corresponding to this criterion will be marked (Figure 2). Apart from this other information about hospitals can be visualized too (Table 2) with the help of a secondary window (Figure 3).

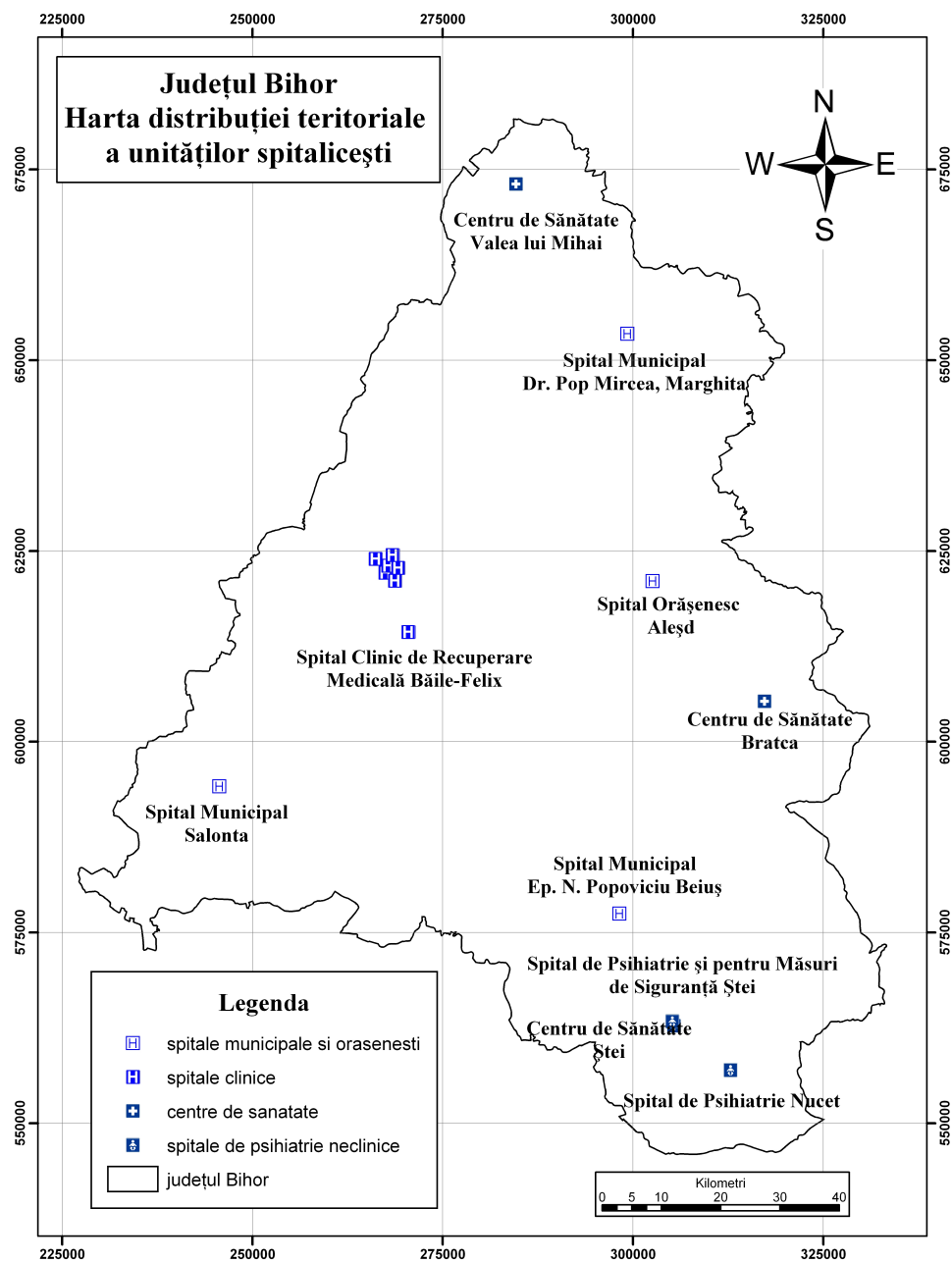


Fig. 1. The distribution map of the hospital units from Bihor County

Spitale - Judetul Bihor

Manire Micsorare Toata harta Sterge hotspoturi

Vor fi afisate toate spitalele care corespund criteriului de cautare

Selectati criteriul de cautare

Alegeti aparatul Cautare

Afisare rezultate

Rezultate	Nr
Spit.Clinic de Boli Infectioase	1
Spit.Clinic de Neurologie si Psihiatrie	1
Spit.Clinic de Obstetrica si Ginecologie	1
Spitalul clinic de copii	3
Spitalul Clinic de Pneumoftiziologie	3
Spitalul Judetean	1
Spitalul oras. ALESD	1
Spitalul Clinic de Recuperare Medicala BAILE FELIX	4
Spit.Municipal BEIUS	1
Spit.Municipal MARGHITA	3

Spit.Municipal MARGHITA
Adresa: Spit.Municipal MARGHITA

Fig. 2. Căutarea unui imobil folosind un criteriu ales

Spitale - Oradea

Manire Micsorare Toata harta Sterge hotspoturi

Vor fi afisate toate spitalele care corespund criteriului de cautare

Selectati criteriul de cautare

Alegeti aparatul Cautare

Afisare rezultate

Rezultate	Nr
Spit.Clinic de Boli Infectioase	1
Spit.Clinic de Neurologie si Psihiatrie	1
Spit.Clinic de Dbstetrica si Ginecologie	1
Spitalul clinic de copii	3
Spitalul Clinic de Pneumoftiziologie	3
Spitalul Judetean	1

Spitalul Judetean
Adresa: Spitalul Judetean

Fig. 3. The secondary unit for identifying criteria

4. DEBATE

The management of the buildings from the public health system (hospitals) is a topic relevant for both the public debate from Romania and for the specialized world literature. The interest is motivated also by the fact that the hospitals are the largest resource consumers in any sanitary system, situation which requires finding new ways of obtaining better results under limited resources.

The paper presents the evaluation of the sanitary units (hospitals) from Bihor County and a comparison between the data analyzed with GIS and the data analyzed without a GIS system.

GIS offers relevant information for the management of the public sanitary units. If the hereby paper considers the management at county level further projects must consider the GIS implementation in topographic projections on public health units.

The integrated evaluation of the buildings, equipment, hospital efficiency and of the use of financing can lead for the future to finding innovating solutions which in turn may lead to the final increase of performance in providing medical service

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