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EMERGY ASSESSMENT AS PROSPECTIVE RESEARCH METHOD IN TOURISM GEOGRAPHY

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Abstract. The paper is an overview on the relevance of Emergy Assessment in geographical research. Emergy Assessment (EmA) is a holistic research method derived from the studies on the emergence of a socio-ecological system. Nevertheless, it has a versatile toolbox for integrated analysis of a large variety of themes: environmental, social and economic impact, effectiveness of different domains, and evaluation of dependencies or sustainability. Therefore, the analysis focuses on the small area of Mara-Cosau (Maramures), including the tourism emergy, due to the dual nature of the system: export of services and consumption of resources, quantified as efficiency and propensity.

Keywords: Emergy assessment, tourism Emergy, energy systems, quantitative method, Maramures,

1. INTRODUCTION

Tourism studies, as interdisciplinary approach to spatiality of tourism concepts, have impacted the theory in multiple scientific areas, as Hall and Page argued: the mobility turn, the new generation of climate and tourism indexes, impact studies etc., stressing-out the cross-disciplinary aspects and the need for multifaceted, integrated approaches (2009). Moreover, the understanding of the complex nature of tourism systems has benefitted from computer science’s approach on resilient systems and multiple views on system approach to management, environmental science and others (Biggs R., Schluter M., & Schoon L. M., Eds., 2014). The computing power of modern ITC and GIS reloaded the system approach to research areas where that was only utopic, including here the emergy assessment (Mellino, S., Ripa, M, Zucaro, A, Ulgiati, S., 2014).

Emergy is the energy used directly and indirectly (in the past) to create a product or deliver a service (Voora et al., 2010). Consequently, it is the incorporated energy - embodied emergy - measured in order to reveal the cumulative actions of energies operating in a chain (Ianos, 2000). When accounting for the emergy of the tourism systems, emergy
Emergy assessment as prospective research method in Tourism Geography

Assessment is used as elective method, often in combination or comparatively with lifecycle analysis, carrying capacity indexing, mostly for coastal or island destinations (Lei et al., 2011).

This study evaluates the relevance of emergy assessment in geographical research via tourism emergy. The case-study is considered due to the well-defined natural system: the Mara-Cosau watershed, at the southern limit of the Tisza River’s basin (in Maramures, Romania), home of several nature protected sites, rural tourism facilities and a balneal resort capitalising on salt water - Ocna Sugatag (fig. 1).

The conceptual framework of Emergy Assessment (EmA) method is linked to a combination of (1) systemic concepts - the items, logically laid-out - flows, stocks, (2) specific diagrams and (3) the quantifying rationale - emergy synthesis, transformity indexes, within mathematical models and attached arguments.

The EmA encourages holistic prospects for coupled nature-human systems, hence, it is focused on determining the amount of resources required to develop and sustain the system at multiple spatio-temporal scales. Also it looks at the social and economic pressure towards natural resources within that given system. According to Tilley, the method is a quantitative approach that meets the goals of „ecological balance and outcome equity” by allowing the structure and function of systems to be measured using a common measuring unit – the solar emJoule (seJ) (Tilley et al., 2003). Nevertheless, many research areas require a more specific approach and use another unit – the emDollar, relevant for human goods and services, with constraints, as described by Odum (1996) and Lei et al (2011). This conducts the study towards the analysis on the emergy or/and real wealth of a system, and when spatiality is added it could be used as tool for geographical approach.

Research with Emergy Assessment has grown since the 1980s’, with the work of scholars as Odum (1980, 1988, 1996, 2007), Brown and Ulgiati (2001), strongly substantiating applied studies (Tilley et al., 2003, Cavalett et al., 2004, Blancher, et al., 2006, Pulselli et al., 2008, Lei et al., 2011, Cho, 2013, Coscieme et al., 2014, Mellino et al., 2014, Ghisellini et al., 2014, Watanabe and Ortega, 2014, Nakajima and Ortega, 2016). In the early stages it was approached by environmental scientists, engineers, economists as a form of accounting. After the year 2005, environmental scientists and economists forged their own emergy indexes and started to conduct regional comparative analysis (Zhao, Li and Li, 2005, Zhang et al., 2011). In addition, spatiality became important as studies on industrial businesses, on buildings and on human work acknowledges the role of geographical area and its features (Amarals, Martins and Gouveia, 2016). Emergy assessment in Geography appeared in the early 2000s, with the first use of GIS in resource management (Costa et al., 2002), interestingly with tourism foci (Lei et al., 2016, Brown and Ulgiati, 2010).

The common evaluation basis: the solar emJoule (seJ) offers a quantitative statistical data useful in territorial management and decision making. Despite its methodological complexity and originality, EmA was used successfully in academia (Bastianoni, et al. 2007, Pulselli, et al 2008, Ulgiati, et al 2011, Brown et al 2008, Brown and Campbell 2007) and in practice like the U.S Environmental Protection Agency or US Forest Service (Voora & Thrift, 2010). In Europe, the Ecodynamics group at the University of Siena (Italy) or the multidisciplinary research group from the University of Parthenope (Naples), led by Professor Sergio Ulgiati, apply the methodological premises of Emergy in an effort of finding practical solutions for a sustainable community development. Voora and Thrift (2010), on the basis of a study involving interviews with experts from various fields,
consisting in a series of online analyses and academic literature review, stated that the Emergy methodology, enriched with economic evaluation instruments can lead to a more comprehensive substantiation of natural capital’s evolutionary tendencies.

2. DATA AND METHOD

General features of EmA applied in tourism geography draws from the system’s paradigm. Emergy was developed and further refined from H.T Odum’s observations, through 1987-2000 periode, towards energy’s qualitative variations in ecological systems (Odum, 2000). As Odum suggested, energy registers qualitative variations as it passes through a series of transformations by decreasing in quantity and increasing in quality. The solar power represents the primordial form of energy and all the other forms of energy are a manifestation of the first. Therefore, due to the nature of tourism activity approached here, two measurement units were used: the solar emJoule (seJ) and emDollar (em$), in order to allow comparison. EmA specific concepts were used to compute the data for the area (Mara-Cosau basin) and to outline their spatial layout, through mapping and visualisation techniques. In consequence, these concepts are grouped around several flows with a hard and a soft part: renewable energy, non-renewables, imported energy, exported energy and total (see Table 2 and 3), all containing emergy data on tourism as: dissolute salt (in waters used by the resort), infrastructures, catering, services associated with tourism.

The items used to draw the flows in these systems are generally accepted concepts from physical, human, regional geography, as well as from tourism geography. They are integrated in a scheme, considering transformities. Each transformation step the energy quantity decreases but its quality increases. As result, transformity is measuring the quality of energy. Tranformity is defined as the emergy of one kind (solar emergy) necessary to produce one unit of energy of another kind (Odum, et al., 2001) and it comes as a multiplication coefficient calculated, in its original version, by dividing the total emergy input to the energy/mass content. For emergy / mass ratios, the transformity is named specific emergy. There are over ten methods of calculating transformities (see Odum, 1996, pag. 304) and they are noted as appropriate unit emergy values (UEV) expressed as seJ/J or seJ/g - references: Odum, 1996, 2000, Brown & Ulgiati, 2010, Mellino, 2014, Buenfil, 2001, Pulselli et al., 2008. In this paper, the system’s emergy input values were obtained by using already calculated transfomities for each renewable, non-renewable and economic inputs (see column 7 – UEV references – for each emergy evaluation table). As for the outputs, the transformity was obtained by dividing the total emergy input in the system to the energy / mass value of each individual output flow. According to thermodynamic principles, the overall thermodynamic steady state of the system is preserved by equalling the input to the output in emergy terms.

For the tourism emergy a new UEV was developed, having in mind that the references to tourism items were conceived mostly for island ecotourism (Siche, Agostino & Ortega, 2010, Lei et al, 2011) or coastal tourism (Vasallo et al, 2009, Lei & Wang, 2008). Nevertheless, values for tourism sub-system were added as studies started to focus on ecotourism sustainability issues and island methabolism. The present case, Ocna Sugatag resort was assessed with a transformity calculated based on emergy / money ratio for Romania in the year 2008. The more energy transformation needed in order to obtain that
flow, product or service, the higher the transformity / specific emergy will be. Goods and services delivered to societies directly or indirectly need large quantities of emergy to be produced. Therefore, their transformity / specific emergy will be high, although their energy content is low.

Spatial distribution of emergy commonly uses the hectare as a surface area unit of reference. In this paper, the emergy distribution is expressed in emJoules and is represented spatially on hectares. Following the range of energy transformations within a network, the emergy necessary for the activation of a superior process will carry the emergetic signature (information) of all past processes. As result, a set of hotspot and contour maps was conceived (see fig.....).

Emergy system evaluation procedure is communicated with specific language and diagram requirements; the present study is using Odum’s guidelines (2000). For tourism activities there are items at export of services and import of resources. The present study tried to outline the specificity of this balance.

Quantifying an energy system raises questions related to the appropriate data to introduce in the item list and what is the most appropriate method to quantify tourism in a small region or resort. For the tourism statistics Eurostat defined the features of data collection and treatment procedures, but at national level there is a strong discrepancy between data and terrain. In order to maintain the scientific relevance of the study, only official data were treated, derived from INSSE tempo-online time series on Labour force, Population and its demographic structure and Tourism (2016).

3. STUDY AREA

The EmA analysis was oriented towards two systems at different scales: the Mara-Cosau River basin and Ocna Sugatag tourist resort. A watershed, naturally delimited morpho-hydrographical system, allows a coherent approach on emergy synthesis and a relevant selection of items. The available data on socio-economic elements is perfectly overlapped with the natural system, due to historical aspects - in Maramures Land the administrative units are forged on valleys; the boundaries are the limits of the watersheds (Ilies, 2007).

Mara Basin is a third order, medium scale, 41.000 ha watershed, tributary to the river Iza, a main contributor to the Tisza River, on its Romanian side. Cosau River is the main right branch; therefore regional geography studies name the system Mara-Cosau basin (fig.1). As socio-economic system it has 14.754 inhabitants (INS, 2016) living in 15 villages of five communalities. The region was designated the first Romanian ecotourism destination, given the fact that there are Natura 2000 protected areas (along with local and regional natural reserves), a resort (Ocna Sugatag balneal resort), rural cultural tourism villages (Budesti, Sat-Sugatag, Mara, Breb etc).

The economy is based on agriculture, woodcraft and tourism. The area is located between two urban areas: Baia Mare (150.000 inhab.) county capital and Sighetu Marmatiei (40.000 inhab.) historic and sub - county level pole, and drained by national road DN18 and three county roads. Its position favored the development of the tourist activities. Tourist infrastructure is composed by 52 units with over 900 bed-places (according to national statistic system, counting the over 5 bed units, see Table 1), 16.000 overnights and 7500 arrivals in 2014 (INS, 2016). Still, this area is considered as periphery and at-risk.
Ocna Sugatag tourist resort is relevant for the EmA due to its particular emergy flows. Its main resource is the salt water originating from the former salt mines, exploited here since Antiquity, using wells and saltwater springs. As system it has the usual tourism services and balneal services capitalising on local availabilities, making the analysis pertinent for illustrating the integrated approach of the emergy flows in human-natural systems.

Ocna Sugatag is a local and regional interest resort (fig.1). The commune is among the largest in Maramures County, both in surface and population (4230 inhabitants in 2014). During the last century it had an important polarising role in the economic life of the region, even after the salt mines were compromised and the extractive activity ceased. In the ’50s a national investment project started the development of the tourist resort in Ocna Sugatag, in an area now called the “Old baths”. Only treatment and bathing facilities were available. Therefore, tourist flows were more important on week-ends and during religious holidays. In 1970 “new baths” with accommodation and other services were organised, in another location in the village, near a natural forest reserve.

Tourism infrastructure consists in 30 accommodation facilities with over 800 bed-places (according to a field research, Ilies et al, 2012), counted by the statistical system as 354 (only those with over five beds account for capacity, and over ten beds for the overnights). Almost 10000 overnights and 5000 tourists in 2014 (see Table 1) count for 8%
occupancy rate and an average lengths of stay of 1.9 days, suggesting stronger week-end tourism than a real balneal one. The strong seasonality explains this statistics, in fact tourist products are 7-10 days for spa and 2-3 days for religious holidays and week-ends, and a 160 days/year working tourist season.

Table 1. *Tourism in Mara-Cosău area and Ocna Sugatag resort, at units with over 5 bed-places, in 2014*

<table>
<thead>
<tr>
<th>Structure (by type)</th>
<th>Units (no.)</th>
<th>Bed places (net no.)</th>
<th>Capacity in function (no. of places by operating days)</th>
<th>Arrivals (no.)</th>
<th>Overnights (no.)</th>
<th>Net rate of occupancy (%)</th>
<th>Average length of stay (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mara-Cosău Basin</td>
<td>52</td>
<td>952</td>
<td>154086</td>
<td>7500</td>
<td>16000</td>
<td>10%</td>
<td>2.1</td>
</tr>
<tr>
<td>Ocna Sugatag resort</td>
<td>30</td>
<td>354</td>
<td>128219</td>
<td>5148</td>
<td>9975</td>
<td>8%</td>
<td>1.9</td>
</tr>
</tbody>
</table>

(Sources: INSSE, 2016)

Salt water is exploited here in the usual ways: swimming pools (indoor and outdoor facilities) salt lake water front bathing and recreation, and spa. There are 10 exterior pools with 1200sqm, 9 interior pools with 515sqm, regulated at 2.5sqm for swimming persons (maximum carrying capacity of 700 places per day). The balneal feature is supported by several facilities’ grouping (fig.2). According to the local strategy, the resort is visited by 25000 tourists per year (Ilies et al, 2012).

4. EMERGY ASSESSMENT FOR TOURISM AND DISCUSSIONS

In order to demonstrate the viability of EmA method in integrated tourism geography research the analysis presents a double scaled approach with focus on tourism. Recent work associates it with tourism emergy (Lei et al, 2011). EmA for tourism or tourism emergy as theoretical concepts are falling within the framework of ecotourism tackling sustainability, ecological footprint, and energetic efficiency or on the side of impact studies. The tourism services as such and the tourism infrastructure as stock were introduced. Therefore, the indexes and the diagramming are forged for specific regions, with high insular features or well delimited, as systemic approach requires it. That is why other concepts in these case studies need to be better understood: peripherality and the mobility issues (Cho, 2013).

In order to apply the EmA method for the tourism system in a given area, the research needs to tackle several important steps:

1. Conceptualising variables involved in tourism,
2. Drawing the diagram of the system with specific language,
3. Quantification based on transformities UEV references and raw data on items,
4. Mapping and visualisation and
5. Analysis.
4.1 Emergy system language and diagram

The first step towards comprehensive emergy synthesis for any type of system is to draw a system diagram, incorporating the “Energy Systems’ language”, revised for emergy studies by H.T. Odum (2000). Considering the complexity and abundant typology of variables, especially at macro scale, the diagram conceptualises the system under investigation in a qualitative manner. Therefore, the diagram shows the most relevant variables that define the system’s structure and its basic functionality following a simple positioning logic.

![Diagram of Emergy System Language and Diagram for Ocna Sugatag Resort](image)

**Fig.2. Emergy system language and diagram for Ocna Sugatag resort**

The subsystem of Ocna Sugatag resort is a subsidiary of the diagram conceived for the entire Mara River Watershed (Bumbak, 2016). The subsystem boundary is marked by a transparent outline suggesting permeability on the basis of open system’s principle (Petrea, 2005). The flow of both natural and human made energy towards and within the system is represented by arrows pointed only in a left to right direction, suggesting the energetic intensity of the resource and the irreversibility of the process and thus respecting the first
laws of thermodynamics (fig.2). The inward flow of energy resulted from outer continuous and limited energy sources support the existence and functionality of the system.

The continuous natural sources of energy are classified as renewables, and are represented by the primordial energy coming from the Sun, and the derived natural energies of geothermal heat, wind and rainfall. The limited sources of energy flows resulted from human conversions of natural capital (minerals, fossil fuels, water or biological stocks) into products and services through an industrialized process cannot be found or produced inside the system. In the case of the Ocna Sugatag subsystem, this type of energy flow is composed of electricity, wood as thermal fuels, fuels, namely oil based products and gas, construction materials, machinery and equipment, foods, other goods and services.

With respect to the inner structure, the convergence of natural flows at geologic scale has shaped and built a sedimentary geological reservoir know under the name of Ocna Sugatag Anticline, a salt diapir dome, economically important due to the natural stock of salt minerals. The salt reservoir has been under dissolution by meteoric and ground waters, for at least 50 years, a process that has stopped exploitation of the salt mines and enforced a reconsideration of the local economy’s prospects.

The entire resort has been represented as a supra-structure with propensity towards an agricultural and tourism related economy. The housing infrastructure is supplemented by tourist accommodation infrastructure comprising hotels, rural pensions and camping sites. The tourism activities are centred on balneal facilities that use the brine extracted from the former salt mines as available non-renewable local resource.

The convergence of natural and human made energies along with the flux of people and tourists trigger complex processes that shape the landscape of the system (natural or human induced erosion, salt dissolution, the dynamics of the housing infrastructure etc.).

4.2 Emergy flows to express performance indicators

The second step of the evaluation procedure is represented by the actual quantification of all energy flows that define the system in order to express a series of performance indicators. In this study, the results are compared with the ones obtained for the entire Mara River Watershed for the same year – 2014, using similarly defined table structure.

The performance indicators are useful in defining systems typology in accordance to their overall capacity to produce outflows (goods and services) that can generate work to neighbouring systems or in the hierarchically superior system. The emergy sustainability index identifies a triple system’s approach. Consumer systems depend totally on other systems to survive and are characterized by values under 1 that underline the system’s unsustainability. Producer systems have the ability to generate net contributions to society and are characterized by values above 1. The third category is represented by transitional systems, with values close to 1. In these types of systems, the natural component represents the producer whereas the human component represents the consumer. Typically, low intensity, rural areas with vast administrative lands fall into this category.

The Ocna Sugatag resort is sustained by an annual 1.16E+19 seJ amount of emergy that does work inside the system, being constituted mainly from imported human made energy (see Table.2). The subsystem depends heavily on electricity, construction materials and wood used for heating purposes. In the absence of a connection to a centralized gas
distribution system, the owners of tourism units must heat the building using wood. The natural energy flow count little in the subsystem’s functionality, as the delineation of the system was made on the limits of village’s build perimeter. The natural flows are irreplaceable though, as no system could survive or exist in their absence. The data interpretation suggests that the subsystem fall into the typology of consumer systems. This aspect is emphasized by the emergy sustainability index that for Ocna Sugatag registers a value of 0.004. In order to become a producer, the system must register a value above 1 for this indicator. The number reflects the total dependence on foreign energy sources in order to function. The tourism activity as exported services doesn’t influence the economical balance, the total emergy revenue from tourism adding up to just 2.28E+18 seJ/yr.

<table>
<thead>
<tr>
<th>item</th>
<th>units/yr</th>
<th>raw data</th>
<th>UEV</th>
<th>UEV units</th>
<th>UEV reference</th>
<th>emergy</th>
<th>Ocna Sugatag</th>
<th>Ocna Sugatag (unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RENEWABLE ENERGY FLOW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>solar</td>
<td>5yr</td>
<td>2.21E+15</td>
<td>1.08E+00</td>
<td>sq/m²</td>
<td>Odem, 1996</td>
<td>2.21E+15</td>
<td>4.29E+02</td>
<td></td>
</tr>
<tr>
<td>2 personal heat</td>
<td>5yr</td>
<td>1.77E+12</td>
<td>2.00E+04</td>
<td>sq/m²</td>
<td>Brown &amp; Ulagan, 2010</td>
<td>2.50E+16</td>
<td>6.30E+03</td>
<td></td>
</tr>
<tr>
<td>3 wind (kinetic energy)</td>
<td>5yr</td>
<td>1.84E+11</td>
<td>1.58E+05</td>
<td>sq/m²</td>
<td>Brown &amp; Ulagan, 2013</td>
<td>2.34E+14</td>
<td>5.74E+01</td>
<td></td>
</tr>
<tr>
<td>4 rainfall (chemical potential)</td>
<td>5yr</td>
<td>1.38E+12</td>
<td>6.30E+05</td>
<td>sq/m²</td>
<td>Brown &amp; Ulagan, 2013</td>
<td>8.31E+15</td>
<td>1.82E+03</td>
<td></td>
</tr>
<tr>
<td>5 rainfall (potential energy)</td>
<td>5yr</td>
<td>2.41E+12</td>
<td>1.70E+06</td>
<td>sq/m²</td>
<td>Odem, 2000</td>
<td>4.24E+16</td>
<td>8.28E+05</td>
<td></td>
</tr>
<tr>
<td>NON-RENEWABLE ENERGY FLOW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 organic matter (soil erosion)</td>
<td>5yr</td>
<td>5.15E+09</td>
<td>7.48E+04</td>
<td>sq/m²</td>
<td>Brown, 2001</td>
<td>3.81E+14</td>
<td>7.46E+01</td>
<td></td>
</tr>
<tr>
<td>7 salt (dissolved)</td>
<td>g/yr</td>
<td>1.30E+09</td>
<td>3.30E+00</td>
<td>sq/g</td>
<td>Odem, 1996</td>
<td>4.28E+15</td>
<td>8.36E+02</td>
<td></td>
</tr>
<tr>
<td>IMPORTED ENERGY FLOW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 fire wood</td>
<td>5yr</td>
<td>3.43E+14</td>
<td>4.11E+03</td>
<td>sq/m²</td>
<td>Medons, 2014</td>
<td>3.13E+18</td>
<td>2.96E+05</td>
<td></td>
</tr>
<tr>
<td>10 potable water - households</td>
<td>5yr</td>
<td>1.66E+12</td>
<td>2.27E+05</td>
<td>sq/m²</td>
<td>Brown &amp; Ulagan, 2001</td>
<td>2.16E+17</td>
<td>4.76E+04</td>
<td></td>
</tr>
<tr>
<td>11 potable water - tourist units</td>
<td>5yr</td>
<td>5.63E+11</td>
<td>2.37E+05</td>
<td>sq/m²</td>
<td>Brown &amp; Ulagan, 2001</td>
<td>2.37E+17</td>
<td>4.84E+04</td>
<td></td>
</tr>
<tr>
<td>12 electricity - households</td>
<td>5yr</td>
<td>1.95E+12</td>
<td>2.00E+05</td>
<td>sq/m²</td>
<td>Odem, 1996</td>
<td>3.92E+18</td>
<td>7.63E+05</td>
<td></td>
</tr>
<tr>
<td>13 electricity - tourist units</td>
<td>5yr</td>
<td>6.97E+11</td>
<td>2.00E+05</td>
<td>sq/m²</td>
<td>Odem, 1996</td>
<td>1.39E+18</td>
<td>2.74E+04</td>
<td></td>
</tr>
<tr>
<td>14 bottled gas - households</td>
<td>5yr</td>
<td>3.50E+12</td>
<td>1.70E+05</td>
<td>sq/m²</td>
<td>Brown &amp; Ulagan, 2010</td>
<td>6.65E+17</td>
<td>1.48E+05</td>
<td></td>
</tr>
<tr>
<td>15 bottled gas - tourist units</td>
<td>5yr</td>
<td>1.24E+11</td>
<td>1.70E+05</td>
<td>sq/m²</td>
<td>Brown &amp; Ulagan, 2014</td>
<td>2.15E+16</td>
<td>4.10E+03</td>
<td></td>
</tr>
<tr>
<td>16 fuels - petrol (45%)</td>
<td>5yr</td>
<td>3.32E+12</td>
<td>1.87E+05</td>
<td>sq/m²</td>
<td>Brown &amp; Ulagan, 2010</td>
<td>6.23E+17</td>
<td>1.21E+05</td>
<td></td>
</tr>
<tr>
<td>17 fuels - diesel oil (55%)</td>
<td>5yr</td>
<td>3.81E+12</td>
<td>1.81E+05</td>
<td>sq/m²</td>
<td>Brown &amp; Ulagan, 2010</td>
<td>6.89E+17</td>
<td>1.34E+05</td>
<td></td>
</tr>
<tr>
<td>18 construction materials</td>
<td>g/yr</td>
<td>2.41E+09</td>
<td>2.66E+09</td>
<td>sq/g</td>
<td>Paladini et al., 2007</td>
<td>6.39E+18</td>
<td>1.26E+06</td>
<td></td>
</tr>
<tr>
<td>19 vehicles / equipments</td>
<td>g/yr</td>
<td>1.61E+09</td>
<td>4.31E+09</td>
<td>sq/g</td>
<td>Medons, 2014</td>
<td>1.06E+17</td>
<td>2.07E+04</td>
<td></td>
</tr>
<tr>
<td>20 foods</td>
<td>g/yr</td>
<td>1.39E+09</td>
<td>2.54E+09</td>
<td>sq/g</td>
<td>Medons, 2014</td>
<td>3.53E+18</td>
<td>6.82E+05</td>
<td></td>
</tr>
<tr>
<td>21 foods as services for tourism</td>
<td>g/yr</td>
<td>3.05E+07</td>
<td>2.54E+09</td>
<td>sq/g</td>
<td>Medons, 2014</td>
<td>7.74E+16</td>
<td>1.51E+04</td>
<td></td>
</tr>
<tr>
<td>TOTAL FLOW</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>22 services associated with imports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 services from tourism (night)</td>
<td>5yr</td>
<td>1.57E+12</td>
<td>1.72E+12</td>
<td>sq/m²</td>
<td>our estimation</td>
<td>1.00E+19</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>24 services from tourism (nourishment)</td>
<td>5yr</td>
<td>2.40E+12</td>
<td>3.12E+12</td>
<td>sq/m²</td>
<td>our estimation</td>
<td>1.27E+19</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>25 services from bathing facilities</td>
<td>5yr</td>
<td>6.92E+12</td>
<td>5.12E+12</td>
<td>sq/m²</td>
<td>our estimation</td>
<td>3.21E+19</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>26 EXPORTED ENERGY FLOW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 tourism</td>
<td>5yr</td>
<td>2.50E+06</td>
<td>4.50E+12</td>
<td>sq/m²</td>
<td>our estimation</td>
<td>1.16E+19</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Flows of energy and associated energy in the Ocna Sugatag resort sub-system in the year 2014

For raw data sources and calculations – see table 1

** 5.12E+12 sq/m² - transformally calculated based on emergy (energy/money ratio (Emergy/GDP) for Romania in the year 2008


Lower local initiatives that could extend the benefits generated by the balneal tourism cluster and build a more self-sustained local economy can partially be explained by the Emergy yield ratio indicator. For Ocna Sugatag, the coefficient is around 1.005, suggesting that all emergy converging to the subsystem is used to sustain it, and is not invested to exploit locally available resources.

As the limits of the system were superimposed on the build perimeter of the village, the environmental loading ratio registers a coefficient of 203.8, a number representative especially for dense urban environments or for those environments which are disproportionate towards the natural capital. This decision influenced greatly the coefficient obtained on another two indicators (emergy/area ratio and emergy/capita ratio), totally...
Emergy assessment as prospective research method in Tourism Geography

dependent on the area of the system under investigation, which are only reliable in this case for the Mara River System (fig.4).

Fig.3. Comparison on shares of Emergy flows in the Mara Watershed and Ocna Sugatag resort

In comparison, the total emergy quantity supporting the Mara River Watershed rises up to 1.64E+20 seJ/yr (see Table.3). In contrary to the Ocna Sugatag subsystem, the natural renewable flow contributes greatly to the functionality and sustainability of the system by up to 56%, with a renewable emergy flow totalizing 5.89E+19 seJ/yr. This aspect supports quantitatively the premises for a predominantly natural, preserved landscape. The numbers are influenced by the extension of the basin (41,000 hectares) with medium sized, rural habitational clusters concentrated on the valleys of the two rivers. The rainfall geopotential energy and the geothermal energy constitute about 95% of the natural emergy influencing the system. The rural character of the Mara River Watershed is pointed out by the amount of emergy coming from imported sources. As in the case of Ocna Sugatag subsystem, the Mara River Watershed can be characterized as a consumer system, an aspect emphasized by the emergy sustainability index that registers a value of 0.84.

The amount of 1.05E+20 seJ/yr associated with imports that overcomes the natural flows is typical for moderately dense rural territories that are dependent on outside energy sources in order to operate. The emergy yield ratio coefficient of 1.56 confirms the above statement but also suggest that part of the emergy converging to the system is used in the exploitation of local resources, mainly forestry.
The data suggests that high amounts of emergy are associated to the imports of construction materials and foods in a region labelled with having an agro-pastoral economy, a fact that emphasizes the low efficiency of the Mara River System (fig.4). Also, for a territory belonging to a region renowned world-wide for its wooden architecture, the high amount of imported construction material explains quantitatively the architectural paradigm shift and preferences observed on field with respect to architectural styles, construction method and materials. This objective can be reached by diversifying the export offer and thus increasing the possibility to produce enough to reduce the pressure on outside sources and adding value to the territory. Proper exports mean a decrease in transformity associated to export and, according to Lotka’s Maximum Power Principle (Lotka, 1922), the system becomes more efficient. For a more independent community / communities, the numbers associated to imports must decrease.

<table>
<thead>
<tr>
<th>SET</th>
<th>ITEM</th>
<th>UNITS/YR</th>
<th>OCNA SUGATAG SUBSYSTEM</th>
<th>MARA WATERSHED SYSTEM</th>
<th>EMERGENCY YIELD RATIO EYR = TOTAL/I</th>
<th>ENVIRONMENTAL LOADING RATIO ELR = (N+I)/R</th>
<th>EMERGENCY SUSTAINABILITY INDEX ESI = EYR/ELR</th>
<th>EMERGENCE DENSITY TOTAL/AREA (HA)</th>
<th>EMERGENCY PER CAPITA E/K = TOTAL/INHABITANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Solar</td>
<td>L/YR</td>
<td>1.47E+18</td>
<td>1.00E+00</td>
<td>1.96E+17</td>
<td>2.04E+02</td>
<td>4.93E-03</td>
<td>2.93E+17</td>
<td>1.45E+16</td>
</tr>
<tr>
<td>2</td>
<td>Hydothermal heat</td>
<td>L/YR</td>
<td>1.17E+15</td>
<td>2.00E+04</td>
<td>1.96E+17</td>
<td>2.04E+02</td>
<td>4.93E-03</td>
<td>2.93E+17</td>
<td>1.45E+16</td>
</tr>
<tr>
<td>3</td>
<td>Wind (kinetic energy)</td>
<td>L/YR</td>
<td>1.24E+14</td>
<td>1.58E+03</td>
<td>1.96E+17</td>
<td>2.04E+02</td>
<td>4.93E-03</td>
<td>2.93E+17</td>
<td>1.45E+16</td>
</tr>
<tr>
<td>4</td>
<td>Rainfall (chemical potential)</td>
<td>L/YR</td>
<td>1.61E+15</td>
<td>1.76E+04</td>
<td>1.96E+17</td>
<td>2.04E+02</td>
<td>4.93E-03</td>
<td>2.93E+17</td>
<td>1.45E+16</td>
</tr>
<tr>
<td>5</td>
<td>Rainfall (geopotential energy)</td>
<td>L/YR</td>
<td>1.61E+15</td>
<td>1.76E+04</td>
<td>1.96E+17</td>
<td>2.04E+02</td>
<td>4.93E-03</td>
<td>2.93E+17</td>
<td>1.45E+16</td>
</tr>
<tr>
<td>6</td>
<td>Organic matter (sedimentary)</td>
<td>L/YR</td>
<td>3.41E+12</td>
<td>7.40E+04</td>
<td>1.96E+17</td>
<td>2.04E+02</td>
<td>4.93E-03</td>
<td>2.93E+17</td>
<td>1.45E+16</td>
</tr>
<tr>
<td>7</td>
<td>Soil (dissolved)</td>
<td>g/YR</td>
<td>1.30E+09</td>
<td>3.50E+06</td>
<td>1.96E+17</td>
<td>2.04E+02</td>
<td>4.93E-03</td>
<td>2.93E+17</td>
<td>1.45E+16</td>
</tr>
</tbody>
</table>

Table 4. Performance indicators
Despite economic challenges, the Mara River System scores moderate and high values for the following indicators, emergy per area and emergy per capita, with coefficients of 4.00E+15 and 1.11E+16 respectively (see Table 4). Lower to moderate emergy per area values are characteristic for rural spaces that enjoy a high degree of natural background. The results of this indicator are pertinent, as the region was selected for the implementation of the first Natura 2000 sites in the country, an aspect already mentioned above and that contributes to the overall attractiveness of the area for tourism. For Mara River Watershed, the emergy per capita expresses the natural wealth that the inhabitants enjoy. This indicator is on an ascending trend, considering the trend of decreased demographical pressure in the region.

Fig. 4. Representation of Renewable, Imported and Exported flows of Emergy in the Mara Watershed and Ocna Șugatag resort

5. CONCLUSIONS

Emergy assessment (EmA) could be a viable method for integrated geography research, when the main features of the systems analysed are clearly defined. Spatially contingent models work better in applied studies, as tourism emergy for a larger scale system. GIS tools and statistical data treatment for the given area enhance the understanding of a territorial system, but the quantifying procedures are crucial. Transformities are considered the key to this nexus; the existent references need to be adjusted to the features
of the analysed systems, due to the prevalence of the researchers for well-delineated and relatively isolated or peripheral regions.

The main contribution of the study relates in the ability of using an integrated assessment method grounded in the theoretical paradigm of energy systems, in order to quantify flows of energy and matter using a common denominator that can portrait the typology and functionality of a given research area. The data analysed above for the Mara River Watershed and Ocna Sugatag resort suggests that the areas under investigation fall into the consumer system typology. High amounts of energy are associated to the imports of construction materials and foods in a region labelled with having an agro-pastoral economy and agro-forestry economy. The economic prospects are seconded by moderate rural tourism and balneal tourism services, developed at a scale that still doesn’t impact the systems via exported services and revenues. This fact emphasizes the low efficiency of the Mara River and Ocna Sugatag systems (see Table 4). Tourism emergy assessment opens several perspectives for integrated geographical research: the value of tourism activities’ spatial patterns with broader view on specific data, the tourism infrastructure location factors cross-disciplinary approach and indexing, attractions and attractivity indexes, interlocking hard and soft elements.

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HOUSING SATISFACTION IN A POST-SOCIALIST CITY: A CASE STUDY ON TIMIȘOARA (ROMANIA)

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Abstract: There are many inequalities and inequities in health status both at local level and at the level of social groups. Several methods are used for the evaluation of the differences in health status between groups and the terminology can be confusing. This study aims to highlight the spatial inequalities within health status and to overview the main responsible determinants. The analysis of health status in Ialomița county was assessed by using the well-recognized health indicators such as general and specific mortality, general and specific morbidity. In order to analyze these indicators in a comparative and dynamic perspective, multiannual rates were calculated for the periods 1990-2012 and 2008-2012. The results emphasize many territorial differences within the county, ageing being one of the main factors, together with social and economic determinants. The outcome can be useful for future researches, but also for health policies and health funds orientation.

Keywords: population health, health indicators, health inequalities, Ialomița county, Romania

1. INTRODUCTION

Housing satisfaction is a theme for trans-disciplinary study.

For urban sociology, housing satisfaction represents a component of life quality and simultaneously an important condition of social, community construction, as the positive perception of housing is considered essential for the longevity and power of the community (Simard 2000), which are highly interesting aspects in the context of the decline of the community spirit experienced by post-industrial societies.

Urban planners regard housing satisfaction as an indicator which certifies the practical value of the various urban forms they create.

Housing satisfaction is thus considered an indicator of the global quality of neighbourhood life (Parkes et al. 2002). At the same time, if approached analytically and causally, housing satisfaction enables us to discover the requirements of residents in relation to the work of urban planners, who otherwise tend to impose their own functional conceptions and technical solutions.

Geographers analyze housing satisfaction in the research context of subjective geography, also known as humanistic geography or phenomenological geography.

Appeared in the mid-1970s, as a reaction to Marxist geography, which favoured homo oeconomicus (determined by class relations), and to theoretical geography, which favoured homo rationalis (determined by spatial behaviour dictated by an objective analysis
of spatial coordinates), subjective geography stresses human values and beliefs which
determine human actions and behaviours (Pinchemel, 1992) circumscribed to a certain area.

Subjective geography takes into consideration the human dimension of the territorial system development (Bailly and Scariati 1990), regarded as an ensemble of physical-geographical and anthropic components, among which a psychological component may also be identified – the behaviour of human groups – whose role is vital in the functionality and physiognomy of the territorial system.

Thus, subjective (behavioural, phenomenological) geography integrates the sociological approach, as it considers that housing satisfaction lies at the basis of social cohesion and ensures the residents’ role as responsible territorial actors (Di Méo 1998).

On the other hand, subjective geography integrates the urban planners’ analysis of housing satisfaction because the operationalization of the concept also refers to utilities and services pertaining to the physical environment, the built landscape (the neighbourhood).

Furthermore, geographers’ studies naturally include space in the analytical equation and offer, by means of charting, a valuable support for the foundation of urban development planning.

The scientific international literature of the three fields mentioned above is rich in studies on housing satisfaction.

In Romania, most of the analyses have focused on the evaluation of housing quality and on ensuring the right to housing respectively.

Starting from references to the ethical doctrines regarding minimal requirements (Alpopi 2007, Dan 2002, 2003, 2005, 2003), these studies provide generalizing statistical approaches, on a national scale – or regional at most – of the various indicators concerning the physical conditions of the accommodation and access to housing, emphasizing the wide range of actions that national certified authorities can take in this respect.

In Romania housing represents a critical field, as studies highlight insufficient access of the rural population to housing utilities, as well as there being an important segment of the urban population that does not have access to utilities (Alpopi, 2007:77). Thus, about 80% of the rural population has no access to water, sewage and gas.

As for urban housing, problems pertain to:

- The moral usage specific to a large part of the housing fund, of which 97% is private property, with no prospects of rehabilitation in the near future, given the critical financial situation of the population majority; thus, 26% of the urban accommodation have roof and wall leaks; 42% show wall, floor or foundation dampness; about 50% have faulty window frames, walls or flooring (INSSE, 2013).
- A significant decrease in the rhythm of accommodation construction from public funds (Table 1), which drastically affects the young population’s access to housing (Alpopi 2007:79). This is a major problem in Romania, where 96.7% of the young live together with their parents, and the household crowding index is among the highest in the EU (58.3% of Romanian households are overcrowded, as opposed to the average 18% for the EU); also, the average number of rooms is 0.9/household member, as opposed to the EU average of 1.6/household member (Vâlceanu and Tămîrjan 2011).

Table 1. Evolution of newly constructed housing, depending on the financing source
For the biggest cities in Romania, which compete for investors and university-trained adult migration waves, there appears the issue of providing quality housing.

In this context, the study of housing satisfaction must become an important theme for the local authorities of these regional urban poles, as they represent an adequate foundation for urban development programmes and for policies to ensure attractiveness for future demographic waves.

The present study deals with such a regional pole and, starting from clarifying the concept of housing satisfaction and from its methodological paradigm, as they are outlined in the scientific international literature, it aims to carry out a microscale analysis with the purpose of highlighting and explaining the contingent particularities in relation to the examples from the literature.

2. HOUSING SATISFACTION:
CONCEPTUAL AND METHODOLOGICAL CLARIFICATIONS

The concept of housing has a semantic field that includes accommodation, but is not limited to it. Housing refers to the action of inhabiting a space and is resulted from the biunivocal relationships created between subject – individual, community – and the environment, which, in its turn, is not only regarded from a physical perspective (Zahariade 2006, Noica 2003).

Therefore, reducing housing to accommodation is inaccurate.

Housing is a relatively stable human settlement, in a planned urban environment, meant for the satisfaction of the material and spiritual needs of the individual and of human societies (Zahariade 2006).

Housing comprises the relationships developed by the individual on three levels: the first of the accommodation proper, the second of the immediate vicinity, and the third of the settlement as a whole.

Accommodation is defined as an ensemble of spaces meant for the protection and development, the fulfilment of human existence at the level of the family unit, as well as for enabling of the family’s relationships with the ensemble of social networks (Noica 2003).

Accommodation is usually analyzed from the perspective of physical characteristics (habitable area, relation between number of household members and habitable rooms, overcrowding) and of qualitative characteristics (technical urban utilities).

The immediate vicinity may be a neighbourhood, a smaller area, depending on the people’s lifestyle and on the community’s functionality – people may or may not have relationships of daily living together (Zahariade 2006). Vicinity corresponds to an island.
Housing satisfaction in a post socialist city: a case study on Timisoara-Romania

known in the vast urban space, where socializing takes place gradually and engenders the feeling of belonging which will be the basis for the positive relations with the city and society at large. A “shared experience” builds at this level, and it creates the feeling of belonging to a group on a certain area. It can transform the space into place and give one the feeling of being at home in a certain part of the city (Di Méo 1998).

The settlement, particularly the city, corresponds to the entire urban tissue, a term that was borrowed, by analogy with the biological tissue, in order to suggest the solidarity between its elements and its power of adaptability. The urban tissue is resulted from the overlapping of three ensembles: the street network, the plot pattern, the building pattern, the banal and the exceptional, the monumental armature of the city (Panerai et al. 2009).

Housing thus involves three levels with their scaling, structural and functional characteristics.


Physical factors regard the furnishing and type of accommodation, the type of neighbourhood (size, density, heterogeneity), the condition of the built landscape (streets, buildings), utilities and services.

Environmental factors focus on the quality of environmental elements (air, water, vegetation, noise), as well as on the aesthetic components of the built landscape (an environmental behaviour approach) (Matei 2007).

Social factors deal with issues related to the social networks and the social capital, defined as a set of information, norms and values shared at the neighbourhood community level), to which are added such aspects as: security, community spirit, neighbourhood events and life, the feeling of belonging, choice of involvement, shared emotional relationships, neighbourhood loyalty.

Analyses particularly start from the statistical recordings concerning certain physical and environmental housing characteristics (as mentioned above), namely such independent socio-economic variables as: age, income level, accommodation ownership, ethnic group, race; such analyses apply statistical models to highlight correlations between these variables and the level of housing satisfaction (Parkes et al. 2002).

Conclusions are very varied and geographically circumscribed, the authors emphasizing the difficulty in highlighting some very general regulations.

For example, the analysis regarding the existence of an absolute positive correlation between the mixed social character of the neighbourhood and the degree of housing satisfaction brought forth a wide range of situations (Evans and Unsworth 2001, Dunse et al. 2013, Garde 2004, Parkes et al. 2002, Talen 1999):

• for people with high income, housing satisfaction appeared to be in strict relation to the income level (which provides ubiquitous access to goods and services), whereas the features of the immediate vicinity (neighbourhood), as well as social factors, are not important;

• for financially and economically underprivileged people, social factors concerning immediate vicinity and physical factors respectively are important; a lower satisfaction level is correlated with high density built areas and degraded neighbourhoods;
the period of living in the neighbourhood correlates positively with a high degree of satisfaction in the case of house owners in suburban type of neighbourhoods, and it correlates negatively in the case of tenants living in social apartments;

- access to public transport represents an insignificant correlation with housing satisfaction;
- urban services (including their characteristics, i.e. type, quantity, quality) present a significant correlation in this respect.

Another approach to housing satisfaction relies on detailed questionnaires and semistructured interviews administered by researchers who do not aim for exhaustive knowledge, but rather for an in-depth knowledge of the conditions that interfere with regard to housing satisfaction (Soaita 2013).

3. TYPES OF RESIDENTIAL SPACES AS A RESULT OF GEOGRAPHICAL AND HISTORICAL CONDITIONS OF THE CITY OF TIMIȘOARA

Timișoara has over 330,000 inhabitants and is presently the largest city in western Romania and the third largest in the country, the result of a seven-century old urban history.

At the same time, Timișoara is “the main entry gate to Romania from central and western Europe” (Popa and Junie 2000), as a result of its favourable position in the relational space of migration waves: the city represents a point of convergence for two European roads – E671 and E70 – and for 12 main railroads; it is located 570 km away from Bucharest, the capital of Romania, and less than 600 km away from 12 other European capital cities (Figure 1).
The current characteristics of the urban morphostructure and of the urban tissue in general may be explained by means of the geographical and historical evolution context (Munteanu, 2002).

The geographical location of Timişoara represented the principal urban planning factor, which determined the apparition and the continuity of its urban function and simultaneously had a major impact on the city’s morphostructure. Situated in a swamp area, in one of the few places where one could actually cross through, provided the citadel with a strategic role – military and then administrative ever since the early Middle Ages; all these functions were retained and developed by the various administrations that succeeded one another beginning with the 13th century and that maintained their regional headquarters in this settlement.

In the 18th century, swamp drainage enabled the building around the old city of some rural nuclei in order to valorise the agricultural potential of the fertile land and to ensure the economic basis of the city; this later conferred the city a multi-nuclear character. At the end of the 18th century, the city’s portfolio of functions was enriched by the addition of the commercial and economic ones, as the river traversing the city was canalized. Thus Timişoara became the main point of convergence for regional waves of resources and produce, which were subsequently redistributed towards the European market. There emerged a neighbourhood meant for commerce and manufacturing in the immediate vicinity of the hydrographic artery.

At the end of the 19th century, the citadel walls were demolished and there began a territorial expansion from the historical nucleus towards the surrounding rural nuclei, performed in the spirit of western European urbanism. Around the middle of the 20th
The rise to power of the communist regime in 1947 deeply marked the territorial development of the city, which knew a rapid, oversized growth of untraditional industrial branches. Territorially, the socialist urban development consisted in the occupation of the free spaces within the urban tissue with industrial platforms and residential neighbourhoods for workers (Munteanu 2002).

The 1989 fall of the communist regime brought the city back to spontaneous development, in relation to its actual functional necessities, by reinstituting natural relations with its own hinterland and by developing such processes as territorial expansion, suburbanization, gentrification, reurbanization.

The current classification of residential spaces in the city of Timișoara sums up all these developments (Opris 1987, Munteanu 2002, Szekely 2009) (see Figure 2).

The 18th-19th century residential areas appear in several of the city’s neighbourhoods, featuring distinct peculiarities:

- The historical neighbourhood, the Citadel, features: high density of built landscape, narrow streets, with no street vegetation. The houses, built between the end of the 18th and the end of the 19th century, house several households; they are one- or two-floor high; they have patios, and baroque, neoclassical and eclectic façades, which is why they were included in large national heritage areas.

- The almost continuous fronts of residential buildings built along the boulevards that connect the historical nucleus to the peripheral nuclei contain buildings built in the latter half of the 19th century (Foto 1) and beginning of the 20th century (Foto 2); they are several stories high and have commercial establishments on the ground floor. Similar to the buildings from the Citadel, degradation is rather advanced, and only isolated cases of gentrification may be observed.

- The large-sized palace ensembles, built in the first years of the 20th century in the Secession style and meant for the bourgeois families concentrated in the city centre (Foto 3) (currently the Opera Square), in the immediate vicinity of the city centre and of the hydrographic axis respectively. Nowadays, in the context of the punctual improvement of the overall appearance of historical buildings by implementing projects for the rehabilitation of the façades, and in the context of the recent defining of some public-private partnership financing mechanisms, a timid gentrification may be noticed within these three types of areas.
The rural-looking residential areas (the former villages that merged with the city in the 20th century) developed extensively; they display a generally orderly structure, low density of built landscape; they include single-family housing, large plots, and gardens. They experienced an early gentrification, beginning with the mid-1990s, as their population decreased (through natural erosion or migration). The process has recently become more evident, as the inconveniences of suburban communes housing, with neighbourhoods lacking urban infrastructure prevailed. Thus, part of the migration waves once meant for the suburban communes settled in the peripheral residential neighbourhoods, a process that some geographers call reurbanization.

The residential areas of the inter-war period developed in the interstitial areas between the Citadel neighbourhood and the peripheral neighbourhoods; they include one- or two-floor high single-family housing in neo-Romanian style, namely cubist, the overall
appearance of these areas being that of a garden-city. Mostly inhabited by pensioners, they require rehabilitation work. In the areas from the immediate vicinity of the city’s civic centre, there emerges a special type of gentrification, as Roma ethnics, who have grown rich in western European countries after 1989, have purchased a large number of buildings. It is still an ongoing process through a sort of ethnic self-segregation, as the Roma force the current residents to sell them the accommodation. Until recently, the buildings purchased by the Roma have been renovated according to a hard-to-place architectural style, theatrical par excellence, with neoclassical influences: big symmetric volumes, rich ornamentation of both façades and interiors, monumental stairs (Foto 4). Recently, the City Hall’s urban planning service has managed to enforce the preservation of the architectural style of these neighbourhoods.

The communist residential areas include multi-family residential buildings constructed from pre-fabricated concrete panels (the so-called blocks of flats); they are simple standard buildings, with minimal housing facilities and no concern for comfort, security or aesthetics. The communist neighbourhoods of blocks of flats were characterized by high density built landscape, inexistent or undersized green spaces, playgrounds and leisure spaces, low access to public transport, undersized streets and parking facilities (Foto 5). Presently, it is estimated that about 20% of the four-floor communist blocks of flats benefited from the thermal rehabilitation programme started in Timişoara in 2008, which improved their overall appearance (Foto 6). The situation of the ten-floor blocks of flats is, by contrast, still critical because of the too high costs of rehabilitation and maintenance.

Recently built residential areas (after 1989)

After 1989, but especially beginning with the mid-1990s, residential dynamics has been intense, as a reaction to the restrictions on housing during the communist regime. It manifested especially through individual actions and constructions or renovations on one’s own, which led to gentrification in the city’s neighbourhoods and to suburbanization in the contiguous communes respectively.

During 2005-2008, the period of economic growth intensified the suburbanization process; in the communes around cities people built intensely and chaotically, in the absence of coherent urban planning and zoning; new neighbourhoods appeared on the periphery of suburban communes, with no technical and urban infrastructure, no street network or service areas (Foto 7). During the same period, the first new multi-family residential building areas appeared both at the periphery (Foto 8) or inside the city (urban regeneration) and in the contiguous communes.

The city of Timişoara is therefore characterized by a wide diversity of housing spaces which can respond to the various needs of potential residents at various stages in their professional and/or family life.
4. OBJECTIVES, WORKING HYPOTHESES, METHODOLOGY

The present study aims to investigate the general degree of housing satisfaction in the city of Timişoara, an important aspect for ensuring city attractiveness at national and international levels, which is a desideratum stated and assumed by local authorities in the Integrated Urban Development Plan of Timişoara.

In the specific context of Timişoara, a post-socialist city in transition, left behind in comparison with the evolutions of western European cities, like most of the post-socialist cities (Scarpaci 2000), we formulate the hypothesis that the majority of residents will declare themselves as dissatisfied.

Aiming to identify the main domains where authorities should intervene and their order in importance, we shall investigate the degree of satisfaction in relation to four dimensions of housing made operational as follows: the urban landscape, the ecological dimension, the social dimension, the functionality and urban servicing dimension.

As concerns these aspects, we formulate the hypothesis that the urban functionality dimension will prevail as the domain where residents say they are the most dissatisfied, in the specific evolution context for the city of Timişoara, for which the 50-year communist regime materialized in neglect of aesthetic aspects, undersized urban services and utilities, while the post-socialist evolution was unregulated at the beginning of the transition period. Furthermore, we hypothesize that the social dimension will register the highest degree of satisfaction, a result that brings together several considerations:

- the dynamic character of the social content of Timişoara neighbourhoods, where a significant proportion of the accommodation is meant for renting (mostly fiscally unregulated); in this case, a large part of the respondents – for whom the current accommodation is only a stage of variable duration within their long-term residential strategy – are actually not interested in their social insertion within the neighbourhood;
- the priority given to functionality and urban servicing may lead to indifference towards the social dimension (“I am not interested in this aspect” type of answers);
- the specific evolution context of the Romanian urban society: in a first stage, the intensive urbanization during communist industrialization transformed overnight village residents into city residents, while the communist blocks of flats became genuine vertical villages; after 1989, Romanian society in general, and first of all the urban one, underwent a modernization process: in an increasingly competitive environment, the resident of the large Romanian city focuses on himself and the restricted circle of his family and group of friends, gradually losing his availability and interest in relationships imposed by spatial proximity. (Post-industrialist societies, which have confronted alienation for longer periods of time, have already passed to another stage, namely that of the reconstruction of community solidarity (Simard 2000).)

The third objective of this study concerns the possibility of establishing a profile of the people satisfied with housing in Timişoara.

To this end, we investigate the associations between the general degree of housing satisfaction and the respondents’ social characteristics, where independent variables are considered to be: age, gender, education level.

Hypothetically, taking into consideration the attractive character of the city in relation to training and professional insertion needs, and the male predomination within
internal migration, we put forth the hypothesis that men between the ages of 25 and 45 are likely to be the most satisfied; to them may be added the extreme segments of respondents, the youth of up to 25 years of age and the senior citizens of over 65 years of age respectively.

The fourth objective of the current study deals with the investigation into the existence of a connection between the morphostructural characteristics of neighbourhoods (as they were highlighted in the previous subchapter) and the general degree of housing satisfaction.

Compared to the hypothesis put forth by similar studies, according to which residents in houses are more likely to be satisfied than those living in blocks of flats (Parkes et al. 2002) in the case of Timişoara, for which the year 1989 was a spatial event, we contend that the most dissatisfied is a resident in a block of flats built before 1989, while the most satisfied is a resident in a neighbourhood of houses built after 1989.

The second major dimension of this study focuses on the perceptions that residents have in relation to housing. These are influenced by the residents’ direct housing experience, as well as by the information regarding housing and housing standards in similar spaces.

Starting from the investigation into perception, we can identify what makes people satisfied or dissatisfied in relation to housing, which are useful elements for the authorities’ undertakings at intra-urban level, given that the spatial dimension is introduced in the analysis of housing satisfaction.

The investigation into perception of housing space is performed by means of formulating open-ended questions regarding the problems/qualities of the neighbourhood where respondents live and the elements that would be taken into consideration in the case of a house movement.

Given that at the level of the city of Timişoara there is no such instrument as city survey that would facilitate a broad and representative study, the present study represents a pilot study and it rests on the application of questionnaires to a convenience sample of 137 persons.

5. FINDINGS AND DISCUSSIONS

5.1 Evaluation of the general degree of housing satisfaction in the city of Timişoara

The hypothesis formulated in this respect – namely that the majority of respondents will be dissatisfied with housing in their neighbourhood – was disproved, as the majority of respondents (77.4%) said they were satisfied.

Investigating the association between affirmative answers and answers concerning satisfaction with own home and with the perception on neighbourhood problems respectively, we consider that neighbourhood satisfaction is very much influenced by the inferior level of housing – one’s accommodation – and the superior one respectively – the city. In the specific context of Timişoara, a city with a good position in the hierarchy of Romanian cities, traditionally positively valorized at the level of the Romanians’ collective mentality, where a large part of the Romanians would like to live, and which – together with the region of Banat – has long been seen as Romania’s California (Gavreliuc 2001), the
high percentage of housing satisfaction is explained differently for some subcategories of respondents, through the lens of some aspects connected to social psychology (Gavreliuc 2011):

- for those who were born in Timisoara – the feeling of belonging, of tophilia, is well developed as part of their family education; they are proud of living in “Little Vienna”;
- for those who have been living here for a few decades, since the intense industrialization period, satisfaction is determined by their recent ownership of their home, as a result of a financially advantageous law passed as reparation by the first post-socialist government;
- for those who have more or less recently settled into the city, after 1989, satisfaction is connected to reaching an important objective in their professional and personal life.

Independent variables associated with the degree of satisfaction

The testing of these associations aimed to investigate the capacity of various independent variables – gender, age, education level, ownership – to predetermine / influence the degree of housing satisfaction, as well as the testing of the possibility of outlining a profile of the resident satisfied or dissatisfied with housing in the city of Timisoara.

The associations investigated showed that three independent variables determine differences in the degree of satisfaction, without however their being considered significant from a statistical perspective: age, education level and ownership (Table 2).

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Total</th>
<th>affirmative answer</th>
<th>negative answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 - 25</td>
<td>93,3%</td>
<td>6,7%</td>
<td></td>
</tr>
<tr>
<td>26 - 35</td>
<td>65,4%</td>
<td>34,6%</td>
<td></td>
</tr>
<tr>
<td>36 - 45</td>
<td>73,8%</td>
<td>26,2%</td>
<td></td>
</tr>
<tr>
<td>peste 45</td>
<td>76,9%</td>
<td>23,1%</td>
<td></td>
</tr>
<tr>
<td>education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>gymnasium</td>
<td>70,0%</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>highschool</td>
<td>86,1%</td>
<td>13,9%</td>
<td></td>
</tr>
<tr>
<td>university</td>
<td>76,4%</td>
<td>23,6%</td>
<td></td>
</tr>
<tr>
<td>ownership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>owner</td>
<td>74,2%</td>
<td>25,8%</td>
<td></td>
</tr>
<tr>
<td>tenant or other</td>
<td>84,1%</td>
<td>15,9%</td>
<td></td>
</tr>
<tr>
<td>gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>78,3%</td>
<td>21,7%</td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>77,5%</td>
<td>22,5%</td>
<td></td>
</tr>
<tr>
<td>type of accommodation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>block of flats</td>
<td>77,3%</td>
<td>22,6%</td>
<td></td>
</tr>
<tr>
<td>house</td>
<td>78%</td>
<td>22%</td>
<td></td>
</tr>
</tbody>
</table>

source: calculated data

The hypothesis related to the high number of satisfied respondents from the extreme segments of the sample is only partly confirmed: thus, the respondents from the group aged 16-25 gave a 93.3 per cent of affirmative answers regarding housing satisfaction. By contrast, the segment of respondents aged over 65 is situated at the average level of the entire sample.

Also, the hypothesis is disproved in relation to the middle age group, which is situated under average, as regards the percentage of satisfied respondents: although living in
Timişoara responds to current needs of training and employment, the majority of these respondents does not own the accommodation they live in and has an income level which does not allow for a high level of accommodation comfort.

As concerns the education level variable, the hypothesis is confirmed in the case of respondents with a medium education level, who are more satisfied in relation to the sample average (84.1% as opposed to 77.4%); but it is disproved in the case of highly educated respondents, for whom the percentage of affirmative answers are situated at the average level of the sample.

As for ownership of the accommodation, the hypothesis is disproved, with respondents who are owners showing a lower percentage of affirmative answers compared to the sample average, which highlights their higher level of expectations, especially since most of them do not plan to leave the neighbourhood.

The gender variable does not bring forth differences related to the percentage of male or female respondents, who say they are satisfied and dissatisfied respectively.

The fourth hypothesis, dealing with the differences in the degree of satisfaction in relation to the morphostructural type of neighbourhood, is disproved: the percentages of satisfied and dissatisfied respondents are almost identical, as regards respondents living in neighbourhoods of multiple family dwellings and of respondents living in neighbourhoods of single-family dwellings.

5.2 Evaluation of the degree of housing satisfaction according to the dimensions involved

In order to investigate satisfaction with each of the four dimensions of housing, respondents ranked, on a scale of 1 to 5, the degree of satisfaction in relation to the following aspects:
- the overall appearance of buildings, streets, built density – for the urban landscape dimension;
- the quality of the environment, green spaces and noise – for the environmental quality dimension;
- safety, characteristics of neighbourhood/community residents, neighbourhood life, efficiency of authorities, solidarity – for the social dimension;
- access to services, public transport, utilities, parking places, street lighting – for the functionality and urban servicing dimension.

By means of the ANOVA test, we analyzed the hierarchy of the dimensions of housing; the average of the urban landscape dimension (M=2.62) stands out from the averages for the other dimensions, which are almost equal, showing the lowest degree of satisfaction in relation to the appearance of the city.

Independent variables associated with the degree of housing satisfaction according to dimensions

First was tested the association between age and the degree of satisfaction with the dimensions of housing. A variant analysis was performed in order to determine whether the level of satisfaction with the dimensions under consideration differs according the age group which the respondent belongs to. As concerns the quality of environment dimension, the analysis showed a significant difference between the age groups (F(3.133)=3.53, p<0.05). The 16-25 age group show the highest degree of satisfaction (M=2.26, SD=0.70), followed by the over 45 age group (M=2.40, SD=1.03). The 36-45 age
group occupies a third place in the hierarchy of satisfaction with the environment (M=2.62, SD=0.92), while the age group the least satisfied with the quality of the environment is the 26-35 one (M=3.05, SD=1.21). A Post Hoc Scheffe analysis revealed that the degree of satisfaction of people aged between 16-25 is significantly different from the degree of satisfaction of the 26-35 age group. There were no significant differences between the other age groups. \( \eta^2 = 0.07 \) shows a very weak connection between VI and VD. In other words, satisfaction with the neighbourhood’s environment is only very little explained in relation to the “age” variable.

For the urban landscape dimension, ANOVA highlighted a significant difference between the considered age groups (F(3.133)=4.25, p<0.05). The people who are most satisfied with urban landscape belong to the 16-25 age group (M=2.30, SD=0.59). Then follow the age groups of over 45 (M=2.61, SD=0.84) and 36-45 (M=2.61, SD=0.67). The degree of satisfaction with the urban landscape is lower in the case of respondents aged between 26 and 35 (M=3.01, SD=0.84). In order to identify more precisely the source of this significant difference, we carried out a series of multiple comparisons between the VI levels. The Scheffe analyses showed that the significant difference is to be found between the 16-25 and 26-35 age groups. In other words, between these two age groups there is a significant difference in the degree of satisfaction with the urban landscape. No notable differences were registered between the other age groups. The ANOVA effect size \( \eta^2 = 0.08 \) shows that satisfaction with the urban landscape only very little depends on the respondent’s age.

The ANOVA analysis helped identify a significant difference (F(3.133)=4.04, p<0.05) between the age groups under consideration and the degree of satisfaction with social aspects of the neighbourhood. On a satisfaction scale of 1 (very satisfied) to 5 (very dissatisfied), the 16-25 age groups is situated at the value of M=2.11 (SD=0.63), while the over 45 age group at the value of M=2.34 (SD=0.65). Less satisfied with the neighbourhood’s social aspects are respondents form the 36-45 age group (M=2.48, SD=0.67) and the 26-35 age group (M=2.75, SD=0.88). Multiple Scheffe comparisons helped identify the significant difference between the 16-25 and 26-35 age groups. The people from the latter age group are less satisfied with the social aspects than the people from the 16-25 age group. The ANOVA effect size, \( \eta^2 = 0.08 \), identical to that of the urban landscape, shows that the degree of satisfaction with the neighbourhood’s social aspects is very little explained by the respondent’s age.

The satisfaction with utilities offered by the neighbourhood does not differ significantly between the considered age groups: F(3.133)=1.25, p=0.29.

We analyzed the association between the accommodation type and the degree of satisfaction with the dimensions of housing.

Test t was used to identify the differences which presumptively could have been the result of the respondent’s accommodation type (block of flats or house) in shaping his/her satisfaction with the quality of the neighbourhood’s environment. The difference observed between residents in a block of flats (M=2.70, SD=1.03) and residents in houses (M=2.24, SD=0.86) was a significant one: t(135)=2.45, p<0.05. We may thus state that the degree of satisfaction with quality of the environment is significantly higher for those living in a house as compared to those living in a block of flats. The effect size \( r^2 = 0.04 \) shows a rather weak connection between the two variables. A significant difference (t(135)=2.36, p<0.05) between residents in a house and residents in a block of flats was also identified.
with regard to the satisfaction with urban landscape, with residents in houses (M=2.39, SD=0.62) saying they are more satisfied with the urban landscape than residents in blocks of flats (M=2.72, SD=0.81). The effect size $r^2=0.03$ shows that the variation of the dependent variable (satisfaction) is little explained by the dependent variable “accommodation type”.

As for the social dimension and the utilities dimension no significant differences caused by accommodation type (house or block of flats) were registered. For the social aspects dimension the t test was $t(135)=0.42$, $p=0.67$, and for the utilities dimension satisfaction was similar, a statement which is validated by $t(135)=0.92$, $p=0.35$.

5.3 Perception on housing

To highlight the elements that residents are dissatisfied with and which housing satisfaction depends on, respondents were asked an open-ended question which they answered by listing the problems of the neighbourhood they live in.

The answers given by respondents were grouped into five categories: ecological aspects, aspects related to the environment, problems with utilities and servicing, problems related to local authorities, residents-related problems.

The most frequent answers were the problems connected to urban utilities and servicing, with 36.3% of the quotations. Within this category, there arises the problem of the lack of parking places, with a quoting frequency of 34%, followed by the lack of parks and playgrounds (24% of quotations). With a relatively equal frequency of quotations – around 10% - the following should be noted: undersized or un-modernized roads and streets, deficient transportation services (either inexistent transport lines, or inadequate schedule) and deficient servicing (especially with regard to proximity commerce, but also to health care services).

Second in the housing-related problems hierarchy are aspects connected to the environment, with 22.5% of quotations. Among the aspects mentioned here are the overall appearance of streets – with 25% of quotations (pavements, “uneven” roads with “holes and cracks”) and the lack of green spaces respectively, with 25% of quotations, followed in smaller percentages by variables like “old blocks of flats”, “unattended houses” and “dirt”.

Ecological problems have a 16.2% frequency: the bad air quality dominates with a 50% frequency of quotations: traffic dust and tyre factory smell are mentioned. The other 50% of quotations are equally focus on the absence of green spaces and noise pollution.

Problems related to the authorities are mentioned in 15% of the cases: the stray dogs problem has the highest frequency of quotations (30%); the other two thirds of the percentage are equally distributed among unattended public spaces (streets, green spaces), public-safety problems, and waste management.

Resident-related problems are seldom mentioned, the frequency of quotations being of 5.8%.

Aiming to investigate if the perception on housing is influenced by independent variables like age, gender and accommodation type (house, block of flats), we made associations between these and the frequency of the identified problems grouped into categories (Table 3).
Table 3 The association between the independent variables and the frequency of quotations according to categories of problems

<table>
<thead>
<tr>
<th>Categories of problems</th>
<th>Ecological aspects</th>
<th>Environment</th>
<th>Utilities and urban servicing problems</th>
<th>Problems caused by the inefficiency of authorities</th>
<th>Residents-related problems</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 - 25</td>
<td>7.1%</td>
<td>23.8%</td>
<td>35.7%</td>
<td>11.9%</td>
<td>11.9%</td>
<td>9.5%</td>
</tr>
<tr>
<td>26 - 35</td>
<td>23.6%</td>
<td>20.0%</td>
<td>41.8%</td>
<td>5.5%</td>
<td>7.3%</td>
<td>1.8%</td>
</tr>
<tr>
<td>36 - 45</td>
<td>18.9%</td>
<td>24.3%</td>
<td>32.5%</td>
<td>18.9%</td>
<td>2.7%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>18.5%</td>
<td>21.0%</td>
<td>35.8%</td>
<td>17.3%</td>
<td>4.9%</td>
<td>2.5%</td>
</tr>
<tr>
<td>male</td>
<td>15.2%</td>
<td>23.4%</td>
<td>36.7%</td>
<td>14.6%</td>
<td>6.3%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Accommodation type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block of flats</td>
<td>18%</td>
<td>23.8%</td>
<td>36.7%</td>
<td>15.1%</td>
<td>4.7%</td>
<td>1.7%</td>
</tr>
<tr>
<td>House</td>
<td>11.8%</td>
<td>19.1%</td>
<td>35.3%</td>
<td>17.6%</td>
<td>8.8%</td>
<td>7.4%</td>
</tr>
</tbody>
</table>

The age variable brings forth differences regarding the hierarchy of problems for the three age groups.

Differences may be observed concerning the importance given to various types of problems:

- People aged between 16 and 25 are youth undergoing professional training, living with their parents or sharing accommodation with friends; the highest two frequencies correspond to the sample model and belong to the utilities and servicing problems, and to the environment respectively. Third does not, however, come the ecological problems (which otherwise have the lowest frequency), but the resident-related problems (the absence of a civic spirit) and the inefficiency of authorities (who are considered to be incompetent).
- People aged between 26 and 35 are at the beginning of their professional life and in the initial stage of residential mobility, generally living in rented accommodation; they show the highest frequency in mentioning problems related to utilities and urban servicing. Being at the beginning of their professional life, not necessarily having a family, they complain about the proximity of complex services, leisure opportunities and facilities for public transportation or by own car, which they consider important. For these people, the second highest frequency is represented by answers emphasizing ecological problems (they are more interested in a healthy environment, the current neighbourhood being a transitory stage);
- People aged between 35 and 45 reveal a hierarchy of problems similar to the one pointed out for the entire sample; compared to the other age groups, there is identified a significantly higher frequency of the inefficiency of authorities and a slightly higher frequency of environment-related problems; the majority of these people is at a more stable stage in their residential dynamics, and they are consequently more interested in the immediate vicinity and more aware of the distribution of responsibilities between city fathers and citizens.
The gender variable does not bring changes into the above-mentioned hierarchy of the categories of problems identified for the entire sample, but only minor differences in their percentages. We may thus note that female respondents mention more environment-related problems and resident-related problems than male respondents, who mention more ecological problems and problems related to the inefficiency of authorities.

The influence of the accommodation type on the perception on housing is refined: irrespective of the accommodation type, the highest frequency of quotations is shown with respect to utilities and urban servicing problems. By comparison, for the residents in blocks of flats, the hierarchy remains identical to that of the entire sample: environment problems, ecological problems, authorities-related problems and, finally, residents-related problems.

As for residents in houses, the inefficiency of authorities comes before ecological aspects: the house-types of accommodation are located in rural peripheral neighbourhoods, which are less polluted, but for which urban management is difficult because of their large expansion. Also, the frequency of resident-related problems is higher, for the house-living respondents, if compared to the average of the sample and higher still when compared to responses from residents in blocks of flats: there are mentioned problems connected to the residents of such rural-type of neighbourhoods, who continue their rural practices (e.g. “they grow farm animals in small yards”) or they trespass onto their property (e.g. “there are gypsies who steal from people’s yards and gardens”), whereas for the neighbourhoods of houses closer to the city centre, promiscuity is mentioned, an aspect that equally concerns the authorities.

6. CONCLUSIONS

The housing concept paradigm highlights the existence of three interdependent levels which construct it: the accommodation proper, the immediate vicinity (the neighbourhood), and the city. They all participate in defining the degree of housing (dis)satisfaction.

We aimed to investigate housing satisfaction in the post-socialist city of Timișoara and to identify the elements that explain its definition, by testing various associations between the level of satisfaction and various independent variables, as well as in relation to the characteristics of the three levels which together form the concept of housing.

Starting from the characterization of the objective housing conditions in the city of Timișoara, through presentation of the characteristics of the main morphostructural types of residential areas resulted from historical evolution, we formulated the hypothesis that the city residents would generally be rather dissatisfied with housing.

Nevertheless, the questionnaire highlighted the fact that the residents of Timișoara are mostly satisfied (78%), irrespective of gender, their living in a block of flats or in a house; age and education level bring some slight differences: people under 25 years of age, as well as people with a medium education level, are more satisfied.

The investigation into the degree of satisfaction for the four dimensions of housing – urban landscape, quality of environment, social dimension, functionality and urban servicing – enables us to emphasize the fact that the urban landscape dimension is the least appreciated one.
The ANOVA tests show that there are no significant differences according to age in relation to the degree of satisfaction with the four dimensions.

The t test shows that only for the satisfaction with the urban landscape dimension does the accommodation type variable bring forth a difference, as residents in houses are more satisfied in this respect.

The investigation into the degree of satisfaction according to the housing dimensions by means of an open-ended question, requiring the mentioning of the degree of satisfaction for aspects grouped into four categories, showed a very high degree of satisfaction (over 80%) with regard to environment quality and urban functionality and urban servicing, a high degree of satisfaction (76%) regarding environment quality, and a relative degree (64%) for social aspects.

Although they say they are satisfied in such large proportions, the city residents have a complex and realistic perception on housing in Timişoara, emphasizing as problematic first of all the aspects related to utilities and urban servicing, then those connected to environment (urban landscape) and environment quality, with slight differences due to age groups and accommodation type (and, implicitly, because of the type of neighbourhood).

The youth are the least interested in environment problems and are most sensitive to the residents’ civic spirit. Adults at the beginning of their professional life are the most interested in utilities, servicing, accessibility of the urban space, and the least interested in the authorities’ competence level. Adults at the second stage of their professional life and at the beginning of their family life, owning their homes, are the most interested in the authorities’ efficiency and the least interested in residents-related problems. Residents in blocks of flats are more preoccupied with the urban landscape as compared with residents in houses, who are preoccupied with the quality of neighbours.

The high percentage of people who said they were satisfied, despite being aware of all the problems and of identified objective aspects, urge us to underline the importance of the subjective dimension in defining housing satisfaction, a dimension which does not pertain to the community-type of social insertion (neighbourhood life and the actions of neighbourhood councils are either unknown aspects, or uninteresting for the respondents), but it is materialized in such elements as:

- a positive city image, valorized at the level of the collective mentality, an image in relation to which the resident may develop a strong attachment;
- the national context: satisfaction is related to such similar housing contexts in other Romanian cities, which, unlike Timişoara, have difficulties in providing urban functionalities and social-professional insertion;
- the difficult social-economic context: owning or living in a decent accommodation is, in Romania, an important achievement, given the generally difficult access to accommodation (considering that the ratio between an average salary and a one-room housing is of 4 to 1, and the interest for real estate loans is of 8%), which is directly reflected in the level of housing satisfaction: 98% of respondents said they were satisfied with their current housing, which has a major influence on the general degree of housing satisfaction.

From a methodological perspective, the prevailing conclusion is that the investigation into housing satisfaction requires not only the consideration of all three scaling levels and the comprehension of the transfer of significance, but also the investigation into
the perception on housing (through open-ended questions), in addition to the evaluation (by means of scales) of a predefined list of aspects.

In the post-socialist city of Timişoara, housing satisfaction is the result of a positive valorization of the extreme levels of housing: the accommodation and the city, given that the immediate vicinity is subject to problematization and debate.

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HOUSING SATISFACTION IN A POST-SOCIALIST CITY: A CASE STUDY ON TIMIȘOARA (ROMANIA)
Cătălina ACUȚA

Images

Image 1: Renovated 19th century building

Image 2: Building from the beginning of the 20th century
Image 3: Palace from the beginning of the 20th century

Image 4: Inner-war building renovated by Gypsies in a specific style
Image 4: Apartment buildings dating from the communist era

Image 6: Punctual results of the rehabilitation programme
Image 7: House built in the 1990 in an area lacking urban infrastructure

Image 8: New multi-family residential buildings
CULTURAL RESOURCES IN FUNCTION OF REGIONAL DEVELOPMENT AND INTERNATIONAL COOPERATION - DANUBE REGION, SERBIA

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Abstract: Cultural heritage is one of the basic carriers of tourist attractiveness and recently became increasingly popular part of the tourist offer. The study reviews the current state of heritage management in Danube region of Serbia, regarding development policies and public opinions. The study reviews the diversity of cultural values with the task to determine which are the dominant forms of cultural tourism offer in the Danube region of Serbia. The aim is to establish the necessary connection between cultural resources with tourism and the need for their market activation through a sustainable tourism development.

Key words: cultural resources, regional development, cooperation, tourism, Danube region

1. INTRODUCTION

In recent decades the Danube, as a tourist theme and content is becoming increasingly attractive to domestic and European tourism market. Its relatively preserved natural values, that are in all European countries on Danube, the high level of protection and its natural amenities, cultural and archaeological heritage, is the continued Serbian and European tourist value at which it is possible to continue to build tourist facilities on longer-term basis. Tourism and culture are recognized as two strong drivers of growth all around the world, especially in Europe, primarily through economic development and employment (Prentice, 1994, Hadžić, 2004). However, they have a crucial role in fostering understanding and preserving of richness and diversity of regional cultures, as well as greater valuation of a common heritage. Cultural attractions play an important role in tourism at all its levels, from global emblem of world culture to attractions that reflect the local cultural identity (Stanojlović et al., 2010).

According to estimates, the cultural heritage is an engine of more than 50% of the
tourist activity in Europe, and it is to be expected for cultural tourism sector to experience a further growth in the future. Cultural tourism has a number of goals that have to be achieved in accordance with the context of sustainable development, such as conservation of cultural resources, constant interpretation of resources, creation of authentic experiences among tourists, feedback stimulation for cultural resources and resident community.

1.1. METHODOLOGY

The review of the existing cultural heritage assets is given per region and by type for Danube region in Serbia. The cultural policy and cultural consumption levels are reviewed and commented. The survey was conducted among Serbian population (in 2012) and the results presented show the role of heritage in minds of Serbian people, its tourist attractiveness levels as well as some potentials and problems that occur in preservation and management of those sensible and valuable assets. Among sample of total 154 respondents (focus group), dominant group was relatively young people (15-35 years old) that made about 60% of total respondents, with significant domination of female respondents (60%). The educational level of most of respondents was relatively high, with College, University and PhD degrees with about 70% share of total number of respondents. The questions on Danube region attractiveness, cultural resources in the region, level of management and actual problems in the regions concerning tourism development and heritage management were included in the survey. Moreover, the management policies and practices in the region were regarded and commented, as well as some on-going strategies and activities concerning tourism development in the Danube region of Serbia.

2. LITERATURE REVIEW

Heritage in cultural arena is used to describe the identity through material forms as monuments, historical and architectural remains and museum artifacts, but also through intangible forms – philosophy, traditions and arts in all its forms, through celebration of great events, important persons, ways of life, literature and folklore (Nas, 2002). Culture, heritage and the arts have always greatly contributed to the image creation of a tourist destination. Thus, it is increasingly emphasized that the cultural tourism is the fastest growing segment of the tourism industry, as it encourage the current trend of specialization of interests among tourists. This trend is particularly noticeable in increase in the numbers of tourists seeking adventure, culture, history, archeology and cultural interaction with the residents at the destination (Richards, 1996; Richards, 2007).

The World Tourism Organization (WTO, 2005-2009) has given a definition of cultural tourism as a „travel of people in order to satisfy their cultural needs, that include educational tours, art, cultural tours, visits to various festivals, visits to historic sites and monuments, folklore and religious travel”. A number of tourism experts agree that the tourist attractions (attractive elements) play a central role in the tourism system. Mostly, under the term “attraction” a characteristic of a certain area (destination) that is directly related to the position and motivation of performing certain tourist activities is emphasised (Richards, 1996; Russo, 2002; Timothy & Boyd, 2006; Richards, 2007). Presenting a basis for the development of tourism, tourist attractions are a component of the system, which is
intimately linked with the identity of the destination, given that it directly binds to a place (location) of tourism activities (Jovičić, Brankov, 2009).

Tourism resources (attractions) are basic, raw materials of tourism. They represent natural and cultural differences that are manifested in certain areas, but they include some created attractions as well, such as theme parks and museums. Tourism resources play a vital role in creation of a destination. The type and number of tourist attractions determine opportunities for the expansion of tourism in a particular region. The existence of tourism resources as attractions, and their relative value, is the determining factor for the development and creation of competitive advantages on the tourism market (Garrod, Fyall, 2001). However, tourism resources require labour and investments in order to bring positive practical effects. Tourist attraction base of every destination is the origin and condition for the creation of optimal tourist product. As a prerequisite for the creation of cultural tourism development strategy, the insight into cultural attraction system is a basis for the design and improvement of tourism product of the region. The starting point is based on analysis of existing resources, which is essential, in order to activate the cultural resources for tourism purposes (Kušen, 2002).

Cultural attractions, such as archaeological sites, medieval squares, castles and parks, as well as certain traditions and events are generally open public resources. However, with the increase in use, they tend to become public goods, preserved and maintained by the state. They can also become sellable goods, and the access to them become limited and determined by its carrying capacity (determined number of allowed visitors). In this context, tourism plays an important role with regard to the fact that tourists have to pay for visiting cultural resources. In order to assess how viable cultural tourism is in a particular situation, local communities should assess and evaluate their local situation and characteristics, including the existence of available tourist markets and the overall quality and integrity of the built and social environment, travel services and the prospect of potential markets.

3. DANUBE REGION IN SERBIA

The Danube is one of the most important factors of economic, urban, cultural and historical development of the Republic of Serbia. It is an important factor in effective European cooperation, as well as national and regional development based on the resources of the river for intensive agricultural production, industrial development associated with cheap river transport of goods, navigation, port activities, seasonal recreation and tourism (Čurčić et al., 2011, 19). It is an important transport corridor (Pan-European Corridor VII). It is the only internal waterway of among ten pan-European corridors. The Danube flows in Serbia, in a distance of 588km and is navigable throughout whole its course (European Movement in Serbia in 2010, 1-3). The Serbian part of Danube catchment area comprises 871 settlements situated in 9 NUTS3 counties and 68 municipalities (LAU1). Danubean region covers areas of 9 regions and 43 villages that lie on the banks of the Danube. Serbia belongs about 11.3% of the total length of the Danube, or 587.35 km of the river flow (Danube Commission, 2004). The Danube is navigable throughout whole its course in Serbia. Total area of Serbian municipalities along the Danube river is covering 13,693 km² or 15.5% of the country territory. Administratively, the Danube flows through the territory of the following municipalities: Sombor, Apatin, Odžaci, Bač, Bačka Palanka, Beočin, Novi Sad, Sremski Karlovci, Indija, Titel, Belgrade, Pančevo, Smederevo, Požarevac, Veliko
48•Cultural resources in function of regional development and international cooperation

Gradište Golubac, Majdampek, Kladovo and Negotin. The total population of Danube region in Serbia is about 1,996,060 inhabitants, representing 26.6% of total population of Serbia. The population density in this area is 145.8 inhabitants per km², which is above the average population rates in Serbia (84.9 inhabitants per km²). The population of this area is characterized by diverse ethnic and religious structure, with the greatest numbers of Serbian ethnicity declaring as an Orthodox Christians.

3.1. TOURISM RESOURCES IN THE DANUBE REGION

Different studies of this region point out that natural (over 50 nature based resources – two national parks, 12 nature reserves, three nature parks, one protected wood, and 33 natural monuments)\(^1\) as well as cultural characteristics (over 658 registered cultural resources) of Danube region give an outstanding opportunities for the development of attractive tourism product based on diversity of tourist offer.

Table 1. Cultural resources within Danube area in Serbia, 2012.

<table>
<thead>
<tr>
<th>Regional unit</th>
<th>Archaeological sites</th>
<th>Cultural properties</th>
<th>Museums</th>
<th>Galleries</th>
<th>Theaters</th>
<th>Cinemas</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EV</td>
<td>GV</td>
<td>EV</td>
<td>GV</td>
<td>RG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AP Vojvodina</td>
<td>2</td>
<td>4</td>
<td>12</td>
<td>6</td>
<td>10</td>
<td>34</td>
<td>13</td>
</tr>
<tr>
<td>Backa</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>70</td>
<td>6</td>
<td>23</td>
<td>12</td>
</tr>
<tr>
<td>Banat</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>0</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Srem</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>42</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Central Serbia</td>
<td>5</td>
<td>2</td>
<td>10</td>
<td>62</td>
<td>50</td>
<td>47</td>
<td>190</td>
</tr>
<tr>
<td>Belgrade</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>52</td>
<td>44</td>
<td>42</td>
<td>182</td>
</tr>
<tr>
<td>Podunavlje district</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Branicevo district</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Bor district</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>7</td>
<td>6</td>
<td>22</td>
<td>183</td>
<td>56</td>
<td>57</td>
<td>224</td>
</tr>
</tbody>
</table>

EV – exceptional value, GV – great value, RG – registered cultural assets
Note: Cultural resources in municipalities are included, not the district or region itself.


According to the archaeological research in the Balkan area, the presence of of rich material culture and the continuum of habitation of autohtone communities, as well as the

\(^1\) Tourist Organization of Serbia, 2007.
migration flows of Indo-europeean nations is evident (Škokljev, Škokljev, 1998). Favorable life conditions were the reason for the continuing presence of man in this area, and the evidence can be found in numerous archaeological and cultural-historical monuments. Danube region is particularly rich in cultural heritage, tangible and intangible, from different periods of civilization. Ethnic heterogeneity of the population of the Danube region influenced the existence of different forms of nation characteristics (living traditions, customs, religions, ways working, architecture, etc.) (Bjeljac, Ćurčić, 2005, 59). The concentration of cultural resources in the Danube region of Serbia is a great potential for the development of product offerings in the sector of cultural tourism. Cultural heritage of Serbia shows the richness and diversity of historical multiculturalism in this part of Europe. Compared to neighboring countries as direct competitors in this type of tourism, Danube area in Serbia in proportion to its size has a sufficient number of high value cultural resources (658 resources in Serbia, 41 in Croatia, 8450 in Romania, 1202 in Bulgaria). Despite the severe destructions caused by wars and natural disasters, many heritage sites still remain standing as a testimony of the historical and social development of this part of Europe. However, despite the awareness of the extraordinary richnes of the cultural heritage of the Danube, it is impossible to remain indifferent to the current state of these valuable monuments. Cultural heritage as an evidence of the past is constantly threatened and in danger of complete vanishment, as an outcome of different and numerous factors. The rehabilitation of cultural heritage is one of the main tasks of the preservation of cultural identity. The use of this potential through the development of cultural tourism is a factor of sustainable development of the region (Regional Programme for cultural and natural heritage in SEE - Serbia, 2008).

4. CULTURAL POLICY AND CULTURAL CONSUMPTION

The regional development policy is a policy of solidarity, meaning a policy for people. Its purpose is a creation of working places, increasing the overall competitiveness level and to support the less developed regions. One of the instruments for implementation of this policy is the creation of Regional Programmes, which has as the main objective the balanced development of all the regions of the country, by making best use of the regional and local development potential, focusing on the urban growth poles, improving regional and local transport infrastructure, as well as social infrastructure, supporting the development of regional and local business environment. The important part of this programme is the sustainable development and tourism promotion, with a goal in transforming regions, especially less developed regions into areas more attractive for investments, tourism development and housing. Investing not only in regional innovation and internationalization, education and employment, but also in tourism, culture and regional marketing, is needed to improve the structure and performance of the economic activity in the region. The role of the administration is to preserve the cultural heritage and at the same time, to build on it with a vision towards modernity and future (Ionescu et al., 2013).
Cultural resources in function of regional development and international cooperation

### Table 2. Comparison of cultural policies

<table>
<thead>
<tr>
<th>State</th>
<th>CUPiX PASP MEDIAN (PUBLIC ARTS &amp; SERVICES PRICES)</th>
<th>RELATION TO PASP MEDIAN 12.13 EUR=100%</th>
<th>OECD PP*** RECREATION AND CULTURE (=100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serbia *</td>
<td>9.17</td>
<td>76%</td>
<td>49%</td>
</tr>
<tr>
<td>Croatia</td>
<td>9.38</td>
<td>77%</td>
<td>-</td>
</tr>
<tr>
<td>Romania</td>
<td>2.30</td>
<td>19%</td>
<td>52%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>4.17</td>
<td>34%</td>
<td>56%</td>
</tr>
</tbody>
</table>


The research of cultural policy, public cultural consumption and public opinion on cultural heritage attractiveness, current state and problems of heritage as well as management of heritage sites is considered to be a proper way to investigate the actual state of heritage and its position in the society it belongs to. Comparison of cultural policies in Danube region, particularly taking into consideration Serbia and its neighboring countries, significant differences can be seen showing the unfavorable position of Serbian cultural sector (Table 2). According to 2008 European assessment on cultural policies, culture as a share of total central government spending in Serbia was 1.6%, in which government expenditure on culture was in total 217,000,000 EUR, but, in regard to expenditure on culture per capita was 22.6 EUR. Share of spending on culture by central government in total spendings for culture was 38%. Cultural workers share in total employment in Serbia in 2008 was 0.15%. Average annual expenditure per capita for recreation and culture in Serbia was 178.4 EUR (http://www.culturalpolicies.net).

In particular, cultural consumption in Serbia (Table 3) is generally low in comparison to other European countries. However, the tendencies and predictions are also quite bad, showing that public cultural expenditure in Serbia in period 2007-2011 experienced significant decrease. Levels of changes are slightly different in respect to different administrative levels. This situation is mostly the result of the greater concentration of existing cultural offer in capital cities Belgrade and Novi Sad and investment potential of municipal budgets. A National Council for Culture in Serbia was set up on 25 May 2011, with a duty to approve the National strategy for cultural development, but due to the changes of ministers, this document never reached public debate or National Council. However, the Council prepared its own set of priorities: reinforcing the institutional system and its professional standards, audience development, digitization of public “memories”, development of inter-sectoral relations (especially involving business in cultural financing), etc (Dragičević-Šešić et al., 2013).

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>All government levels</td>
<td>20.4</td>
<td>22.6</td>
<td>24</td>
<td>18.0*</td>
<td>15.0*</td>
</tr>
<tr>
<td>Central level - Republic</td>
<td>11.1</td>
<td>11.6</td>
<td>10.1</td>
<td>7.2</td>
<td>7.7</td>
</tr>
<tr>
<td>Provincial level – AP Vojvodina</td>
<td>3.6</td>
<td>5.1</td>
<td>5.8</td>
<td>5.7</td>
<td>n.a.</td>
</tr>
<tr>
<td>Belgrade</td>
<td>25.4</td>
<td>22.7</td>
<td>19.2</td>
<td>17.1</td>
<td>16.1</td>
</tr>
<tr>
<td>Novi Sad</td>
<td>32.55</td>
<td>31.76</td>
<td>32.68</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Pančevo</td>
<td>16</td>
<td>23.6</td>
<td>17.7</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Požarevac</td>
<td>16.8</td>
<td>20.1</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Smederevo</td>
<td>9.8</td>
<td>11.9</td>
<td>8.3</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Source: Mikic, 2011.

4.1. SURVEY RESULTS

According to survey results, the attractiveness of Danube region got the highest score with average 4.38 points on 1-5 degree scale. Attractiveness of cultural assets in this region is marked 3.87 points which is also relatively high score if we take into consideration that the current state of cultural assets is quite bad, marked in average with 2.47 points, mostly because of the low levels of conservation, reparation and inadequate management system of the most of the heritage sites in Serbia, in general. The survey also included the question about which cultural aspects are seen as most attractive, and the result show that typical heritage sites as architectural and artistic monuments got the best scores, among 69.4% of respondents, followed by cultural events (16.2%) and museums/galleries (9.7%).

Table 4. Attractiveness of Danube region and heritage in Serbia

<table>
<thead>
<tr>
<th></th>
<th>Attractiveness of Danube region</th>
<th>Attractiveness of cultural assets</th>
<th>Current state of cultural assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks (1-5)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Num. of responses</td>
<td>2</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Average mark</td>
<td>4.38</td>
<td>3.87</td>
<td>2.47</td>
</tr>
</tbody>
</table>
and lack of cultural events and festivals (Figure 1).

![Bar chart showing percentual distribution of main problems observed at cultural heritage sites in Danube region of Serbia]

Fig. 1. Problems observed at heritage sites in Danube region of Serbia

The results gained by this survey give an insight in general state of heritage in Serbia, and some bigger national problems in different spheres of public interest. Such a results most be seen in more general sense, giving the clear public statement directed to the state government to improve the current state, find the proper ways to protect and invest more in culture and tourism, in order to ensure sustainable development of the country. Today, in international cruising through Danube river in Serbia eleven ports are included, but unfortunately, most tourists coming this way are only in transit, due to bad infrastructure and lack of attractive tourist offer. The average stay of cruisers in Serbia (Novi Sad and Belgrade) is one day, and passengers are allowed only few hours for sightseeing of the town. In 2009, along the Danube, through Serbia passed 799 cruising ships with 56000 tourists registered in Belgrade (Simović, 2011). However, they show a great interest in cultural resources in this region. The survey among international visitors on Danube cruises (386 anonymous passengers – 174 male and 212 female) shows that during the visitation of Serbia they liked the most “interesting architecture” (27.2%), “history and cultural heritage” (25.3%), “hospitality and open mided people” (18.7%) and “national folklore and traditions” (11.6%), about 17.2% respondents gave the answers focused on nice landscapes, nature, climate, panoramas (Simović, 2011).

5. PROTECTION, MANAGEMENT AND USE OF CULTURAL RESOURCES IN LINE WITH REGIONAL DEVELOPMENT

Protection and preservation of heritage resources is the main responsibility of public authorities. The state government has an important influence on attractiveness of tourist destinations, as it is responsible for functional infrastructure, protection and management of heritage monuments, monitoring of spatial and urban development, etc. According to this stencil, the better the services the state provide at the national and local levels, the better
possibility destination have to create the competitive position on the tourist market. Despite
the efforts, many countries in the world, including Serbia, lack in effective policies to create
sustainable destination development. Problems in the planning of cultural destinations,
which can be found in the management of cultural resources and destinations, are present in
both, centralized and decentralized, systems of heritage management. In centralized systems
(currently present in Serbia) over-emphasized role of the governmental institutions leads to
bureaucracy and inertia. On the other side, a variety of decision-making centers in the field
of tourism and culture, and the fact that some institutions independently plan the
development, hinders the creation of a common plan, especially when it comes to private
institutions and activities that are based on market financing.

Activities concerning the protection of immovable cultural properties are carried out
by institutes, including the Institute for Protection of Cultural Monuments of the Republic of
Serbia (central body) and 11 Regional Institutes with territorial jurisdiction over monuments
located in their own territory. The protection of movable heritage (museum objects,
archives, film and literary material) are carried out by museums, archives and libraries.
There are 124 museums (43 regional museums and 81 museum branch offices, legacies and
homeland collections), with National Museum in Belgrade as the central body in the
Serbian museum network (Dragićević-Šešić et al, 2013). Dependence of destination
planning of financial opportunities and financial policy of the state is quite obvious
(especially in Serbia), where funds designated for tourism and culture are limited by the
decisions on budget allocation. Poor cooperation between the cultural and tourism
sector is caused by the contradictions between the basic objectives and lack of flexibility. One of the
main problems in Serbia is insufficient use of modern technologies and methods in the
protection of cultural monuments and lack of funds. It is of essential importance to
undertake some steps in staff training, modern technology use, and

| Table 5. Share of the Ministry of Culture budget in total Government budget |
|-----------------------------|-----------------------------|-----------------------------|
| Budgetary expenses (EUR)    | Share in %                  |
| Government                  | Ministry of Culture         | Share in %                  |
| 2007                        | 551126440                   | 60345000                    | 0.89 |
| 2008                        | 695959075                   | 81000000                    | 0.98 |
| 2009                        | 748652903                   | 72587000                    | 0.92 |
| 2010                        | 738645297                   | 58607970                    | 0.79 |
| 2011                        | 846919908                   | 55412600                    | 0.65 |


According to data presented in Table 5 Government of Serbia transfer relatively
small share of finances to the cultural sector, only 0.65% of total budget in 2011, which has
direct influence in actual state of cultural heritage in Serbia. However, some funds for the
revitalization of cultural heritage can be found through direct foreign investments and
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European funds, but they were mostly used for project preparation and small sized renovation of the most representative heritage-sites (for example Golubac Fortress project). Process of IRPP/SAAH presented some new approaches in cultural heritage management in Serbia. Through the preparation of feasibility studies which are mainly oriented towards donors and local stakeholders, the need for reform of the management of cultural heritage in Serbia in practice is emphasized (IRPP/SAAH - Serbia - 2008). The protection of cultural heritage, its preservation, rehabilitation and improvement are the basic assumptions for the establishment of a sustainable tourism product. The challenges of the modern movement in the tourism industry, in global terms, as well as in national and local levels, are considered to be an important prerequisite for creating a base for sustainable regional development.

The characteristics of Danube region is reflected in the fact that it represents one of the greatest multinational water-flows in the world. Danube region has numerous characteristics in sense of heritage and tourism values, as it includes several metropolitan towns, attractive natural landscapes and rich cultural heritage. With some governmental acts long-term competitiveness and sustainable development of tourism sector in this area should be provided. Danube region is recognized in a vast number of international programmes as a region with great potential. The development of tourism based on culture and heritage in Danube region is one of the strategic priorities in Serbia. This is also the official stand of actual European Danube Strategy. Tourism Development Strategy of the Republic of Serbia gives recommendations for the development of products that are associated with the cultural resources in great extent. Strategic branding and positioning of Serbia as a tourist destination has, therefore, to evoke the interest for visiting Serbia. This can be achieved on the basis of a certain number of products that have already been created or are possible to prepare for commercialization in a very short period of time, such as: City Breaks, Events, Touring, MICE, River Cruising, Special Interests. The demand is, therefore, to start building image of Serbia as a tourist destination by providing promotion and sale of so-called. "quick win" products. It should also provide a parallel creation of awareness about other strategic values and attractions to be used for development of other internationally relevant products (Tourism Development Strategy of Serbia 2005, 115).

In 2009 the Ministry of Culture of Republic of Serbia launched the pilot project “Cultural route – Fortresses on the Danube" dedicated to the improvement of the capacities of the local communities in Serbia and enhancing the cultural policies and the tourism development possibilities (Stanojlovic et al., 2011). The project encompassed seven cities and the most visible result was the exhibition promoted abroad (Paris, Brussels, Ulm and Ingolstadt, Turnu Severin), and in the cities in the Danube region included in the cultural route (Apatin, Bač, Novi Sad, Pančevo, Beograd, Požarevac, Smederevo, Veliko Gradište, Golubac, Kladovo, Negotin, Zaječar). Nowadays the project is enlarged and in 2013 included 12 towns in Serbia along the Danube that agreed to collaborate with international partners on specific issues considering the project development. In order to fully affirm the Danube region in Serbia, tourist cluster ISTAR 21 was established in 2008 in Novi Sad. It brought together entrepreneurs interested in tourism and hospitality, food and wine, souvenirs, as well as tourist organizations and academic institutions. Furthermore, Danube Competence center - Regional Tourism Cooperation was established in 2010 in Belgrade, as a new regional organization with 22 members from six countries between Croatia and the Black Sea. The aim of this newly founded organization was to link tourism stakeholders from Danube region, to enhance their cooperation and to promote their shared interests.
Marketing plan for Lower Danube area in Serbia is developed by Horwarth Consulting, in cooperation with the Ministry of Economy and Tourist Organizations, under the GIZ KWD project "Tourist area of Lower Danube – new opportunity for cooperation and development" in 2012. There are also a great number of development projects considering the tourism development in Danube area of Serbia.

Management and planning of development is one of the most important factors in creating conditions for desirable economic, cultural and tourist development of the region. Spatial management needs to achieve the harmonious relationship between demographic, economic, cultural and tourism development. This can be achieved through planning in accordance with natural and cultural resources, creation of adequate economic capacities, housing, health care, recreation, tourism, and cultural life (Timothy & Boyd, 2003; 2006). In this particular case it comes to forming of a complex management system that includes planning at all hierarchical levels in several sectors (tourism, culture, infrastructure, education, etc.), which will consolidate and coordinate all aspects of the development of a destination.

6. CONCLUSIONS

Diversification and constant innovation of products, experiences and emotions, the quest for new experiences, traveling for culture and education have become the new standards and market facts. Danube region in Serbia, therefore, as the area that in the historic and cultural content, allows the experience of a specific spirit that outcomes from the mixture of nations who have lived and still live in this area. Danube region in Serbia, with its historical and cultural value, along with a vast number of cultural heritage sites, is by no means inferior to other Danubean countries. Special attention should be paid to events that promote ethnographic elements and national customs of different nations present in this area. High market value in the development of cultural tourism today has cultural routes, whose value increase according to their international extent. This kind of market networking through consolidated tourist products with neighboring countries could potentially increase the foreign tourist numbers in Serbia. Management of cultural heritage and management of tourist products, along with the professional use of marketing at all levels, would significantly improve the sales and revenue generated from cultural tourism. Tourism contributes to the economic valuation of cultural heritage. Moreover, tourism as an active user of cultural goods can speed up the process of protection and contribute to proper care and revival of heritage. The activities should be pointed in the direction of functional and aesthetic improvement of heritage that will be appropriate for heritage preservation and in line with the contemporary needs of tourist demand. Particular attention should be paid to segmentation of tourism demand and promotion of customized travel products. With a proper presentation and interaction with local community, such products could take a high position in the global tourism market.
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CITIES VERSUS STATES: DEMOGRAPHIC EVOLUTION

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Abstract: Every six years, the world's population grows with 450 million inhabitants, the total population of Earth in 1500. With 7.5 billion people now and over 10 billion estimated for 2050, the World becomes more incongruous. If we take into account the fact that just 67 years ago, 2.5 billion people lived on Earth, and in 1900, only 1.7 billion, we find that the problem of overpopulation is recent. The top 20 countries as the number of inhabitants are responsible for most of the population growth, currently holding 70% of the people on Earth, and the urban explosion in the top 20 major cities already holding the periphery, 11% the population of the World, shows even better the magnitude of the demographic explosion.

Keywords: population, demographic explosion, big cities, urban explosion, world, overpopulation.

1. INTRODUCTION

The evolution of the population in the world is becoming increasingly obsessive in the context of the overcrowding of the Planet, excessive pollution, the reduction of water resources, food and energy resources and the problems of desertification and deforestation. With an increase of almost 100 million inhabitants each year, the world's population grows to 5-7 years, with the Earth's total population 500 years ago (Duby G., 2015, pp. 334-335). There are increasingly populated states with a demographic explosion that risks causing great economic and political gaps that will change the world's geopolitical chessboard.

The ranking of the first states as a demographic is in a fierce change, shaping substantially after every century. In 1500, the world's population was only 440 million people, in 1900 it had 1.7 billion inhabitants, increasing in 400 years by almost 1.3 billion. In the next 117 years, between 1900 and 2017, the population of Planete is still growing by another 5.8 billion. By 2050, in just 33 years, an increase of 2 to 3.5 billion inhabitants is expected, with the population continuing to grow steadily by 2100.

In 1650, Europe and Africa owned over 100 million people each, and the two Americans had only 13 million together, compared to the Russian population at that time. In 1900, Africa remains 100 million, and America is overtaking this threshold, and Europe is growing to 423 million people, meaning that it has twice as many populations as the two major continents at a place. By 2017, Europe is growing by 300 million, reaching just over 700 million inhabitants, while Africa and America are growing at the same time with 2 billion people, becoming three times more populated than the Old Continent, and America alone, now exceeds 6 times the population of Russia (Neguț S., 2011, p. 298-299).
That is why it is necessary to classify the first states as a population in different time periods to show which countries are most affected by the demographic explosion and where will be the greatest shortcomings of the world's resources in terms of the number of inhabitants but also future powers economic world.

It is known that the urban environment is the basis for global consumption and the promoter of change but also the largest source of pollution that exerts great pressure on the environment. These cities are even more destructive and even more innovative with the increase in the number of inhabitants, the evolution of the first cities on Earth being a good indicator of the level of civilization and of pollution at different times.

The top 10 cities as a population have been on a steadily rising basis, accounting for more and more percentages of the world's total population. If in 1500 only one in 100 people lived in one of the first cities of demographic size, now their number has reached 6, and in 2050 10 out of 100 people will live in the first 10 cities of the Planet and 16 out of 100 in the top 20 cities. These will together overtake China's population, and by 2060, the top 20 cities on Earth are expected to have a larger population than any other state.

To facilitate the location of past states or empires, as well as cities that changed their name, the names used today are used.

Many of the countries presented in the past are no longer in line with the current border, evolving from a territorial and ethnic point of view, major to date. There are states that have had empires such as France, the United Kingdom or Spain, many still have foreign territories: Russia, Turkey or Iran, each with significant minorities, ready to start new states at any time. Others are unions or federations such as Brazil, Canada, the United States, Australia, India or China, but most of these countries have retained the same administrative center and the same dominant national group.

2. DEVELOPMENT REPORT STATES - CITIES IN THE PAST

2.1. Evolution of the State - Cities Report between 1500 and 1950

If in year 1 the population of the Planet had 150 million inhabitants, it reached 300 million inhabitants in the year 1000 (Cucu V., 1974, pp. 86-87), and in the year 1500, the population of the Planet reaches a one third of China or India. At that time, only one state had over 100 million inhabitants, and vast regions on Earth were not yet explored. Thus China with its 125 million inhabitants, if in 1500 ranked first in the world, today Japan with 126 million occupies only 11th position.

Until 1800, the total population of the Planet doubles to close to 1 billion, the second state with more than 100 million and the first state with more than 300 million people. After 100 years, there is an acceleration in demographic growth, 700 million people are added to the population of the Planet, and the third state with over 100 million inhabitants and the first state with over 400 million. Already in 1900, a single state had the total population of the World in 1500.

After 1900, the real demographic explosion was recorded, with the Earth's population rising during the Great World Wars, in just 50 years, with 860 million inhabitants, meaning the double population of the Planet in 1500 during the great geographic breakthroughs. With a total population of more than 2.5 billion people, the 4th state with over 100 million inhabitants appears and the first country to exceed 500 million people.
In this historical period, the world's borders are in constant change with the tendency to multiply, appearing new and new states to our day, the period transforming into a true state-building with the ever-increasing population growth. Many of the old states have changed the structure of ethnic, religious and linguistic diversity and the name Ottoman Empire in Turkey, Habsburg Austria and Hungary, Tsarist Empire in Russia, the Inca Empire in Peru and Bolivia, the Persian Empire in Iran, the examples may continue.

Table 1. Population of the first 10 states and cities in the world in 1500.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Population 1500 (Globe -440 millions)</th>
<th>City</th>
<th>Population (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>125</td>
<td>Beijing (Pekin)</td>
<td>1,0</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>17</td>
<td>Vijayanagaro (India)</td>
<td>0,5</td>
</tr>
<tr>
<td>3</td>
<td>France</td>
<td>16</td>
<td>Cairo</td>
<td>0,4</td>
</tr>
<tr>
<td>4</td>
<td>Germany and Italy North</td>
<td>16</td>
<td>Cusco (Peru)</td>
<td>0,3</td>
</tr>
<tr>
<td>5</td>
<td>Peru (Inca Empire)</td>
<td>12</td>
<td>Tenochtitlan (Mexic)</td>
<td>0,3</td>
</tr>
<tr>
<td>6</td>
<td>Turkey (Greece, Bulgaria, Ukraine - south, Serbia, etc)</td>
<td>11</td>
<td>Hangzhou</td>
<td>0,2</td>
</tr>
<tr>
<td>7</td>
<td>Spain (I. Hispaniola)</td>
<td>9</td>
<td>Tabriz</td>
<td>0,2</td>
</tr>
<tr>
<td>8</td>
<td>Poland - Lithuania (Ukraine - north, Belarus, etc)</td>
<td>8</td>
<td>Istanbul (Constantinople)</td>
<td>0,2</td>
</tr>
<tr>
<td>9</td>
<td>Mexico (Maya, Aztec)</td>
<td>6</td>
<td>Gauda (India)</td>
<td>0,2</td>
</tr>
<tr>
<td>10</td>
<td>Hungary (Croatia, Romania - west, etc)</td>
<td>4</td>
<td>Paris</td>
<td>0,2</td>
</tr>
</tbody>
</table>

## Cities versus states: Demographic evolution

### Table 2. Population of the first 10 states and cities in the world in 1800.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Population year 1800 (Globe-980 millions)</th>
<th>City</th>
<th>Population (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>335</td>
<td>London</td>
<td>1,3</td>
</tr>
<tr>
<td>2</td>
<td>U.K. (Canada, India south, Australia, etc.)</td>
<td>115</td>
<td>Beijing</td>
<td>1,0</td>
</tr>
<tr>
<td>3</td>
<td>France</td>
<td>45</td>
<td>Tokyo</td>
<td>1,0</td>
</tr>
<tr>
<td>4</td>
<td>Russia</td>
<td>35</td>
<td>Guangzhou (Canton)</td>
<td>1,0</td>
</tr>
<tr>
<td>5</td>
<td>Turkey (Egypt, Yemen, Iraq, Syria, Greece, Bulgaria, etc.)</td>
<td>26</td>
<td>Paris</td>
<td>0,6</td>
</tr>
<tr>
<td>6</td>
<td>Spain (Latin America, Philippine)</td>
<td>25</td>
<td>Osaka</td>
<td>0,5</td>
</tr>
<tr>
<td>7</td>
<td>Germany and Italy North</td>
<td>23</td>
<td>Naples</td>
<td>0,4</td>
</tr>
<tr>
<td>8</td>
<td>Korea</td>
<td>16</td>
<td>Madrid</td>
<td>0,4</td>
</tr>
<tr>
<td>9</td>
<td>Portugal (Brazil)</td>
<td>10</td>
<td>Vienna</td>
<td>0,4</td>
</tr>
</tbody>
</table>


### Table 3. Population of the first 10 states and cities in the world in 1900.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Population year 1900 (Globe-1,700 millions)</th>
<th>City</th>
<th>Population (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>415</td>
<td>London</td>
<td>6,5</td>
</tr>
<tr>
<td>2</td>
<td>U.K. (Canada, India, Australia, South Africa, Egypt, Nigeria, etc.)</td>
<td>380 (India 280 m.)</td>
<td>New York</td>
<td>4,0</td>
</tr>
<tr>
<td>3</td>
<td>Russia</td>
<td>136</td>
<td>Paris</td>
<td>3,0</td>
</tr>
<tr>
<td>4</td>
<td>U.S.A.</td>
<td>76</td>
<td>Berlin</td>
<td>2,7</td>
</tr>
<tr>
<td>5</td>
<td>Germany</td>
<td>56</td>
<td>Chicago</td>
<td>1,7</td>
</tr>
<tr>
<td>6</td>
<td>Austria (Hungary)</td>
<td>51</td>
<td>Vienna</td>
<td>1,7</td>
</tr>
<tr>
<td>7</td>
<td>Netherlands</td>
<td>51</td>
<td>Tokyo</td>
<td>1,5</td>
</tr>
</tbody>
</table>
Table 4. Population of the first 10 states and cities in the world in 1950.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Population year 1950 (Glob-2.560 millions)</th>
<th>City</th>
<th>Population (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>560</td>
<td>New York</td>
<td>13,0</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>370</td>
<td>London</td>
<td>12,0</td>
</tr>
<tr>
<td>3</td>
<td>U.S.A.</td>
<td>150</td>
<td>Tokyo</td>
<td>9,0</td>
</tr>
<tr>
<td>4</td>
<td>Russia (URSS)</td>
<td>100</td>
<td>Moscow</td>
<td>7,0</td>
</tr>
<tr>
<td>5</td>
<td>Japan</td>
<td>84</td>
<td>Ruhr</td>
<td>7,0</td>
</tr>
<tr>
<td>6</td>
<td>Indonesia</td>
<td>83</td>
<td>Paris</td>
<td>7,0</td>
</tr>
<tr>
<td>7</td>
<td>Germany</td>
<td>68 (East Germany 18 m.)</td>
<td>Shanghai</td>
<td>5,0</td>
</tr>
<tr>
<td>8</td>
<td>Brazil</td>
<td>54</td>
<td>Chicago</td>
<td>5,0</td>
</tr>
<tr>
<td>9</td>
<td>U.K.</td>
<td>50</td>
<td>Buenos Aires</td>
<td>5,0</td>
</tr>
<tr>
<td>10</td>
<td>Italy</td>
<td>47</td>
<td>Calcutta</td>
<td>5,0</td>
</tr>
</tbody>
</table>


At the same time, the top 10 major cities of the world have more and more millions of inhabitants, and at the same time they are able to surpass dynamically the population of the states. The first 10 cities have a population of 0.8% of the world's total population in 1500, 1.5% of the total in 1900 and 2.9% in 1950. In 1500 alone, Beijing alone had over one million inhabitants, and in 1800 there were already four metropolises with over one million people, and in 1900 all the 10 cities on the first place would exceed this threshold. Also in 1900 four cities with more than two million inhabitants are emerging, including London with over 5 million.

After just 50 years, in 1950, all 10 major cities in the world already had over 5 million inhabitants, New York and London with over 10 million.

The industrial revolution led to the development of agriculture and transport infrastructure much human life has led to technologies of human activities increasing work efficiency and also productivity and quality, requiring more and more specialized
workforce and collected a relatively small area, facilitating the demographic explosion of cities.

It is noticed that issues such as the overpopulation of the Planet or the end of resources, pollution or overcrowding in major cities are not so old concerns, appearing after 1900 and accentuating after 1950.

### 2.2 Evolution of the State - Cities Report between 1950 and 2000

In 1950, immediately after the end of the Second World War, when the European Union was founded and the great USSR was being built, when the US first appeared as an indisputable leader of the democratic world, the population, though large for that time, was only 2.5 billion inhabitants, which today would only represent the population of India and China together. In just 50 years, another 3.5 billion people are added, reaching 6 billion inhabitants in 2000. In this period of global silence during which the great wars practically disappear and medicine, food industry and food production are the largest progress, the real demographic explosion that has taken place during a human life is being launched, many of today's inhabitants of the Earth living all that time.

In 1970, there are two states with more than 100 million inhabitants and the second state with more than 500 million, and in 2000 all 10 states will exceed 100 million, and the first two states that pass the colossal amount of one billion inhabitants. Between 1900 and 1990, the population multiplied by 1.4 times in France, 1.7 times in Italy, 3.6 times in Egypt and India and more than 6 times in Mexico (Erdeli G., Dumitrache L., 2006, p. 62).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>800</td>
<td>New York</td>
<td>17.0</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>550</td>
<td>Tokyo</td>
<td>15.0</td>
</tr>
<tr>
<td>3</td>
<td>Russia</td>
<td>245</td>
<td>London</td>
<td>14.0</td>
</tr>
<tr>
<td>4</td>
<td>U.S.A.</td>
<td>210</td>
<td>Shanghai</td>
<td>12.0</td>
</tr>
<tr>
<td>5</td>
<td>Indonesia</td>
<td>120</td>
<td>Beijing</td>
<td>10.0</td>
</tr>
<tr>
<td>6</td>
<td>Japan</td>
<td>105</td>
<td>Paris</td>
<td>10.0</td>
</tr>
<tr>
<td>7</td>
<td>Brazil</td>
<td>96</td>
<td>Mexico</td>
<td>9.0</td>
</tr>
<tr>
<td>8</td>
<td>Germany</td>
<td>78</td>
<td>Buenos Aires</td>
<td>9.0</td>
</tr>
<tr>
<td>9</td>
<td>Bangladesh</td>
<td>65</td>
<td>Moscow</td>
<td>9.0</td>
</tr>
<tr>
<td>10</td>
<td>Pakistan</td>
<td>58 (56-65)</td>
<td>Osaka</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>Nigeria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>U.K.</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Italy</td>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Population year 2000 (Glob-6.060 millions)</th>
<th>City</th>
<th>Population (Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>1.240</td>
<td>Tokio</td>
<td>32</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>1.040</td>
<td>Mexico</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>USA</td>
<td>280</td>
<td>Sao Paulo</td>
<td>26</td>
</tr>
<tr>
<td>4</td>
<td>Indonesia</td>
<td>205</td>
<td>New York</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>Brazil</td>
<td>170</td>
<td>Shanghai</td>
<td>22</td>
</tr>
<tr>
<td>6</td>
<td>Russia</td>
<td>147</td>
<td>Beijing</td>
<td>19</td>
</tr>
<tr>
<td>7</td>
<td>Pakistan</td>
<td>140</td>
<td>Djakarta</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>bangladesh</td>
<td>130</td>
<td>Calcutta</td>
<td>17</td>
</tr>
<tr>
<td>9</td>
<td>Japan</td>
<td>127</td>
<td>Bombay</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>Nigeria</td>
<td>110</td>
<td>Seul</td>
<td>15</td>
</tr>
</tbody>
</table>


Although the total population of the planet had an unimaginable increase between 1950 and 2000, the total population of the top 10 cities increased as a percentage of the total population, from 2.9% to 3.6%. Between 1920 and 1960, the population of cities increased 2.5 times in Oceania and North America, 4 times in Asia and 5 times in Latin America, Africa and the USSR (Cucu V., 1974, p. 37). If in 1950 there were 3 cities with more than 9 million inhabitants, in 1970 all 10 cities were over 9 million people, defending the first two cities that exceeded the threshold of 15 million inhabitants. After just 30 years, in 2000 all 10 cities were over 15 million people, and 5 cities already reach over 20 million of which 4 to over 25 million. For the first time in the history, the first cities with a population of more than 30 million inhabitants appear in the capitals of Japan and Mexico.

3. STATES VERSUS CITIES, POPULATION IN 2017.

With the 7.5 billion inhabitants, the planet seems to be more subdued and the rhythm of growth remains extremely high, rising in just 17 years, between 2000 and 2017, with 1.5 billion inhabitants, the double population of the continent of Europe. The first two states with more than 1,300 million inhabitants, a state of 300 million and two 200 million inhabitants each. There are 13 states that hold over 100 million people, and those with more than 80 million inhabitants, compared to or over the German population, are 19.

Cities in the capitalist period are experiencing an explosion in population numbers that has not occurred in history, preceded by factors that have spurred this process, including: vertiginous trade growth, industrial revolution, transport progress, colonialism and the demographic explosion (Cucu V 1974, p. 188).

There are many reasons why large cities have come to dominate the world. One of these is because the population of several cities exceeds most of the world’s population. The population of cities has surpassed the population and this trend continues. There are already cities which, along with the outskirts, have populations that exceed the number of inhabitants of Germany, France, Spain or the Netherlands.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Population 2017 (Globe 7.5 billions)</th>
<th>Urban agglomeration</th>
<th>The population (large urban agglomeration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>1.385</td>
<td>Tokyo</td>
<td>40,0 (43,0)</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>1.340</td>
<td>Shanghai</td>
<td>35,0 (104,0)</td>
</tr>
<tr>
<td>3</td>
<td>U.S.A.</td>
<td>325</td>
<td>Jakarta</td>
<td>33,0 (50,0)</td>
</tr>
<tr>
<td>4</td>
<td>Indonesia</td>
<td>260</td>
<td>Chongqing</td>
<td>32,0 (50,0)</td>
</tr>
<tr>
<td>5</td>
<td>Brazil</td>
<td>210</td>
<td>Mexico</td>
<td>32,0 (36,0)</td>
</tr>
<tr>
<td>6</td>
<td>Pakistan</td>
<td>195</td>
<td>Sao Paulo</td>
<td>30,0 (37,0)</td>
</tr>
<tr>
<td>7</td>
<td>Nigeria</td>
<td>190</td>
<td>New York</td>
<td>29,0 (31,0)</td>
</tr>
<tr>
<td>8</td>
<td>Bangladesh</td>
<td>163</td>
<td>Karachi</td>
<td>28,0 (-)</td>
</tr>
<tr>
<td>9</td>
<td>Russia</td>
<td>143</td>
<td>Guangzhou</td>
<td>27,0 (65,0)</td>
</tr>
<tr>
<td>10</td>
<td>Mexico</td>
<td>130</td>
<td>Delhi</td>
<td>27,0 (46,0)</td>
</tr>
<tr>
<td>11</td>
<td>Japan</td>
<td>126</td>
<td>Beijing</td>
<td>27,0 (85,0)</td>
</tr>
<tr>
<td>12</td>
<td>Ethiopia</td>
<td>104</td>
<td>Manila</td>
<td>27,0 (34,0)</td>
</tr>
<tr>
<td>13</td>
<td>Philippines</td>
<td>103</td>
<td>Seul</td>
<td>26,0 (-)</td>
</tr>
<tr>
<td>14</td>
<td>Vietnam</td>
<td>95</td>
<td>Mumbai</td>
<td>25,0 (-)</td>
</tr>
<tr>
<td>15</td>
<td>Egypt</td>
<td>95</td>
<td>Dacca</td>
<td>22,0 (50,0)</td>
</tr>
<tr>
<td>16</td>
<td>Congo</td>
<td>81</td>
<td>Lagos</td>
<td>22,0 (35,0)</td>
</tr>
<tr>
<td>17</td>
<td>Iran</td>
<td>81</td>
<td>Cairo</td>
<td>21,0 (28,0)</td>
</tr>
<tr>
<td>18</td>
<td>Germany</td>
<td>81</td>
<td>Osaka</td>
<td>20,0 (-)</td>
</tr>
<tr>
<td>19</td>
<td>Turkey</td>
<td>80</td>
<td>Los Angeles</td>
<td>19,0 (25,0)</td>
</tr>
<tr>
<td>20</td>
<td>Thailand</td>
<td>68</td>
<td>Calcuta</td>
<td>18,0 (38,0)</td>
</tr>
</tbody>
</table>


A special situation is found in states with continental dimensions such as Canada or Australia, which are overtaken by cities in the immediate vicinity. Thus, Canada with a surface of the continent of Europe or the United States has a population similar to that of New York, Mexico or Sao Paulo on the continent of America. The city of Jakarta on the small island of Java has a double population to the state of Australia, and in South-Eastern Europe, only Romania with the 20 million inhabitants, has a population exceeding the city of Istanbul, which together with the metropolitan area has 18 million of people. Situated on the continents of Europe and Asia, the city has many people living in Asia and working in Europe, or vice versa, crossing the Galata bridge connecting the two shores (Nedejda I., 2008, pp. 136-141).

Delhi, with the 46 million inhabitants of the urban agglomeration, is overtaking the Spanish population, and cities like Lagos with 35 million inhabitants or Cairo with 28 million metropolitan areas exceed three times the population of Belgium or Hungary, and twice the population of the Netherlands.

Of the over 200 states on Earth, only 27 outnumber the population of 50 million. Very well-known states such as Poland, Ukraine, Argentina, Algeria, Saudi Arabia, Malaysia, Australia or Spain are far from reaching that number of inhabitants. In contrast,
very few known cities, such as Dacca in Bangladesh or Chongqing in China, each have 50 million people together with the metropolitan area.

The city of Shanghai in China has a population of 35 million. But with its outskirts, it reaches 104 million, a population that exceeds almost all European states, except for the European Russia that has 110 million.

In 2017, the population of the top 10 cities is up to 4.2%, and together with their periphery, they account for 6.5% of the total Earth’s population. There are 18 cities with over 20 million inhabitants, and the top 20 cities together with the big crowd reach 11.4% of the total population of the planet, meaning that one in 10 people on Earth lives in the top 20 cities. For the first time there is a city with over 40 million and six cities with more than 30 million inhabitants.

4. DEMOGRAPHIC PROJECTION OF THE STATE-CITY REPORT FOR THE YEAR 2050

It is expected that by 2050, at least over 32 years, the Earth’s population will increase, according to the events produced, from 2.5 to 3.5 billion inhabitants to about 10 billion people. Over 30 years, 20 states will exceed the population of 100 million and the top 10 will each have over 200 million. Six countries will exceed the threshold of 300 million, compared with only 3 of them currently, of which 4 will have over 400 million. China will reach 1.5 billion and India is believed to exceed 1.6 billion, perhaps even more than 1.8 billion.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Population 2050 estimated between: (Globe 9.3 - 10.8 billions)</th>
<th>Urban agglomeration</th>
<th>Estimated population (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>India</td>
<td>1.600-1.850</td>
<td>Shanghai</td>
<td>150</td>
</tr>
<tr>
<td>2</td>
<td>China</td>
<td>1.400-1.550</td>
<td>Guangzhou</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>Nigeria</td>
<td>380-460</td>
<td>Dhaka</td>
<td>130</td>
</tr>
<tr>
<td>4</td>
<td>U.S.A.</td>
<td>390-450</td>
<td>Beijing</td>
<td>120</td>
</tr>
<tr>
<td>5</td>
<td>Pakistan</td>
<td>300-380</td>
<td>Delhi</td>
<td>110</td>
</tr>
<tr>
<td>6</td>
<td>Indonesia</td>
<td>310-360</td>
<td>Lagos</td>
<td>90</td>
</tr>
<tr>
<td>7</td>
<td>Ethiopia</td>
<td>230-270</td>
<td>Karachi</td>
<td>85</td>
</tr>
<tr>
<td>8</td>
<td>Brazil</td>
<td>230-260</td>
<td>Jakarta</td>
<td>85</td>
</tr>
<tr>
<td>9</td>
<td>Congo</td>
<td>210-250</td>
<td>Lahore</td>
<td>70</td>
</tr>
<tr>
<td>10</td>
<td>Bangladesh</td>
<td>210-250</td>
<td>Calcuta</td>
<td>70</td>
</tr>
<tr>
<td>11</td>
<td>Mexico</td>
<td>160-170</td>
<td>Chongqing</td>
<td>65</td>
</tr>
<tr>
<td>12</td>
<td>Egypt</td>
<td>130-170</td>
<td>Manila</td>
<td>60</td>
</tr>
<tr>
<td>13</td>
<td>Tanzania</td>
<td>120-150</td>
<td>Kampala</td>
<td>60</td>
</tr>
<tr>
<td>14</td>
<td>Philippines</td>
<td>150-170</td>
<td>Mexico</td>
<td>55</td>
</tr>
<tr>
<td>15</td>
<td>Russia</td>
<td>110-130</td>
<td>Sao Paulo</td>
<td>55</td>
</tr>
<tr>
<td>16</td>
<td>Vietnam</td>
<td>110-130</td>
<td>Cairo</td>
<td>55</td>
</tr>
<tr>
<td>17</td>
<td>Kenya</td>
<td>100-130</td>
<td>Mumbai</td>
<td>55</td>
</tr>
</tbody>
</table>
Cities versus states: Demographic evolution

If in 2017 only one city reaches 40 million inhabitants, in 2050 the population of large urban agglomerations will exceed 50 million inhabitants for the first 24 places, and the top 10 cities with outlying areas will exceed 70 million inhabitants. If only currently Shanghai with Hangzhou, Nanjing, Ningbo, Suzhou, Wuxi, Changzhou, Nantong satellite city, etc. reaching more than 100 million, in 2050 there will be 5 cities with a larger population than the population of Russia or Japan. The population of the first 10 cities will reach over 10% of the world's total population and the top 20 cities will account for 16% of the total population of the Earth. Of the 100 inhabitants of the planet, 16 will live in the top 20 cities. The first cities of the world by the number of inhabitants will have a larger population than the population of China and by 2060 will equal the population of India.

5. CONCLUSIONS

Demographic explosion is a feature of the last half of the millennium, notably the last 117 years. Between 1500 and 2050, the population of the Planet will grow 20 times. It is noticed that the large demographic growth takes place after the year 1900 and is rising more rapidly after 1950.

It is highlighted that the percentage of the population of the first two states of the total population of the Planet is in continuous decline, due to the decolonization and the establishment of new states. It also substantially increases the importance of the first 10 countries as a population.

Table 9. Evolution of the World Population and its occupied percentages of the most populated states and first cities, between 1500 and 2050

<table>
<thead>
<tr>
<th>Year</th>
<th>1500</th>
<th>1800</th>
<th>1900</th>
<th>1950</th>
<th>1970</th>
<th>2000</th>
<th>2017</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population Globe (millions)</td>
<td>440 m.</td>
<td>980 m.</td>
<td>1.700 m.</td>
<td>2.560 m.</td>
<td>3.670 m.</td>
<td>6.060 m.</td>
<td>7.500 m.</td>
<td>10.000 m.</td>
</tr>
<tr>
<td>Population first country out of total %</td>
<td>China 28 %</td>
<td>China 34 %</td>
<td>China 24,4 %</td>
<td>China 21,8 %</td>
<td>China 21,8 %</td>
<td>China 20,4 %</td>
<td>China 18,4 %</td>
<td>India 17,0 %</td>
</tr>
<tr>
<td>P. second state %</td>
<td>Japan 3,8 %</td>
<td>UK 11,7 %</td>
<td>UK 22,3 %</td>
<td>India 14,4 %</td>
<td>India 15,0 %</td>
<td>India 17,1 %</td>
<td>India 17,8 %</td>
<td>China 15,0 %</td>
</tr>
</tbody>
</table>

An even greater population growth is found in the major cities of the world. This was the most pronounced evolution of the demographic explosion, rising above the total population of the planet, from 0.8% of the total population to 1500, 1.5% in 1900, and 6.5% now and will reach 10.5% in 2050 and 16% in the top 20 cities.

Asia held in all major cities on Earth, but second place was always changing, took a long time to Europe, America now and in the future will be taken from Africa. Both the population explosion and industrial revolution gave rise to the largest cities in the world according to regions which have developed, the main requirements to show an urban agglomeration of several million. The largest cities of the world shows the most populated areas and developed on Earth in various periods of demographic change worldwide. Because the population explosion is the latest in the last 120 years world population increased 5 times, it is necessary that global demographic statistics present demographic situation every time becomes shorter.

It is understood that the population of the Planet is in a continuous demographic growth in the future, and the top 20 states as a population will have more and more millions of people. Their top is the demographic growth of the top 20 cities on Earth, which have not yet reached the middle of the process of expansion and overcrowding, and the attraction of people to live in the world's major centers or in their immediate peripheral areas is still far from it's over.
Cities versus states: Demographic evolution
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GRASSLANDS DEGRADATION UNDER THE INFLUENCE OF SOIL CHARACTERISTICS AND EROSION PROCESSES

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Abstract. The main purpose of this study is to analyze the type and degree of degradation of grasslands, according to some soil characteristics in order to establish methods to improve their qualitative. Quantitative and qualitative estimation was made based on data and soil maps, through empirical methods, but also using modern methods applied with specialized software. The most "conspicuous" limiting factors of grasslands productivity are sheet erosion, surface humidity and soil acidity, 3.21% of the area is affected by a single limiting factor, 48.72% is subject of two factors and on 45.91% acting three restrictive factors.

Keywords: factors, limiting, representation, grasslands, improvement.
1. INTRODUCTION

In Romania, permanent grassland occupies the area of 4815815 ha (3273961 ha pastures and 1541854 ha hayfields), which represents 32.95% of the total agricultural area, according to data from the National Statistics Institute (2013). In terms of territorial distribution, grasslands overlap on all drives and landforms, but in hilly and mountainous areas have the highest share, ie 79% (Marușca, T., et al, 2014), which means that, in terms of soil characteristics, they are subject to degradation processes and/or limiting factors of agricultural productivity.

In accordance with physical and geographical characteristics, some of the most "obvious" limiting factors are soil acidity, moisture and erosion phenomena.

Soil acidity, with moderate and strong intensity, manifests on approx. 3.4 million ha of agricultural land; of the total area of grasslands, 26% is affected by action of this limiting factor (Marușca, T., et al, 2014).

Rainwater erosion occurs, with different intensity, on around 50% of arable and agricultural land of Romania (Moțoc, M., Mircea, S., 2002, Montanarella, I., 2007) at the grassland areas affected approx. 18% of them (Marușca, T., et al, 2014). D. Norton, et al (1999) in the article "Erosion and soil chemical properties", emphasizes the idea that this phenomenon is triggered and maintained by natural factors, but can be amplified by human activities, especially on agricultural soils, following specific practices improperly executed.

Excessive soil moisture regularly affects in Romania, approx. 3.8 million ha, most of which are located in the perimeters of drying-drainage works, which does not work with expected efficiency (http://www.anpm.ro/). Of the total area of grassland, 6% is affected by excessive moisture (Marușca, T., et al, 2014).


The main purpose of this study is to analyze the type and degree of degradation of grasslands, depending on the intensity and type of processes and limiting factors that manifest on soils and thus on them, in order to establish methods to improve their quality, using both, empirical methods and modern techniques applied with specific software.

2. MATERIALS AND METHODS

Geographical area selected as a case study overlaps on administrative-territorial unit (ATU) Secaș, Timiș County. On the agricultural area of ATU Secaș were analyzed only certain included in land use categories „pastures” and „hayfields”.

For demarcating areas of grassland were used data about grasslands area, taken from the local administration of Secaș, cadastral maps, topographic maps and orthophotos, taken from the Office of Cadastre and Land Registration, Timiș.

Conversion of grassland areas information in digital format was done by tracing the shapefile polygon type, subsequently being created its database (grassland name, area, etc).
For processing and generating graphic and cartographic representations (thematic maps, parcels analysis, various statistical calculations) was used ArcGIS 10.2.1. software.

Data on soil units, but also those related to the action and intensity of grassland productivity limiting factors were taken from the archives of the Office of Pedological and Agrochemical Studies of Timișoara (OSPA Timișoara). Also, for spatial representation of soil units was used the ATU Secaș soil maps (1:10,000), by vectorization obtained the soil map in vector format.

3. RESULTS AND DISCUSSIONS

Grassland areas analyzed in this paper are located in the administrative territory Secaș, in north-eastern part of Timiș County, located in the Lipovei Hills, at low altitudes (Figure 1), between 122 - 284 m (http://www.eea.europa.eu/, http://www.geo-spatial.org/).

![Fig. 1. Grasslands surface located in the ATU Secaș](processing by http://www.eea.europa.eu/, http://www.geo-spatial.org/, Law. number 165/2013 – Annex 5 – from ATU Secaș)
Grasslands degradation under the influence of soil characteristics and erosion processes

The total area of ATU Secaș is 5767 ha (OSPA Timișoara). From this, approx. 87% or 5006 ha is agricultural land. Grasslands areas (pastures and hayfields) totaling 1054.57 ha, with an uneven territorial distribution, on all forms of relief (Figure 1).

Particular importance in quantitative and qualitative analysis of grasslands, has soil, considered the "heart of terrestrial ecosystems" (Brady, C.N., Weil, R.R, 2008, p. 280).

Agricultural soil is subjected to intensive anthropogenic action, through technological and pastoral systems applied, its processes natural training are so negative modified being "encouraged" degradation (physical, chemical, biological), which causes reduced fertility, productive capacity and thus its quality (Marinca, C., et al, 2009).

Given that the study addresses only some of the grassland areas of ATU Secaș, Timiș County, were analyzed only soils "covered" by them. Soil taxonomic classification was made according to Romanian System of Soil Taxonomy (RSST 2012). In areas used as grasslands are identified five classes of soils. To facilitate graphic representation, for the name classes of soil were used abbreviations, according to the literature (Figure 2).

Fig. 2. Spatial distribution of soil depending on soil class *
(processing by soil maps 1:10,000 developed by OSPA Timisoara)
The weight and the territorial distribution of soils is varied (Figure 2). *Luvisols class*, made up of luvosol and preluvisol, occupies the largest area (46.03%) and is found in all forms of relief. *Anthrosols class* (the majority being anthrosol) was identified on large areas (38.17%), is present, mostly on eroded slopes and in valleys of erosion. *Vertisols class* (8.13%) occurs in flat areas, the largest spread are the vertisol. *Hydrosols class* (5.63%) is spread across the landforms, flat terrace areas and riverbanks, predominant is *gleysol* and *cambisols class* (type eutricambosol) occupy smaller areas (1.88%) and is found in low areas, on couple relief, along with hydrosols.

Soil fertility, considered "function of the unified system soil - plant - atmosphere" (Blaga, Gh., et al., 2005, p. 22), is influenced by a series of degradation processes and/or limiting factors, represented by some soil characteristics and/or environmental factors.

Given that the central subject of this study is the relation soil - grassland, consistent with the physical, geographical and soil conditions, the most "conspicious" limiting factors of grasslands productivity from ATU Secaș, Timiș County, are (Figure 3):

- sheet erosion – 921.20 ha (87.38%)
- surface humidity – 660.54 ha (62.66%)
- soil acidity – 395.58 ha (37.52%).

Limiting factors and/or soil degradation processes, with direct influence on the quality of grasslands, act with different intensities and are interdependent. Of the total area of grasslands analyzed, the largest areas are affected by the surface soil erosion, this phenomenon having the sharpest intensity.

From the data above, it appears that on a soil units can operate simultaneously one or more limiting factors (Figure 4), which entails taking complex measures to improve that minimize or eliminate their destructive effect.
To quantify the "participation" of each limiting factor at the qualitative degradation of grasslands, under the three cases, the affected areas were calculated, reported on the surface to related case in question (Figure 5).

Based on the data shown in Figure 5, can be formulated and implemented control measures and qualitative improvement of the soil and thus the productive capacity of grassland that they "maintain", depending on the intensity and type of processes and factors that contribute to the formation and evolution of the phenomenon of degradation.
Grasslands degradation under the influence of soil characteristics and erosion processes

Case I - degradation by 1 limiting factor, with intensity:
1 - moisture - moderate
2 - erosion - moderate
3 - erosion - severe

Case II - degradation by 2 limiting factor, with intensity:
4 - moderate erosion and low humidity
5 - severe erosion and low acidity
6 - severe erosion and low humidity

Case III - degradation by 3 limiting factor, with intensity:
7 - moderate humidity and moderate erosion
8 - severe humidity and moderate erosion
9 - moderate erosion
10 - severe erosion
11 - severe erosion and moderate humidity
12 - severe erosion and moderate acidity
13 - severe acidity

Fig. 5. Mode of soil degradation covered with grasslands

This establishes how it will act and through spatial representation of the destructive phenomena, the area where will be applied those measures.

4. CONCLUSION

In this study were analyzed 1054.57 ha of grassland superimposed on soils classified, in the vast majority, of luvisols and anthrosols class. Consistent with the characteristics of these soils, grassland productivity is diminished by sheet erosion (87%), excessive moisture (62%) and soil acidity (37%), factors that act with different intensities.

To establish mitigation measures, will take into account that 3.21% of the area analyzed is affected by a single limiting factor, 48.72% is subject of two factors and on 45.91% acting three restrictive factors.

The intensity of the phenomena and how to associate them indicates the type of mitigation measures to be undertaken. Under a unitary approach, overall, it is recommended execution, individually or "blended" of technical work, such as: vegetative cover providing continuous coverage the greatest possible, application of limestone amendments, works to exclude excess moisture from the soil surface.
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*** Arhiva Ociului de Cadastru și Publicitate Imobiliara Timiș
*** Arhiva Primăriei comunei Secaș, județul Timiș