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## EDITORIAL

Over 2000 years old, the science of geography studies a shell whose foundation lies in the depths of the Earth's crust, and the upper part reaches the stratosphere, comprising relief, waters, air, soils, fauna, among which the human being, all of them interconnected in one of the most complex systems, progressively formed over four billion years.

The study of the environment on the Earth's surface, but also of the planet as a whole, is performed through the research of its components, of the (usually visible) phenomena and processes that occur in that space, but also of the interrelations between them. The need to emphasise the interrelations between the elements and the phenomena occurring in certain spaces, as well as the need to systematically know the elements themselves have led to the occurrence of a specific method (the thematic map), justifying the fact that geography is, first and foremost, a science of field observations.

Geography as a whole has evolved a lot in the last decades, fact proven by the published papers, many of them in a context of interdisciplinarity and transdisciplinarity that was almost unbelievable in the past. We should only mention the global environmental changes, involving the two wide fields of geography (physical and human), alongside other wide fields of science (geology, geophysics, biology, ecology etc.). We also add the general geographical approach of some concepts such as space (including its organization), place, location, territory, territoriality and so on.

Central European Journal of Geography and Sustainable Development (CEJGSD) is being launched as a response to the exciting world of physical and human geography research that is emergent in response to these changes happening in the real world. It is the result of an older collaboration between the Department of Business Administration of the Faculty of Economic Sciences (Petroleum-Gas University of Ploiești) and the Interdisciplinary Center of Advanced Research on Territorial Dynamics (CICADIT) of the Faculty of Geography (University of Bucharest), but also of the close connections between famous geographers and researchers from the Central European countries.

Since its initiation, the Journal was organised and managed with the involvement of the academic teaching staff and researchers and with the widest possible international participation. The international approach is aimed at bringing about a worldwide opinion on the issues faced by the geographical research within the sustainable development and at favouring the exchange of information and scientific knowledge among researchers, academic teaching staff and those operating in various economic fields.

Though CEJGSD is primarily concerned with looking at regional, urban and rural change in the space of Central Europe, case studies exploring similar problems but in other parts of the world are certainly parts of the journal's agenda. The remit of the journal is emphatically interdisciplinary. Articles will be published by geographers, economists, sociologists, planners, political scientists, to mention just a few of the disciplines involved in urban, rural and regional study.

CEJGSD is a scientific journal, issued twice a year, dedicated to the publication of articles, essays and theoretical and empirical research of high quality in all areas of theoretical and applied geography. The journal is characterized by a rigorous process of reviewing articles submitted for publication, a process conducted by a scientific committee that includes personalities from many relevant institutions in the country and from abroad. All articles are published in English and undergo a double-blind peer-review process.

My personal thanks go, in primis, to the director of CICADIT Prof. Ioan Ianoș, Ph.D, and to the Co-Editors of journal Igor Sîrodov and Natașa Vaidianu - Ovidius University of Constanța for the trust they have placed in this project. My thanks also go to all the members of the Editorial Board for agreeing to share the work and the responsibility that the management of the Journal entails.

Adrian NEDELCU  
Editor-in-Chief

# Use of Natural Tourism Potentials for Sustainable Development in the Special Nature Reserve “Koviljsko-petrovaradinski rit” Vojvodina (Northern Serbia)

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**Abstract:** This paper presents the results of the research through the analysis of a significant number of data regarding activities aimed at improving the sustainable tourism development in the area of the Special Nature Reserve “Koviljsko-petrovaradinski rit”, in which tourism is carried out. Consideration of the current situation and the model of protection can provide positive suggestions through contributions of future plan strategies for protection of this area, towards the significant improvement of tourism development. The aim of area protection is to constitute new ones or implement current protection measures of the area through proper monitoring in order to accomplish positive ecological, social, and economic long-term results. This is also the basic postulate of the sustainable tourism development of this special nature reserve.

**Key words:** Tourism, area protection, sustainable tourism development, Vojvodina, Danube.

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## 1. INTRODUCTION

Special Nature Reserve (SNR) “Koviljsko-Petrovaradinski rit” is one of the 135 protected nature reserves in the Autonomous Province of Vojvodina [1]. Within the protected area of this special nature reserve, there are various biocenosis in which endemic plant and animal species are inhabited, a sensitive aquatic ecosystem, parts important for the sustaining of the ecosystem in which the ecological objectives are priorities in monitoring systems, protection, and preservation of a unique area, and many other reasons. Because of this, the Special Nature Reserve “Koviljsko-petrovaradinski rit” represents a significant tourism potential. In addition to the socio-economic and catalyst function, tourism could have a major influence on the development and sustainability of this nature reserve. Properly planned tourism development can contribute to economic, socio-cultural and, equally important, ecological benefits of the destination [2]. It is the concept of sustainable tourism development that is based on this principle [3].

The topic of the research in this paper is the relationship between tourism and the ecosystem in this special nature reserve. A link between these two sides should be sustainable tourism development. After the conducted research, the task is to present data which will contribute to the establishment of scientific conclusions regarding the implementation of sustainable tourism development and the use of natural tourism potentials in the SNR “Koviljsko-petrovaradinski rit”.

The subject of the research in this paper is the protected area within which certain forms of positive and negative anthropogenic effects on certain elements of the ecosystem are being carried out, which make this area exceptionally unique in the world. In addition to that, the research is related to the existing and potential forms of tourism activities that use natural resources of this area, but in a sustainable manner, without the elements of environmental and ecosystem degradation [4].

The concept of protection of the SNR “Koviljsko-petrovaradinski rit” presents the guarantee of preservation of areas through its use, both by the local community and for the needs of tourism [5]. In this way, a positive response is given to sustainable tourism development. Proper management can be a good

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example of the organization of protection monitoring in other protected areas of Vojvodina and the region.

## 2. LITERATURE REVIEW

Previous research has made a significant contribution to the definition of certain tourism activities that aimed at the use of basic resources from the environment. The use of these resources has usually modified the area, adjusting it to the needs of tourism [6]. Over time, resources have been significantly wasted, and the activities have influenced the degradation of ecosystems [7]. Numerous world organizations, institutions, and societies have been involved in the systems of area protection as the consequences of degradation have become larger.

International Union for the Conservation of Nature (IUCN) describes a protected natural resource as a space that covers a protected area of natural importance, within which various activities including tourism ones, are being performed [8], and it is protected for the reason of preventing exploitation and possible degradation [9]. Alongside world practice, the Republic of Serbia passed the laws that are significant for nature protection [10] and numerous regulations that define individual measures and elements of area protection. The Special Nature Reserve "Koviljsko-petrovaradinski rit" has been established with The Decree on Designation of Special Nature Reserve "Koviljsko-petrovaradinski rit" [11]. The Special Nature Reserve "Koviljsko-petrovaradinski rit" Management Plan 2012-2021 [12] regulated the way of management and protection measures of this reserve. The authors Štetić, Cvijanović, and Šimičević [13] and Stojanović [3] have explored some of the influences of tourism activities in this area, contributing to sustainable tourism development. Author Mrkša, 2008 [14], gave scientific contribution and protection regime to the research of levels of tourism effect of this special nature reserve's area considering basic potentials of the area and the represented species of plants and animals. Fennell [15,16], gave significant suggestions and concepts of the development of world ecotourism whose models of activities can be implemented in this nature reserve. Ecotourism and its forms that are based on the preservation and improvement of the elements of the ecosystem are significant for sustainable tourism development in the Special Nature Reserve "Koviljsko-petrovaradinski rit". Its proper implementation will secure the socio-cultural, economic, and ecological benefits [17], for the tourist destination [18].

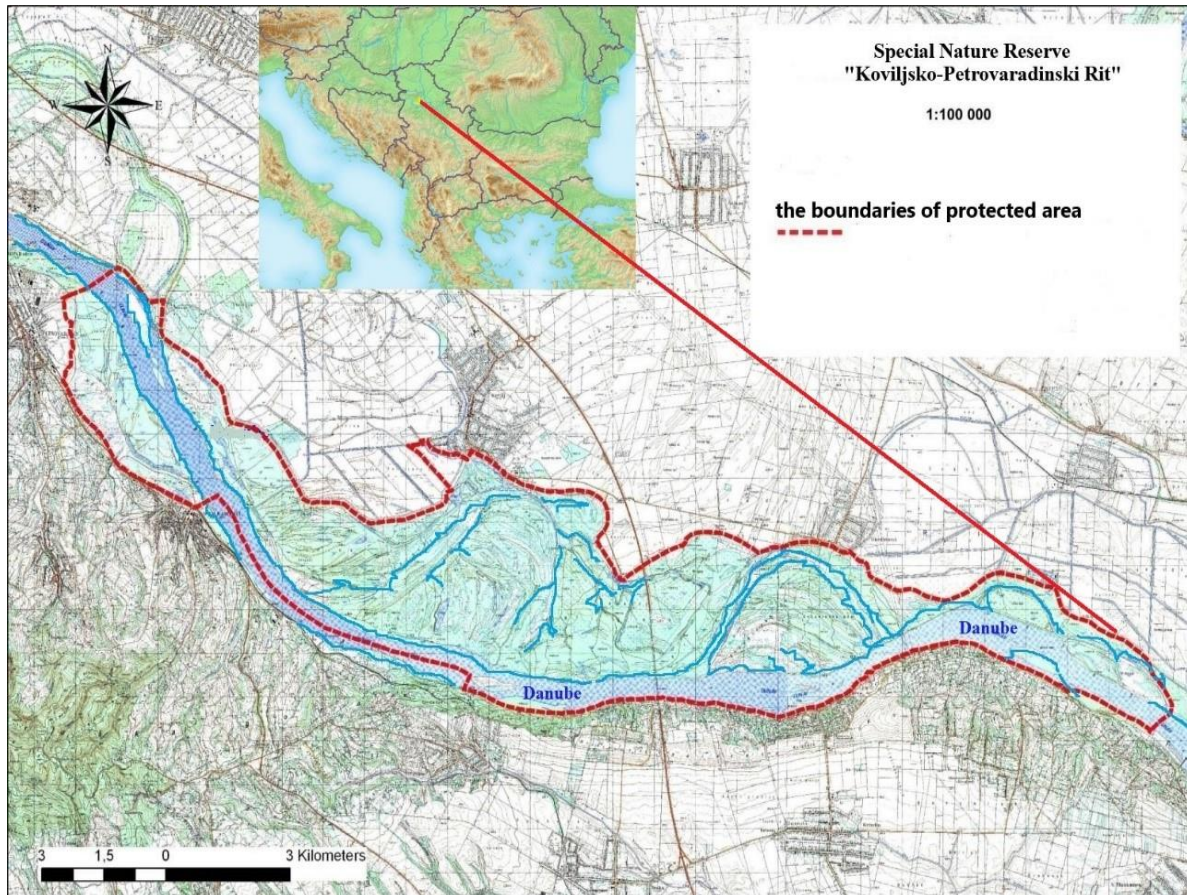
## 3. METHODS AND DATA

This special nature reserve is located in the southeastern part of Bačka and the northeastern part of Srem, more precisely in the northeastern foothills of the mountain of Fruška Gora. It spreads on the left and right banks of the Danube's mean, from 1.230 to 1.250 km and it covers Danube's vast bottomland. As it occupies a mooring area along the settlements of Petrovaradin and Kovilj, it was named after them. The reservation coordinates are 45°11'34" of the north latitude (NL) and 20°02'10" of the east longitude (EL). The area of the reserve covers an area of 4,840 ha and covers the territory of the municipalities of Novi Sad (Kovilj, Kać, and Petrovaradin), Indjija (Čortanovci and Beška), Sremski Karlovci and Titel [19].

From the above, it can be concluded that the area of the reserve has a very favorable geographical position, due to the adjacency of the main center of administration of Belgrade, the city of Novi Sad, the adjacency of important roads and potentially important dispersive zones.

SNR "Koviljsko-petrovaradinski rit" is settled in the lowest geomorphologic complex of the alluvial plain, on the left bank of the Danube. The reserve is in certain places up to 5 km long [20]. The current of the Danube has a plain character, characterized by slow flow and mild descent. The branches of the river pervade the moor, which is the result of flooding. For the same reason, there are also numerous holms, covered with various and rare vegetation. In addition to small river islands, in terms of the landscape, as well as higher ground and depressions in lower parts. Some parts of the reserve have an altitude from 72 to 76 m [14].

SNR "Koviljsko-petrovaradinski rit" has the tepid climate, with distinctively continental climatic characteristics. According to the data from the weather station in Rimski Šančevi, the average annual air temperature, in multi-annual average, is approximately 11°C. The coldest month is January with -0,7°C, and the hottest is July with 21.4°C. The month with the biggest precipitation is June, and the driest is January. The average annual rainfall is 608 mm. The dominating winds in this area are blowing from the southeast, i.e. the Košava southeastern wind with the average speed from 2.0 to 6.5 m/s. It mainly occurs in the winter and spring and brings dry and cold weather. In addition to Košava, there are the northwestern and western winds, while others occur significantly less often [19].



**Figure 1.** Management Plan of Special Nature Reserve "Koviljsko-petrovaradinski rit"

Source: [12], authors modified

The area of SNR "Koviljsko-petrovaradinski rit" reserve is protected by Article 29 of Law on Nature Protection [10], as the First Category – a protected area of international, national, and exceptional importance and Article 17 of the same Amendments Act due to its rarities and specific characteristics of wetlands and characteristic representatives of flora and fauna. According to the IUCN system of international protection, it is classified in IV category – Habitat and species management area [21], i.e. the area of land that is controlled by active protection measures, in order to preserve the habitats and provide conditions for subsistence of certain species [12,22].

SNR "Koviljsko-petrovaradinski rit" is spacious wetlands along the Danube, with a total area of 5,896 ha [23]. It is located within the alluvial plain of the Danube, 25.6 km long. It covers three separated spatial units [24]:

- The moor of Petrovaradin, located on the Srem side of the river (1.411 ha);
- The moor of Kovilj, which is on the left bank of the Danube (3.430 ha);
- The Island of Krčedin and the moor area of Gardinovci village (1.050 ha).

In the I degree protection regime there is 375.77 ha (approximately 6% of the total surface of protected area) [13], in the II degree protection regime there is 1.738 ha (29%), and in the III degree protection regime there is 3.784 ha (65%). The Public Enterprise "Vojvodinašume" [24] was designated for managing the Special Nature Reserve "Koviljsko-petrovaradinski rit". The reserve represents the biggest preserved complex of moors along the Danube in Serbia, which is located in the wetlands with its entire surface, and it is directly affected by the water level. The protection of natural values dates back to 1970 when a part of the forests of black and white poplar, white willow and pine in Kovilj Moor was declared as Scientific Research Reserve "Kozjak" (43.6 ha). Initiative for the establishment of integrative protection of Kovilj and Petrovaradin Marshes was provided by the Provincial Institute for Nature Protection in 1971, while the protection was established in 1998, in an area of 4.840 ha. After the revision of natural values in 2010, the borders were expanded to the Island of Krčedin and a part of the moor area of Gardinovci village [25]. SNR "Koviljsko-petrovaradinski rit" is, according to the current laws, under the

protection as a natural site of exceptional significance, and is classified in the I protection category as a Special Nature Reserve [11].

International significance protection is attained by the following statuses:

- IBA (Important Bird Areas) – a significant bird area Kovilj Moor, with the surface of 9.594 ha, and Petrovaradin Moor – 5.500 ha [24];
- IPA (Important Plant Areas) – a significant botanical area was singled out for 2004-2005 as an internationally significant botanical area, with a surface of 4.844 ha [26];
- ICDPR area along the Danube River (International Commission for the Protection of the Danube River), SNR “Koviljsko-petrovaradinski rit” was included in the list of protected areas dependent on water and significant for the Danube Basin in 2004;
- The network of protected areas on the Danube (Danube Network Protected Areas) – was included in the Danube Network Protected Areas as one of the five protected areas in Serbia. The Network also includes SNR “Gornje Podunavlje”, SNR “Karadjordjevo”, SNR “Deliblatska Peščara”, and National Park “Djerdap”, as well as protected areas along the Danube River in other countries, that are bigger than 1.000 ha [24];
- Ramsar site – promulgated 27.03.2012 [12]. Ramsar convention on wetlands and their resources [27]. Wetlands represent areas with rare, valuable, and very fragile ecosystems [28];
- A potential Natura 2000 area [26];
- DNPA area (Dartmoor National Park Authority);
- EMERALD area 4.841 ha [25].

Depending on the relief and water regime a diverse living world was developed. There were identified 39 priority types of habitats for protection at the national and international level. There are 29 habitats that are functionally unstable and vulnerable to degradation. There are 6 rare habitats that are slowly regenerating, as well as 2 separate habitats of Common oak and Narrow-leaved ash, and the forests of Field elm (*Ulmus campestris*). There are registered seven priority NATURA 2000 habitats.

The abundance of flora is reflected in the presence of 443 taxa of higher plants, 19 of which strictly protected [25].

Among species that are significant for the protection of aquatic habitats, the following should be distinguished: *Numphar luteum* – The yellow water lily, *Nymphaea alba* – European white water lily, *Trapa natans* agg. – The water caltrop, *Utricularia australis* – The bladderwort. There are also species significant for semi-aquatic and muddy habitats: *Acorus calamus* – Calamus, *Marsilea quadrifolia* – Water clover (the Island of Krčedin is the place of the biggest and most numerous populations of this species in Serbia), *Equisetum fluviatile* – Water horsetail, *Iris sibirica* – Siberian iris, *Crataegus nigra* – Hungarian hawthorn, etc. [12].

The abundance of fauna is reflected in the presence of 42 protected and strictly protected species of insects, such as Hoverfly (*Epistrophe melanostoma*), and *Neoscia interrupta*. There are also 26 species of fish, of which four are strictly protected. Those are Balkan loach (*Cobitis elongata*), European weatherfish (*Misgurnus fossilis*), Balon's ruffe (*Gymnocephalus baloni*), and European bitterling (*Rhodeus sericeus amarus*). There are 7 types of reptiles, among which the most significant and endangered European pond turtle (*Emys orbicularis*), Aesculapian snake (*Zamenis longissimus*), and Dice snake (*Natrix tessellata*) [12].

Of the 11 species of amphibians, the significant representatives are as follows: Northern crested newt (*Triturus cristatus*) and Smooth Newt (*Lissotriton vulgaris*). Of the 206 species of birds from this area, there are some endangered species that should be distinguished, such as The black kite (*Milvus migrans*), Ferruginous duck (*Aythya nyroca*), Black stork (*Ciconia nigra*), and White-tailed eagle (*Haliaeetus albicilla*) [29,30]. Thereafter, there is a significant presence of 26 species of mammals, including European otter (*Lutra lutra*), and Wildcat (*Felis silvestris*) [25]. Starlet (*Acipenser ruthenus*), Pike (*Esox lucius*), Carp (*Cyprinus carpio*), and Zander (*Sander lucioperca*) are the fish species that are present on the Preliminary List of Species for the IUCN Red List of Vertebrates of Serbia. This list of species of vertebrates is the basis for work on the Red List, i.e. the Red Book of Vertebrates of Serbia, for which there are protection measures already being taken, and for which there are the measures of protection and preservation that should be taken.





**Figure 2.** Grey heron (*Ardea cinerea*), Special Nature Reserve “Koviljsko-petrovaradinski rit”  
Source: Igor Trišić, 2018

#### **4. GOALS OF MANAGEMENT AND SUSTAINABLE TOURISM DEVELOPMENT**

The Danube River is an ecological corridor of international importance which is an integral part of the Pan-European ecological network. The Danube enables communication among protected sites that are located along its banks and tributaries. The preservation of the corridor’s passage is a priority for a long-term subsistence of European’s biodiversity [12].

The general concept of protection, development, and management of this area should be based on:

- preservation of wetlands as a unique area [31];
- protection of all natural values, especially relief units;
- protection of unique swamp ecosystems that are characteristic to alluvial river areas;
- protection of diverse species;
- protection of significant species at national and international level;
- cooperation among all participants in the system of protection and management [32];
- sustainable use of spatial resources [33].

The protection of this significant area must implement the basic objectives in order to preserve a unique and unaltered biological system. Natural characteristics must be retained so that the activities that can partly or completely change the conditions of the life of flora and fauna can be limited by implementing measures [34]. Also, the protection of the area must be based on the postulates of improving the existing conditions through various interventions in the area, which should be applied in order to reduce certain adverse effects that are already present. The protection measures must also prevent the activities that change hydrographic characteristics of this reserve, which is one of the most important protection measures. Sustainable development also includes active involvement of the local population in all elements of protection of this area, and in its planning, because that involvement has been extremely minimal until now. The local population tends to use this protected area for several reasons. Some of those reasons are the use of resources for feeding domestic animals, the devastation of the terrain through planned removing of rotten and old vegetation, recreational use of the area, hunting or fishing, and other activities. Sustainable tourism development can greatly improve the socio-cultural, economic and ecological benefits of this region by including this area in tourism offer [12].

## 5. RESULTS AND DISCUSSION

A preserved natural area is gradually becoming a rare resource in modern society, so the interest of tourists for these destinations is an increase. Such a destination is also the SNR “Koviljsko-petrovaradinski rit” [35]. According to the Management Plan of this reserve, the development of tourism and excursions in the reserve’s area, in accordance to the natural potentials and the basic postulates of protection, should be based on the following:

- to propagate and indicate to the natural values of a smaller and bigger area of Kovilj-Petrovaradin marshes and its educational and pedagogical significance, as well as extraordinary landscape values that enable the experiencing of nature
- to encourage the promotion of sports fishing and hunting, water sports as forms of active recreational activities and the development of catering and cuisine based on local fish, game, or national cuisine specialties;
- to set up tourist-accommodation, catering, and other objects that are significant for the development of tourist activities, excursions and recreation (parking, camping, etc.) outside of the protected area.
- to align the architecture with the moor environment (reed houses, stilt houses, etc.), [12].

By analyzing all values and potentials of a protected natural site it can be stated that there are exceptional possibilities for the development of eco-tourism, which should be emphasized. Models for such development can be seen in Ramsar sites and protected wetlands from the region and world, such as Danube Delta and the protected wetlands of Africa or South America which are included in the UNESCO list. Eco-tourism can also include “Birdwatching” or observation of birds in its content, which lovers are organized in special clubs in European countries [15]. It is certain that the existence of these societies and organizations can help protect and improve the SNR “Koviljsko-petrovaradinski rit”. Ecotourism can include this area in the most significant European destinations with its basic natural motives and elements of intact and healthy nature [13].

According to the analysis of all listed values, the tourism management in the area of this reserve should be based on 6 basic principles of sustainable development:

1. to use the space in tourism with minimal effects on the environment and local community;
2. to increase awareness of the sustainability of natural and cultural systems of area development, as well as including the local community and visitors in solving the issues affecting those systems [6];
3. to emphasize the significance of preservation and management of a protected area;
4. timely and long-term involvement of the local community in decision-making processes that determine the type and extent of tourism that should be implemented [36];
5. to direct economic benefits to the local community. They should complement other revenues generated through regular jobs (agriculture, hunting, and fishing, etc.), [37];
6. providing possibilities to the local community to help them participate in the limited use of resources from a protected area [16].

For the planning of sustainable tourism development and its application, it is necessary to synthesize all the relevant values, the level of the use of resources, and to define critical points within which negative effects on a destination are implemented. As a suitable model for this comparison, we can use SWOT analysis of strengths, weaknesses, opportunities, and threats (Table 1).

**Table 1.** SWOT analysis of sustainable tourism in SNR “Koviljsko-petrovaradinski rit”

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• status of a protected natural area;</li> <li>• the existence of legislation;</li> <li>• established communication;</li> <li>• wetlands;</li> <li>• rich flora and fauna that is significant for scientific research;</li> <li>• existing endangered plant and animal species (Red List IUCN);</li> </ul>	<ul style="list-style-type: none"> <li>• lack of eco-hotels;</li> <li>• poorly constructed visitor centers;</li> <li>• minimal educational activities;</li> <li>• lack of ancillary and supporting facilities (toilets, garbage-disposal facilities);</li> <li>• lack of important codes of ethics for users;</li> </ul>

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<ul style="list-style-type: none"> <li>• adjacency of Novi Sad and Belgrade;</li> <li>• navigability of the Danube and adjacency of the Sava River;</li> <li>• hydrographical potentials;</li> <li>• favorable climate.</li> </ul>	<ul style="list-style-type: none"> <li>• insufficient revitalization of forests;</li> <li>• lack of eco-trails.</li> </ul>
<b>Opportunities and possibilities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• the inclusion of ecotourism of this area in the tourist offer of Serbia;</li> <li>• rich ethnic-social values of the people in this region;</li> <li>• branded products (wine Bermet, the Mangalica products, local and national cuisine);</li> <li>• a blend of social and natural aspect;</li> <li>• strong dispersive zones of eco-tourists (Central Serbia, Hungary, Romania, Croatia, etc.);</li> <li>• the existence of ethno-villages and settlements;</li> <li>• sustainable use of resources;</li> <li>• ecological, economic, and socio-cultural benefits.</li> </ul>	<ul style="list-style-type: none"> <li>• inadequate role of the local community in the system of management and protection;</li> <li>• the lack of consequences;</li> <li>• the absence of good economic effects of tourism for the local community;</li> <li>• insufficient investments in park maintenance;</li> <li>• existing endangered plant and animal species (Red List IUCN);</li> <li>• poaching;</li> <li>• the devastation of forest ecosystems;</li> <li>• adjacency of agricultural land and potential contamination and poisoning of the representatives of fauna;</li> <li>• unsustainable use of resources;</li> <li>• different forms of pollution.</li> </ul>

Source: Prepared by authors

By analyzing the data in Table 1, it can be concluded that the main potentials for the development of sustainable tourism are exactly the following values: the status of a protected natural area, the existence of legal regulations, developed communication, rich flora and fauna that is significant for scientific research, present endangered plant and animal species, specific wetlands, the adjacency of Novi Sad and Belgrade, navigability of the Danube and the vicinity of Sava, hydrographical potentials, and favorable climate.

The values grouped in the column “chances”, and possibilities should be analyzed as partially used potentials of this reserve. Among the most significant potentials, there are: inclusion of eco-tourism of this area in the tourist offer of Serbia and the region, rich ethnic-social values of the people in this region (the intersection of Srem and Bačka) where, in addition to the Serbs, there are significant social values of the Hungarians, Romanians, and Slovaks who inhabit this part of Vojvodina. As significant weaknesses and threats, the following characteristics should be included: lack of eco-hotels, poorly constructed visitor centers, minimal educational activities, lack of ancillary and supporting facilities (toilets, garbage-disposal facilities), lack of important codes of ethics for users, insufficient revitalization of forests, lack of eco-trails, inadequate role of the local community in the system of management and protection, the lack of consequences, absence of good economic effects of tourism, insufficient investments in park maintenance, existing endangered plant and animal species (IUCN Red List), poaching, devastation of forest ecosystems, adjacency of agricultural land and potential contamination and poisoning of the representatives of fauna, unsustainable use of resources and different forms of pollution.

By analyzing the data, it can be concluded that the Special Nature Reserve “Koviljsko-petrovaradinski rit” possesses ecological, biological, scientific-research, sports-recreational, tourist, historical, educational, cultural, and social significance. Tourism development must be an integral part of the management plan of this area because aquatic ecosystems are the most vulnerable to all changes and impacts [3]. This contributes to the economic, socio-cultural, and ecological prosperity [2] because those non-tourism areas can become significant sightseeing destinations [38]. By analyzing all significant resources of this protected area, it can be concluded that SNR “Koviljsko-petrovaradinski rit” creates the

possibilities for the improvement of the existing forms of tourism and the development of new ones, such as eco-tourism, birdwatching, scientific-research, sightseeing, excursion, ethnic, nautical, cultural, hunting, fishing, and religious tourism. For the mentioned activities, it is necessary to increase the reception capacities, visitor centers, guiding experts, and proper supporting infrastructure and hiking trails. Wastewater regulation, construction, treating flora and fauna, as well as the measures for improvement of the current conditions are the concepts that should be especially emphasized. Special attention should be directed towards, as it was mentioned beforehand, the inclusion of the local community in all systems of management and protection of this natural site. The conceptual approach of sustainable development provided by the (UNWTO) regarding the reduction of the negative effects of tourism on tourists and domestic population should be applied in this area [6]. For the same reason, the positive effects on tourists, the local community, and the destination, are recommended. That can be achieved through education, the modernization of current infrastructure, and benefits for the local community [37], as well as the complete development of the area as a tourist destination [22].

## 6. CONCLUSIONS

Protected natural area SNR "Koviljsko-petrovaradinski rit" has an exceptional geographical and tourism position, favorable climate, and most importantly, hydrography as the basic potential with diverse plant and animal species. Some representatives of flora and fauna are so rare that they inhabit only these areas in the Republic of Serbia. The Danube River, in this part of its flow, is characterized by its slow and winding currents, great accumulative power, and the tendency to create moors and meanders which enables the creation of wetlands that are significant to flora and fauna. This moor is a subject of UNESCO's interests for its unique oasis of the living world. The convention of protected wetlands – Ramsar List has been signed by over 118 countries, including our country. The area of the Special Nature Reserve is also protected by other international measures and conventions of area protection. Therefore, the area of the reserve includes areas under international protection: Important Bird Areas – IBA, Important Plant Areas – IPA, Prime Butterfly Areas – PBA, and others.

SNR "Koviljsko-petrovaradinski rit" is under the protection as a natural site of exceptional significance, and is classified in the I protection category as a Special Nature Reserve. There were identified 39 priority types of habitats for protection at the national and international level. There are 29 habitats that are functionally unstable and vulnerable to degradation. The abundance of flora is reflected in the presence of 443 taxa of higher plants, 19 of which strictly protected. The abundance of fauna is reflected in the presence of 42 protected and strictly protected species of insects, 26 species of fish, of which four are strictly protected, 206 species of birds and 26 species of mammals.

The main threats which were stated are: land devastation, agricultural land treated with chemicals that reach the protected areas through air, land and water, poaching, presence of domestic animals, reduction of autochthonous species, frequent and high threats to flora and fauna, drying of wetland, soil erosion, tourist activities with consequences to environment, and many other stresses. Each of the mentioned leaves consequences in ecosystems. With proper and fast action, these effects can be minimized, or completely eliminated. One of the main instruments for protection is the legal framework. The protection of the area in the Republic of Serbia and the Autonomous Province of Vojvodina is regulated by The Law on Nature Protection [10] (Official Gazette of Republic of Serbia, No. 36/2009, 88/2010, 91/2010 – corr., and 14/2016).

We can conclude that the main potentials for the development of sustainable tourism are exactly the following values: the status of a protected natural area, the existence of legal regulations, developed communication, rich flora and fauna that is significant for scientific research, present endangered plant and animal species, specific wetlands, the adjacency of Novi Sad and Belgrade, navigability of the Danube and the vicinity of Sava, hydrographical potentials, and favorable climate. Among the most significant potentials, there are: inclusion of eco-tourism of this area in the tourist offer of Serbia and the region, rich ethnic-social values of the people in this region (the intersection of Srem and Bačka) where, in addition to the Serbs, there are significant social values of the Hungarians, Romanians, and Slovaks who inhabit this part of Vojvodina. Sustainable development also includes active involvement of the local population in all elements of protection of this area, and in its planning, because that involvement has been extremely minimal until now. By analyzing the presented data, it can be concluded that the role of the local

community and tourists in the systems of management and improvement of the protection of this area is under-represented.

All collected and presented data in this paper on this special reserve, shows that all entities of the use of an area have the opportunity to participate in the prevention of the environmental degradation, as well as the ability to improve the sustainable tourism development through the use of natural tourist potentials. These entities are the state, the local community as the most important subject, the representatives of direct monitoring and protection, as well as the main users of the area, among which are tourists. According to that, the protection of this significant area must implement the basic objectives in order to preserve a unique and unaltered biological system. Natural characteristics must be retained so that the activities that can partly or completely change the conditions of the life of flora and fauna can be limited by implementing measures.

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# The peculiarities of water use in the Răut river basin (Republic of Moldova)

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**Abstract:** The purpose of this research consists in the elucidation of spatial and branch aspects of the water use in the Răut river basin. The main topics presented in this paper are: the dynamics of water use in this basin; regional aspects of water use; dynamics of water use by the main usage categories; branch profile of water use and its dynamics; existing problems in the evaluation and monitoring of water use. To achieve these objectives were used traditional methods of geographical and economic research. Also, the content of the present study is focused on the methodology to elaborate the management plans of hydrographical basins and their chapters on economic analysis of water use in a river basin.

**Key words:** water use, Răut, river basin, climate changes, agriculture, household.

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## 1. INTRODUCTION

The introduction should briefly place the study in a broad context and highlight why it is important. It should define the purpose of the work and its significance. The Răut River is the right tributary of the Dniester River and is the longest river (286 km) that wholly runs in the Republic of Moldova (Figure 1). The surface of the water catchment of the river Răut is 7,760 km<sup>2</sup> or 23% of the territory of the Republic of Moldova [1]. The watersheds are well expressed and the altitude varies from 230 m to 388 m. The rock foundation of the basin consists of sands, chalks, marl of Cretaceous age, covered with a layer of limestone and clay rocks of Tortonian origin.

The Răut river basin is situated within the limits of the Cubolta Plain, the Dniester Plateau and the Central Moldavian Plateau. The average of the annual rainfall is 450-500 mm and the average of the annual temperature is 8-9°C. The hydrographic network is well-developed (0.48 km/km<sup>2</sup>), soils being predominated by chernozemsoils, alluvial soils and forest gray soils.

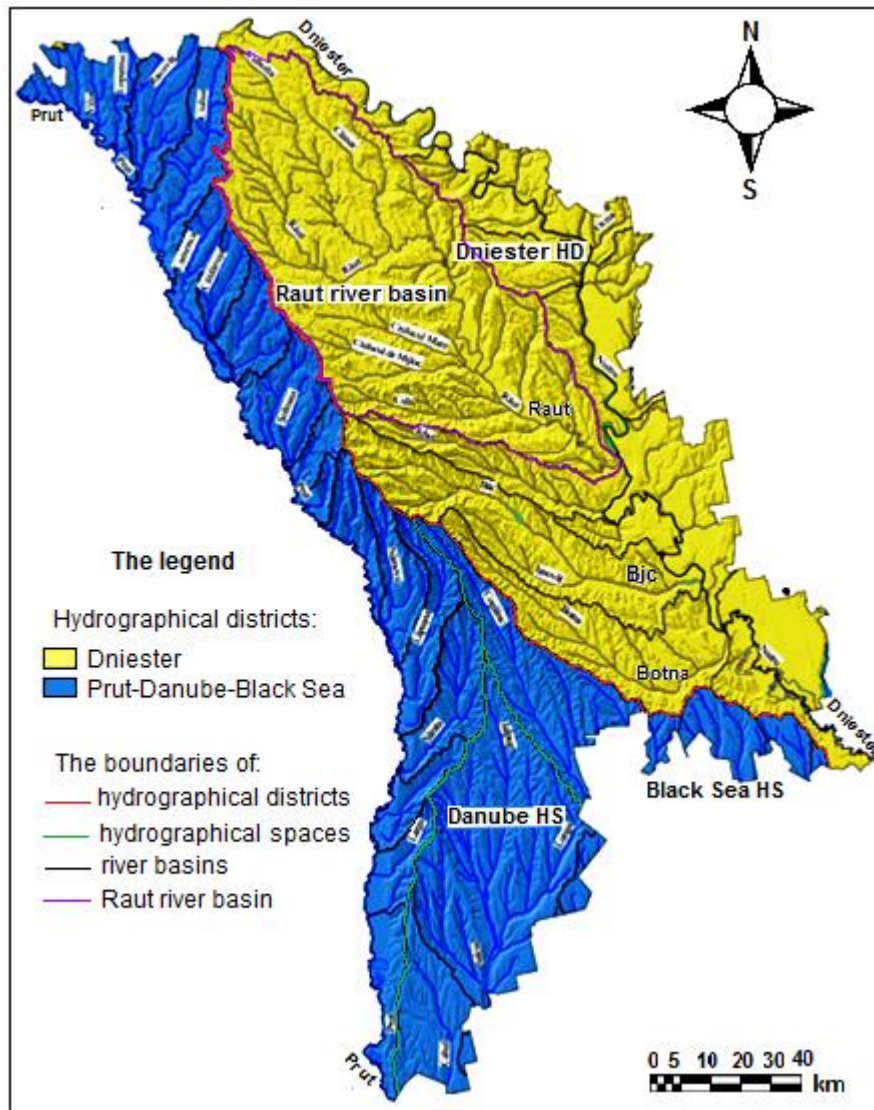
The main part of the basin inclines towards the southeast, which determines the direction of the river drain. In the Codrii Plateau, the relief is fragmented by a wide and deep valleys network with asymmetrical slopes, fragmented in turn by ravens and bumps. The lower course has a high degree of relief fragmentation, the erosion, suffusion and karst processes being frequently spread [2] (pp. 11-23).

Arable lands occupy more than half of the total land area and about ¾ of the agricultural land of the hydrographic basin of Răut river basin. There are cultivated cereals and technical plants, fruit trees, and in irrigated areas, vegetable farming is largely practiced. The arable lands are concentrated mainly in the northern and southern parts of this river basin, which is characterized by a lower relief fragmentation.

The Răut river basin includes areas of the municipality of Bălți and of 18 administrative districts (Figure 2). Within the Răut river basin totally includes the Bălți municipality and the districts of Dondușeni, Drochia, Sângerei and Telenеști. Also, large proportionis of Orhei (90%) and Florești (73%) districts are included here. An average share is specific for districts of Soroca (45%), Râșcani (40%) and Rezina (38%), and a reduced share – for the other 9 districts, including Călărași (25%), Șoldănești (23%), Fălești, Criuleni (21%), Ungheni (18%), Glodeni (14%), Ocnița (11%) and Dubăsari (10%).

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**Figure 1.** The hydrographical network of Republic of Moldova.  
Source: Management Plan of Dniester Hydrographical District [3]

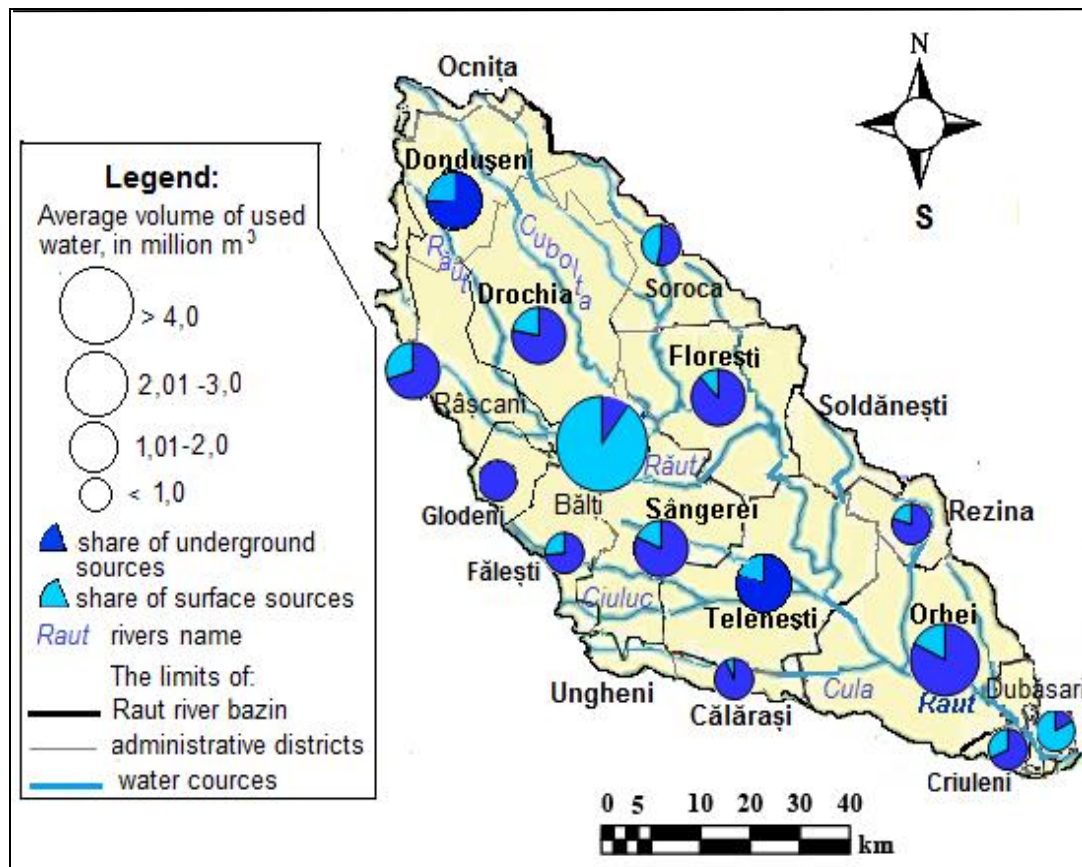
Within the river basin Răut are located 248 localities, including 11 towns and 237 villages. Most settlements are registered in the districts, which are wholly or predominantly included within the the respective river basin, including Orhei and Telenești (31), Florești (28), Drochia and Sângerei (27), Dondușeni (25). The minimum number can be seen in Bălți municipality (3), as well as in insignificant of its area districts in the Răut river basin, including Edineț and Dubăsari (1), Glodeni and Ocnîța (2). The total number of population is about 780,000 inhabitants, of which about 70% is the rural population [4]. The reduced share of urban population is also conditioned by the fact that in the most of the districts (11 of 18), urban centers are located outside of Răut river basin. The maximum number of inhabitants is recorded in the Bălți municipality (152,000), as well as in the districts of Orhei (102,000), Sângerei (92,000), Drochia (86,000), Telenești (72,000) and Florești (65,000). The minimum number is registered in districts of Edinet (1.2 thousand) and Dubăsari (3.5 thousand), out of which only 1 village situated in the Răut river basin for each, as well as in the districts of Glodeni (7.7 thousand) and Ocnîța (5.0 thousand), with 2 communes situated in the Răut river basin, Șoldănești (9.1 thousand) and Ungheni (9.4 thousand).

## 2. LITERATURE REVIEW

Recently, water resources have become one of the most important issues of the global sustainable development. Climate change, environmental pollution, and continued industrialization directly and continuously affect these vital resources [5,6]. The recent intensification of natural and anthropogenic risks alarmingly affects the water supply capability of the population and of the economic activities in most of the world's countries. Complex assessment of water resources and their consumption in relation



to the manifestation of these risks becomes a priority research direction for geographic, social and economic sciences [7]. In addition, geographic research has the advantage of achieving the complementarity of ecological, social and economic studies, having as the main objective: sustainable use and efficient management of water resources. Geographic surveys also play a leading role in creating methodological and scientific support for the application of OECD principles on good water governance [8], including the principles of regionalization and decentralization of water management, actively promoted by the OECD, both in the developed states and in the developing countries [7,9].



**Figure 2.** The administrative-territorial composition and sources of water supply in the districts of Răut river basin.  
Source: State Ecological Inspectorate [10] and National Agency "Apele Moldovei" [11]

In the European countries, the research and protection of the Danube river basin is of major importance, due to the fact that 16 countries take part of this river basin, on the basis of which many researches related to various climate scenarios were made [12], as well as the impact of climate changes on water [13-15], the sustainability of water supply and water sanitation [6,7,16]. At national level, the adaptation and harmonization of the Water Framework Directive is reflected in the Water Law of the Republic of Moldova, which came into force on October 26th, 2013. Thus, among the objectives of both the Water Framework Directive and the Water Law of the Republic of Moldova, a pivotal role lies with the elaboration of the River Basin Management Plans (RBMP). Within the RBMP, a great attention is paid to the economic analysis of the of water use. These aspects are also approached in this work. Numerous studies in the Republic of Moldova [3,17,18] are directed to the Dniester hydrographic basin which is the main water resource, being a cross-border river and, based on them, various scenarios, reports and plans being elaborated. The works listed above superficially refers to the theme of economic water analysis, especially for the catchment area of the river for which no such research has yet been done. The river basin of the Răut covers territories of about 18 districts, and its water resources, although of major importance in the water supply, are not sufficiently studied. That is why this study, based on national and international researches on this topic, was proposed to be carried out.

The present research is based on recent analytical studies on the implementation of the Management Plan of River Basin, which is stipulated in EU Directive (2000/60/EC) on integrated water management [19]. For the study, the authors have focused on management plans, which are being implemented, such as the Danube River Basin Management Plan [20], Management Plan of Prut-Bârlad River Space [21],

Management Plans of Prut river basin [22] and of Danube Prut and Black Sea Hydrographical District [23]. Those plans must include detailed diagnosis of the status of basins and of water bodies, recent trends of water consumption, and economical analysis of water use. Based on this diagnosis are established shortcomings and achievements of current water management and action plans shall be drafted to improve the status of water and increase the economic and environmental efficiency of its use. Very valuable, in particular for analysis of water use are research methodology and study of transboundary rivers in the Black Sea Region and Belarus (EPIRB Program) [24]. Also, for the elucidation of spatial, economic and social aspects of water use in Moldova, various publications in the field have been consulted [1,25], as well as analytical studies of authors of this article [22,23,26,27].

### 3. METHODS AND DATA

The main methods, which are used in this study, are: statistical, analytical, comparative, analogical, as well as consultation with competent authorities in the field of assessing and managing of water resources. Statistical method was widely used in processing of statistical information on the water use in the in all administrative-territorial units from the Răut river basin. The analytical method was used for: a) to identify quantitative and qualitative aspects of water use; b) diagnosis of situation of water use and elaboration of recommendations to prevent problematic situations in this field; c) definition of priority directions of activity optimization of water resources management in the river basins. The comparative method was applied for establishing the trends in the branch and spatial aspects of the water use.

The main informational and statistical support of this study included: 1) Generalized Annual Reports on Water Management Indicators of the Basins Department of Agency „Apele Moldovei” [11]; 2) Annual Reports of Ecological Agencies and Inspection [10]; The Reports on water supply and sanitation companies of Association „Moldova Apa-Canal” [28]; The Report of of National Bureau of Statistics on the public water supply and sewerages networks [29]. The study comprised the 2007-2017 years.

### 4. RESULT AND DISCUSSIONS

In the period between 2007 and 2017, in the Răut river basin were used, on average, 18 million m<sup>3</sup> of water or only 2.3 % of the total volume of used water in the Republic of Moldova and 15,6 % from used water on the right bank of the Dniester river. The reduced share is due to the predominance of small and medium-sized towns and to the pronounced rural character of the region study. The volume of water used is conditioned by the surface of the respective districts within the Răut hydrographical basin, by the number and dimensions of urban centers and rural settlements with extensive public aqueducts from the perimeter of this river basin, by the monitored irrigated areas, and by accounted water consumption for agricultural and household purposes [27].

**Table 1.** The volume and share of used water, by abstracted sources and usage categories, in the Răut river basin (average of 2007-2017 years).

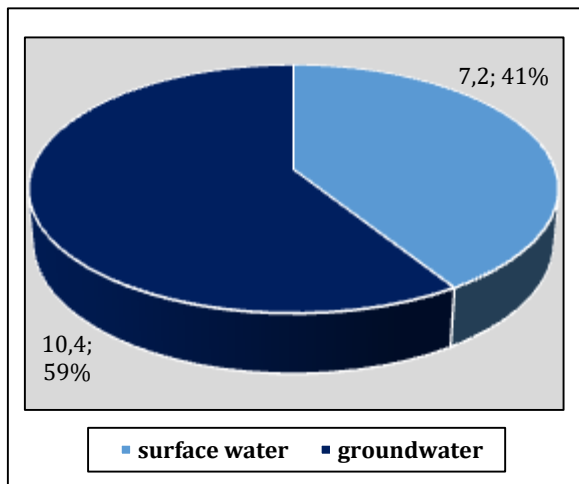
No	Districts	Total		Surface water		Groundwater		Households		Industry		Agriculture, incl. irrigation			
		ths m <sup>3</sup>	%	ths m <sup>3</sup>	%	ths m <sup>3</sup>	%	ths m <sup>3</sup>	%	ths m <sup>3</sup>	%	ths m <sup>3</sup>	%	ths m <sup>3</sup>	%
1	Ocnița	126	39	31	88	69	16	13			110	87	33	26	
2	Dondușeni	1,045	371	36	673	64	227	22	90	8.6	729	70	195	19	
3	Soroca	615	287	47	329	53	159	26	27	4.4	429	70	122	20	
4	Drochia	1,835	403	22	1,433	78	484	26	199	10.9	1,151	63	317	17	
5	Florești	1,739	215	11	1,602	90	452	26	327	18.8	960	55	192	11	
6	Sângerei	1,573	287	18	1,285	82	480	31	61	3.9	1,032	66	285	18	
7	Râșcani	1,024	307	30	717	70	300	29	36	3.5	688	67	154	15	
8	Glodeni	39.9			39.9	100	39.9	100							
9	Fălești	331	86	28	239	72	196	59	13	3.8	122	37	60.5	18	
10	Bălți	4,951	4,436	90	485	10	3,404	69	1,381	27.9	167	3			
11	Șoldănești	132	13,6	3	118	97	13.3	10			118	90	19.3	18	
12	Rezina	174	36	21	138	79	72	41	10	5,8	92	53	13	7	
13	Telenești	1,224	259	21	968	79	444	36	40	3.3	740	60	259	21	
14	Ungheni	137	67.2	49	69.7	51	59.5	43	15.7	11	61.7	45	18.9	14	
15	Călărași	170	12	7	158	93	78	46	10.4	6.1	82	48	13	8	
16	Orhei	2,668	467	17	2,201	83	1,104	41	323	12.1	1,241	47	385	14	
17	Criuleni	199	64	32	136	68	75	37			125	63	84	42	
18	Dubăsari	63	53	84	11	16	8.6	14			55	86	55	86	
	<b>Total</b>	<b>18,039</b>	<b>7,365</b>	<b>41</b>	<b>1,0672</b>	<b>59</b>	<b>7,603</b>	<b>42</b>	<b>2,533</b>	<b>14</b>	<b>7,903</b>	<b>44</b>	<b>2,185</b>	<b>12</b>	

Source: State Ecological Inspectorate [10] and National Agency "Apele Moldovei" [11]

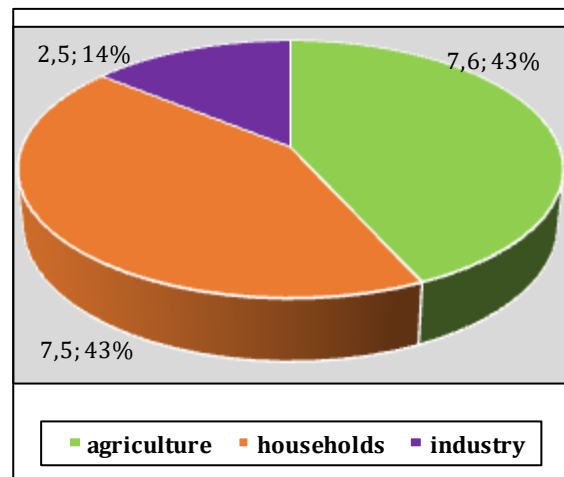
Therefore, the maximum water consumption is attested in the Bălți municipality (5.0 mil. m<sup>3</sup>) and in the districts of Orhei (2.7 mil. m<sup>3</sup>), Drochia (1.8 mil. m<sup>3</sup>), Florești (1.7 mil. m<sup>3</sup>) and Sângerei (1.6 mil. m<sup>3</sup>) and the minimum water use – in the smaller districts, such as Glodeni, Ocnița, Șoldănești and Dubăsari (Table 1).

On average, ≈60% of used water is abstracted from underground sources, which predominates in the absolute majority of districts and localities from the Răut river basin (Figures 3, 4), with the exception of Bălți municipality and Dubăsari district, which is supplied with water from the Dniester riverbed.

Compared with 1990 year, there is a reduction of about 13 times in the volume of abstracted water. This situation is due, on the one hand, to the multiple reduction of the volume of water used in agriculture and industry, as a result of deep and prolonged decline of these economic sectors and, on the other hand, to the superficial evidence of the use of water resources, especially in agriculture and mining industry [10-11]. During the analysed period (2007-2017), the total volume of water used registered an oscillating evolution on the background of a generally negative slow trend, by about 5% (Table 2). The negative growth is registered in the Bălți municipality and in half (10 of 18) of districts from Răut river basin included in the present study. The positive dynamics is observed in the districts of Dondușeni (2.3 times), Soroca (+ 21%), Florești (+17%), Telenești (+14%), Călărași (+13%), Fălești (+8%) and Dubăsari (+7%), being caused predominantly by the increase of waters captured from underground sources [11]. Moreover, as a result of the extension of the public water systems [11], especially in the rural area and the increased consumption of water after 2013, there is a positive trend in the absolute majority of the districts from the study region.



**Figure 3.** Sources of abstracted water in the Răut river basin.  
Source: State Ecological Inspectorate [10] and National Agency "Apele Moldovei" [11]



**Figure 4.** The usage categories of water in the Răut river basin.  
Source: State Ecological Inspectorate [10] and National Agency "Apele Moldovei" [11]

The total volume of used water from surface sources has decreased by ≈20%. The negative dynamics are recorded in the Bălți municipality and in the 9 of the 15 districts from the Răut river basin, which are included in this study. The maximum reduction of the used surface water is observed in the districts of Orhei, Șoldănești and Rezina (by 5 times), Drochia and Călărași (by 4 times), Sângerei (by 3.5 times), Criuleni (by 2.4 times). The significant decrease in the volume of water used from surface sources is not only due to the influence of natural factors, to the worsening of the situation in the national agriculture, to the increased degree of wear of hydrotechnical installations or massive lack of there, but also to the superficial record of the water used for agricultural or mining purposes [12]. The increase in the volume of water used from surface sources is recorded only in the districts of Dondușeni (by 6.2 times), Telenești (+ 44%), Soroca (+ 28%) and Fălești, which is due to the similarly increasing of the water used in the large agricultural companies from these districts, as well as the extension of the Prut - Fălești aqueduct [23].

Unlike the surface waters, the volume of water used from underground sources in the Răut river basin shows a positive dynamic with about 9%, which is found in the majority (9) districts of the region. This situation is due to the recent extension of the centralized water supply network, especially for the household needs [29] of the rural population and the majority of water is abstracted through artesian wells built and modernized with the financial support of the National Ecological Fund, German Technical Assistance Fund (GIZ), Austrian Development Agency (ADA), Swiss Agency for Development and Cooperation (SDC) and other financing sources. The absolute majority of these projects are intended for

the water supply of the population and are based predominantly on the exploitation of the underground water in the perimeter of the rural localities [23]. At the same time, a great part of newly built water supply networks are not completed with centralized sewerage networks and wastewater treatment plants, which significantly increases harmful impact on the natural environment and the human body. A negative increase in the volume of water used from underground sources is found in Bălți municipality (2.6 times) as a result of its connection to the Soroca-Bălți main water pipeline, as well as in the districts of Râșcani, Sângerei (-16%), Șoldănești, Fălești and Dondușeni.

For agricultural purposes were used, on average, 7.9 million m<sup>3</sup> or 44% of the total volume of water used in the Răut river basin (Table 1). About 7.6 million m<sup>3</sup> or 42% were used by households and 2.5 million m<sup>3</sup> or 14% of the total volume of water was used for technological needs (Figure 4). The high shares of water used for agricultural and domestic purposes are due, on the one hand, to Bălți municipality, which is consuming 45% of the total volume of water used for domestic purposes in the Răut river basin [10,11], and on the other hand, to the massive the agricultural use in most districts and localities of the study region. In addition, water used for domestic needs is not only provided by municipal operators but also by industrial and agricultural companies, in particular by the sugar and wine factories.

The maximum ( $\geq 70\%$ ) share of agriculture is recorded in the districts of Șoldănești, Ocnîța, Dubăsari, Donduseni and Soroca (Table 1), where operate the big agricultural enterprises, which massively use water for irrigation and other agricultural activities [10]. Also, over 60% of the abstracted waters in the most districts of the region is used in agriculture, including in the districts where the urban centers are located outside of the Răut river basin.

**Table 2.** The dynamics of total volume of water use in the Răut river basin (in thousand m<sup>3</sup>).

No.	Districts	Years											Average	Growth %
		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		
1	Ocnîța	152	142	155	128	139	104	108	107	119	119	118	126	78
2	Dondușeni	820	770	980	880	1,000	970	920	880	1,040	1,390	1,843	1,045	225
3	Soroca	548	500	613	575	593	603	655	643	735	645	663	615	121
4	Drochia	2,170	1,710	1,610	1,480	1,530	1,750	2,110	1,900	1,920	1,960	2,040	1,835	94
5	Florești	1,666	1,513	1,632	1,590	1,658	1,624	1,751	1,913	1,896	1,930	1,955	1,739	117
6	Sângerei	1,970	1,700	1,840	1,760	1,760	1,660	1,250	1,310	1,370	1,340	1,340	1,573	68
7	Râșcani	1,430	1,100	1,177	1,106	1,040	1,007	968	825	809	853	952	1,024	67
8	Glodeni			40.4	39.0	40.0	39.4	39.2	40.4	40.4	40.4	39.8	39.9	99
9	Fălești	280	300	288	314	276	566	384	360	294	279	304	331	108
10	Bălți municipality	5,370	5,350	5,536	5,120	5,050	4,710	4,680	4,720	4,770	4,600	4,560	4,951	85
11	Șoldănești	131	135	167	162	156	122	119	119	119	114	108	132	83
12	Rezina	192	186	210	194	189	162	156	155	159	156	158	174	82
13	Telenești	1,200	1,080	1,240	1,150	1,190	1,070	1,080	1,320	1,380	1,380	1,370	1,224	114
14	Ungheni	160	120	135	121	134	146	135	133	145	139	140	137	88
15	Călărași	159	156	191	167	156	165	174	174	177	177	180	170	113
16	Orhei	3,168	2,560	3,008	2,760	2,784	2,632	2,448	2,432	2,384	2,528	2,648	2,668	84
17	Criuleni	216	163	176	181	208	217	187	233	228	193	191	199	88
18	Dubăsari	95	68.9	59.5	51	35	33	32.5	35	87	92	102	63	107
	<b>Total</b>	<b>19,284</b>	<b>17,157</b>	<b>18,600</b>	<b>17,365</b>	<b>17,508</b>	<b>17,207</b>	<b>16,835</b>	<b>16,939</b>	<b>17,288</b>	<b>17,562</b>	<b>18,344</b>	<b>17,644</b>	<b>95</b>

Source: State Ecological Inspectorate [11] and National Agency "Apele Moldovei" [12]

Therefore, in this basin, the amount of water used in agriculture directly conditions the total volume of used water and its spatial distribution. The minimum share is observed in the Bălți municipality (3%), as well as in the Glodeni, Ungheni, Orhei and Călărași districts, because data on water use in rural areas in those districts were provided, almost exclusively, by the public water supply companies, which mainly serve households and budget organizations [10,11,28]. At the same time, in the rural localities, the water received by the population is massively used for animal husbandry and for irrigation of domestic crops.

The volume of water used in agriculture, especially for irrigation, is conditional on the available surface water resources, by the density of the hydrographical network, by the length and flow of watercourses, by the number, surface and condition status of accumulation reservoirs within the perimeter of that hydrographical area, the level of evidence of water used in agriculture, as well as the technical and economical possibilities of using water by farmers [27]. Thus, the maximum water consumption is recorded in the *large agricultural companies with complex profile*, especially from districts of Drochia (1 million m<sup>3</sup>), Dondușeni (700,000 m<sup>3</sup>), Sângerei, Orhei, Telenești and Dubăsari; *the poultry*

factories from Dondușeni districts (16,000 m<sup>3</sup>), Râșcani (28,000 m<sup>3</sup>), Orhei (26,000 m<sup>3</sup>); the pigs complexes (17,000 m<sup>3</sup>), Florești (20,000 m<sup>3</sup>) and Râșcani [10].

For irrigation, are used, on average, 2.2 million m<sup>3</sup> (12%) from total volume of water in the Răut river basin. The maximum volume of water used for irrigation is observed at the big agricultural companies from mentioned districts, which use their own irrigation systems or of zonal irrigation stations, especially in the districts located near the Dniester River, with a higher water flow [3]. The relatively low volume of water used in irrigation is conditioned both by the natural conditions (low flow and insufficient rainfall, increased risk of soil salinization) and the technical and economic possibilities of water used for irrigation in respective region.

The volume of water used in agriculture decreased, on average, with over 1/4 or from 9.9 million m<sup>3</sup> to 7.2 million m<sup>3</sup> (Figure 5). The negative growth of the volume of water used for these purposes is recorded in most districts of the Răut river basin, and the maximum reduction is recorded in the districts of Orhei (≈4 times), Sângerei and Criuleni (3 times), Râșcani and Fălești (2.5 times). At the same time, the positive dynamics of the volume of water used in agriculture is observed in the districts of Florești (3.6 times), Donduseni (2.3 times) and Telenești (+11%). This is due to big agricultural companies from these districts, especially of farms specialised in the growing of fruit and cereals for export, including SRL "Climăuțeanu Agro" from Dondușeni district (602,000 m<sup>3</sup>), SRL LobiLojistic (78,000 m<sup>3</sup>) from Telenești district [10].

The volume of water used for irrigation in Răut river basin was reduced by 2.3 times, including in the districts of Drochia and Rezina (9 times), Orhei and Călărași (6 times), Șoldănești (5 times), Râșcani, Sângerei and Criuleni (3 times). At the same time, the positive dynamics of the volume of water used in irrigation is observed only in the districts of Dondușeni (≈2 times) and Telenești (+ 44%), which is due to the above mentioned big agricultural enterprises. As a result of the continuous manifestation of the negative tendency of the volume of water used for these purposes, agriculture uses give up the first position to household sector. Thus, in 2017, for agricultural purposes only 7.2 million m<sup>3</sup> were used, or only 39 % of the total volume of water used, in comparison with the average of the analyzed period of 7.9 million m<sup>3</sup> or 44% of the total volume of water used in the Răut river basin (Figure 5).

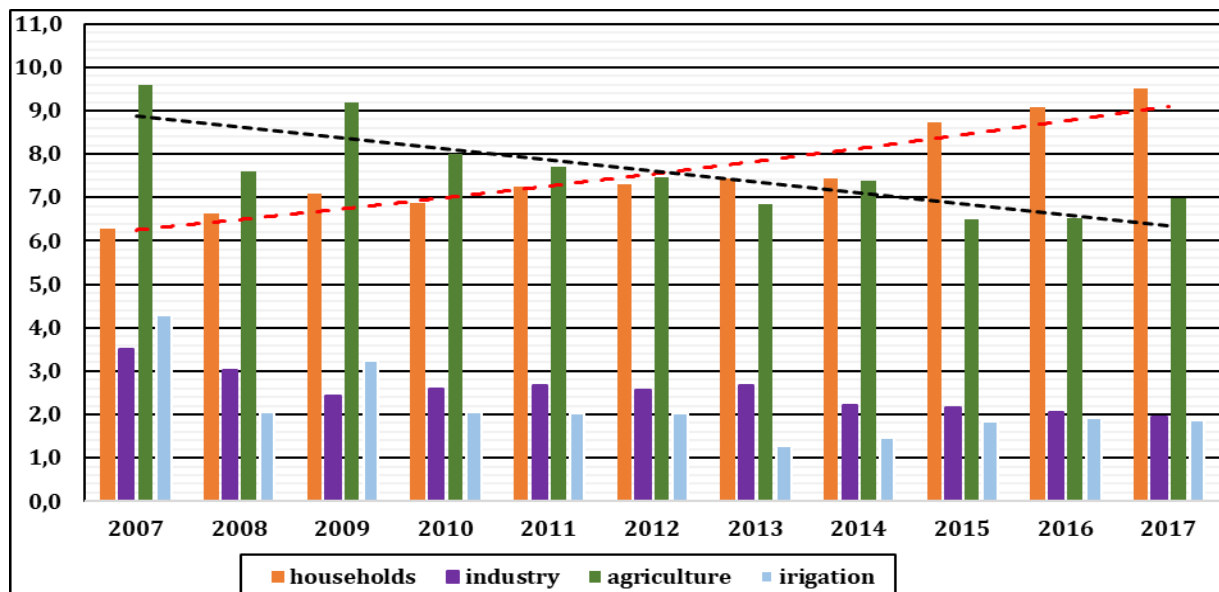


Figure 5. Dynamics, by usage categories, of water used in the Răut river basin, in million m<sup>3</sup>.  
Source: State Ecological Inspectorate [10] and National Agency "Apele Moldovei" [11]

For domestic purposes 7.6 million m<sup>3</sup> were used, on average, or 42 % of the total volume of used water. The maximum volume of water used for these purposes it is noted in the Bălți municipality (3.5 million m<sup>3</sup>), in the districts of Orhei (1.1 million m<sup>3</sup>), Drochia (484,000 m<sup>3</sup>), Sângerei (480,000 m<sup>3</sup>), Florești (452,000 m<sup>3</sup>) and Telenești (444,000 m<sup>3</sup>). This is conditioned by the number and dimensions of the served urban centers and rural localities, which have extensive public water supply systems and record the abstracted and delivered waters [29]. The maximum share of domestic water needs is observed in the districts of Glodeni (100%), Fălești (59%) and in Bălți (69%), but the minimum share (25%) is attested in the northern districts and in the Dubăsari district. Among the district centers, maximum water consumption for domestic purposes is registered, also, in the Orhei (1.1 million m<sup>3</sup>), Florești (421,000 m<sup>3</sup>), Sângerei (406,000 m<sup>3</sup>), and Drochia towns (342,000 m<sup>3</sup>) [28]. Also, a maximum consumption of domestic

water is recorded in the rural localities of districts Orhei (600 thousand m<sup>3</sup>), Telenești (350 thousand m<sup>3</sup>), Sângerei (324 thousand m<sup>3</sup>), Dondușeni (315 thousand m<sup>3</sup>) and Florești (300 thousand m<sup>3</sup>). A significant volume of water is used by the medical centers in the district centers, especially in the towns of Bălți, Drochia (177 thousand m<sup>3</sup>), Orhei (40.1 thousand m<sup>3</sup>), the city halls and the educational centers in the big rural localities [10].

As a result of the rapid expansion of public water supply systems [28] and of accounted water consumption, especially in the rural areas, the volume of water used for domestic purposes increased, on average, by more than 50% (Figure 5). The highest increase is recorded in the districts of Criuleni (4.3 times), Dubăsari (3 times), Sîngerei and Râșcani (2.4 times), Dondușeni, Drochia and Telenești (2.3 times), Orhei (2.2 times). The negative dynamics are only observed in the districts of Ocnîța (-20%) and Rezina (-15%). The significant increase in the volume of water used for these purposes led to a similar increase in the share of household use, and the gradual establishment on the first position in the branch structure of water consumption within the Răut river basin. Therefore, in 2017, the share of household use exceeded ½ of the total volume of water used in this river basin (Table 1).

In the *industry* are used, on average, 2.5 million m<sup>3</sup> of water, or 14% of the total volume of water used in the Răut river basin, including 1.4 million m<sup>3</sup> (56%) used by the enterprises from Bălți municipality [11]. Also, a high water consumption in industry is recorded in the districts of Florești (327,000 m<sup>3</sup>), Orhei (323,000 m<sup>3</sup>) and Drochia (330,000 m<sup>3</sup>) and it is due to the larger urban centers in these districts and the presence of the rich base of raw materials, especially for the food industry and the building materials industry, which use big volume of water [10].

The biggest water consumers in the food industry are: *sugar factories* from Drochia (120,000 m<sup>3</sup>) and Dondușeni (138,000 m<sup>3</sup>); *wine factories and other alcoholic beverages* from Bălți (40,000 m<sup>3</sup>), districts Orhei (15,500 m<sup>3</sup>), Călărași; *dairy factories* "Incomlac" SA from Bălți (133,000 m<sup>3</sup>), from Râșcani (20,000 m<sup>3</sup>), Florești and Orhei towns; *juice and canning factories* "OrheiVit" SA (267,000 m<sup>3</sup>) and "Natur Bravo" SA from Florești (19,500 m<sup>3</sup>); *grain processing plants* from Bălți (30,000 m<sup>3</sup>), districts of Florești (87,000 m<sup>3</sup>), Dondușeni and Fălești (Răuțel); *oil production factories* "Floarea Soarelui" SA from Bălți (131,000 m<sup>3</sup>) and Florești; *bakery factories* from Bălți and districts centers; *companies for bottling of mineral water* from Bălți, and from districts of Florești (164,000 m<sup>3</sup>) and Sângerei (19,300 m<sup>3</sup>); *enterprises of sausages-producing* "Basarabia Nord" SA from Bălți (73,800 m<sup>3</sup>) and Râșcani; *bakeries, mills and cottages* in the countryside; *public catering enterprises* (restaurants, cafes, pubs).

The largest water consumers in the mining and building materials industry are: *quarries for the extraction of limestone* in the districts of Râșcani, Orhei and Criuleni [10]; *quarries for extraction of sand* from Florești, Telenești and Orhei districts; *glass factory* from Florești town; *the gypsum production factories* from Bălți and from Biruința of Sângerei district; *companies for producing of concrete products* from towns of Bălți, Orhei, Florești and Râșcani; *companies for producing of peat and gravel* from districts of Râșcani, Florești, Orhei (Orhei town, Brănești, Pohorniceni, Pietra, Vișcăuți villages) and Criuleni (Mașcăuți village); *production centers for pressed bricks and of pavement hobs* from Bălți municipality and district centers. In the Bălți municipality, a large water consumer is the thermal power plant CET-Nord SA (204,000 m<sup>3</sup>). Also, a significant volume of water for technological purposes is used by public enterprises for providing water supply and sanitation services in the town of Bălți (855,000 m<sup>3</sup>), Florești (65,000 m<sup>3</sup>), Orhei (35,000 m<sup>3</sup>) Telenești, Sângerei, as well as by the markets points and car wash from Bălți town and from districts centers [3]. Also, average water consumption is attested at the woodworking enterprises from Bălți, Drochia, Telenești and Orhei towns, the transport enterprises, especially railway transport companies and bus parks in Bălți, the fuel trading stations [28].

The total volume of water used in the industry decreased, during the analyzed period, by ≈2 times (Figure 5), which is due mainly to reducing the volume of water use at the industrial enterprises from Bălți. Also, the reduction of the volume of water used for technological purposes is not only due to the reduction of the production volume and the bankruptcy of many industrial enterprises, but also to the technological modernization of many industrial enterprises, especially wine factories and meat and milk processing centers [26]. The largest reductions of water volume used for industrial purposes are recorded in the districts of Florești (≈5 times), Călărași and Râșcani (≈4 times), Rezina (2.3 times). At the same time, the increase of volume of water used in industry is registered in the districts of Drochia (2.3 times), Fălești (2.2 times), Telenești and Orhei (+3%), being conditioned by relaunching of the food companies from these districts and by increase of water use in the industrial sector.

Water supply of localities into Răut river basin is assured, to a great extent, also with non-centralized water sources. According to data of Ecological Inspectorate, in the Răut river basin 55,500 wells were identified, most of which are located in the upper (northern) course of this hydrographical basin, including 13.7 thousand wells in the Drochia district, 6.6 thousand wells in Dondușeni district and 4.8 thousand in the Soroca district (Table 3). The large number of wells in these districts demonstrates the

significant role of non-centralized water sources and high share of unaccounted water consumption. A much smaller number of wells are in the middle and lower courses of this basin, where most wells are located in the districts of Sângerei (5.2 thousand), Orhei (4.3 thousand), Florești (4.0 thousand) and Telenești (3.6 thousand), Rezina (2.2 thousand) and Șoldănești (2.1 thousand). Overall, 89% of the wells are arranged and can be used as a source of drink water for supply the population, for plants and animals breeding near the house. At the level of localities, the number of wells depends both on the size of villages and towns, such as on the available volume and storage characteristics of groundwater reserves. Thus, the maximum number of wells is found in the Drochia town (1,692) and in the village of Pelenia (1,318) and Sofia (1,287) from the Drochia district. About 700 wells are in the villages Pirlîța and Răuțel from Fălești district, Sturzovca from Glodeni district.

Also, 886 springs are used for water supplies, out of which 2/3 are arranged. At the level of localities and districts, the number of springs depends on their surface and hydrological peculiarities [10]. In addition, the official data on this subject are also influenced by the activity of recording and monitoring of water resources, including springs and wells by ecological and sanitary authorities. Most of the springs are located in the districts of Soroca (209), Drochia (154) and Orhei (129). In the Drochia district is the critical situation, because only 32% of the springs are arranged.

**Table 3.** The number and status of wells and springs in the Răut river basin (2017).

	Districts	Wells		Springs	
		Total	Arranged	Total	Arranged
1	Ocnița	1,175	1,162	12	11
2	Dondușeni	6,633	6,105	63	53
3	Soroca	4,847	4,089	209	122
4	Florești	4,036	3,642	89	82
5	Drochia	13,679	12,412	154	49
6	Edineț	486	486	2	2
7	Fălești	2,486	2,441	6	3
8	Glodeni	881	835	19	15
9	Râșcani	3,152	3,087	58	28
10	Bălți municipality	1,643	1,523	18	18
11	Sângerei	5,175	3,726	5	5
12	Șoldănești	2,064	1,994	27	23
13	Rezina	2,188	1,630	66	36
14	Telenești	3,575	3,104	23	23
15	Ungheni	162	155	2	1
16	Călărași	120	85	2	2
17	Orhei	4,326	3,791	129	109
18	Criuleni	27	23	2	1
19	Dubăsari	87	79	1	1
	<b>Total</b>	<b>56,703</b>	<b>50,408</b>	<b>886</b>	<b>585</b>

Source: State Ecological Inspectorate [11]

In the Răut river basin, lakes also represent an important source of water. In the study region there are monitored 1,419 lakes with a total area of 828 ha (Table 4). Most of these aquatic basins were built in the 70s-80s of the last century, mainly for of river flow conytrol and for fishery. The largest ones were managed by big fisheries, which were later turned into self-management or privatized. The number of lakes and their area are determined by the share of localities in this basin and by the length of the watercourses frequented by these basins, as well as by the presence of the fishery farms [10]. Most of the lakes are located in upper and middle course of Răut river basin, especially in the districts of Dondușeni (226), Drochia (220), Râșcani (185) and Sângerei (173). At the local level, most of the lakes are arranged in the Nihoreni (45) and Vasileuți (26) villages from the Râșcani district, 34 lakes in the Sturzovca village from Glodeni district, Târnova (28) and Țaul (23) from Dondușeni district. In the lower course of the Răut river basin we have fewer lakes, but we can mention the communes of Ivancea (10, all being used for fish farming) and Puțuntei (9, for irrigation) from Orhei district; Suhuluceni (8), Crăsnășeni (7) from Telenești district; Meleşeni (9) and Săseni (8) villages from Călărași district. Approximately 60% of the lakes in the Răut river basin are arranged on water courses, which have a massive negative impact on the leakage and available water resources, especially in the lower course of the Răut River [3,10]. The maximum number

of lakes on river course is attested in the districts of Drochia (158), Sângerei (155) and Orhei (105), which are crossed by Răut River (Table 4).

**Table 4.** The status and usage of the lakes in the Răut river basin (2017).

Districts	Number			Surface ha	The usage categories			
	Total	on course	laterals		General	Fishery	Irrigation	Recreation
Ocnița	18	4	14	85		16	2	
Dondușeni	226	10		770	75	151		
Soroca	69	1	68	189	41	28		
Florești	79	41	38	568	18	34	11	2
Drochia	220	158	62	1,122	85	122	4	1
Edineț	6			29		3		3
Fălești	53	32	21	333	19	34		
Glodeni	48		48	161	5	43		
Râșcani	185	38	148	862	119	66		
Bălți municipality	21	20	1	141	4	17		
Sângerei	173	155	18	1,418	77	93	3	
Șoldănești	9	8	1	34		8		1
Rezina	12	5	2	131	6	3	2	1
Telenești	99	8	91	1,358	80	7	12	
Ungheni	19	19		199	6	13		
Călărași	51		51	176		15		36
Orhei	124	105	19	815	71	36	16	1
Criuleni	6	6		36	1	4		1
Dubăsari	1		1	0.4	1			
<b>Total</b>	<b>1,419</b>	<b>826</b>	<b>583</b>	<b>8,428</b>	<b>601</b>	<b>695</b>	<b>50</b>	<b>48</b>

Source: State Ecological Inspectorate [10]

The maximum surface of lakes and reservoirs is attested, also, in the districts of Sângerei (1,418 ha), Telenești (1,358 ha), Drochia (1,122 ha), Râșcani (862 ha) and Orhei (815 ha). The biggest lakes are in the middle and lower courses of Răut hydrographical basin, including in the Iezăreni Vechi (124 ha) and Chișcăreni (116 ha) villages from Sângerei district, Verejeni (212 ha), Ghiliceni (97 ha) and Mândrești (57 ha) villages from Telenești district, Brăviceni village (74 ha) from Orhei district.

Approximately 50% of the lakes are used for fishery purposes, 43% are of general use, 3% for irrigation and for recreation. Most lakes used for fish farming are in the districts of Dondușeni (151) and Drochia (122), at Sturzovca village from Glodeni district, with 29 basins used for this purpose. In the Râșcani and Telenești districts, more than 60% of the basins are of general use. Most of the lakes used for recreation are concentrated in the lower course of the Răut river basin, especially in the Orhei (Ivanca village) and Călărași districts. This is due to the higher access to these aquatic objectives and to proximity to the Chișinău municipality.

## 5. CONCLUSIONS

About 60% of the waters used in Răut river basin are from underground sources that predominate in the absolute majority of districts and localities from this hydrographical basin. The predominant use of underground water is conditioned by the low flow of water courses and lakes, to the intensification of climate changes, and to reduced capacity to exploit the water surface sources.

On average, during the analyzed period, the volumes of water used for domestic and agricultural purposes are almost identical, both having a share of 43% of the total volume, but the water used in agriculture decreased by  $\frac{1}{4}$  and for domestic purposes increased about 50%. The significant increase in the volume of water used for domestic purposes is due to the rapid expansion of public water supply systems, especially in rural areas, based on underground sources of water.

12% of the total volume of used water goes for irrigation and only 14% is used for industry. A very significant decrease of water used for this purposes has been registered in the analyzed period, which is conditioned by bankruptcy and technological modernization of many farms and industrial enterprises.

In the Răut river basin were identified 55,5 thousand wells, most of which are located in the upper (northern) course of this hydrographical basin. Approximately 90% of the wells are arranged and can be used as a source of drink water for population.



The absolute majorities of general purpose lakes is public property and are managed by the mayoralties, while the fisheries are managed by private operators, including from outside the Răut river basin. Most of the lakes are located in upper and middle course of Răut river basin, but the lakes for recreation purposes are arranged, predominantly, in the lower course, in the proximity to the Chişinău municipality. Approximately 60% of the lakes in the Răut river basin are arranged on water courses, which have a massive negative impact on the leakage and available water resources, especially in the lower course of the Răut River.

For future research, we propose to analyze the relationship between the dynamics of public water supply systems and the water consumption per capita, as well as the influence of these indices on the health status of the population in the Raut river basin.

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# Politics and its Impact on the Urban Physiognomy in Central and Eastern Europe: A Case Study of Bucharest

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**Abstract:** This article intends to outline the correlation between territorial planning policies and the urban physiognomy against the historical and geopolitical background specific to Central and Eastern Europe, in general, and to Romania, in particular. A representative case-study is Bucharest-City. From a historical perspective, analysing this correlation allows individualising Romania's Capital-city by six "architectural layers" with a homogeneous physiognomy and historically attested, which emerged and evolved in the geopolitical circumstances specific to certain mediaeval periods and influences. When the Romanian traditional architecture suffered by Turkish and Greek influences, as well as French ones (end of the 19th cent.-early 20th cent.). In the interwar period it was the American, the Soviet (1950-1960), the North-Korean (1980s) and contemporary (as of 1990) influences, globalising fluxes and the generalisation of Western architectural models being quite obvious.

**Key words:** urban physiognomy, architectural layers, political-ideological decisions, Central and Eastern Europe, Romania, Bucharest.

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## 1. INTRODUCTION. TARGETS

The downfall of ideological barriers in Central and Eastern Europe led to deep-going economic and social changes against the background of accelerated globalising flows. In Romania, the rapid transition from an autocratic political system and an over-centralised economy to democracy and a free competition based economy led to an economic-social destructuring followed by a new restructuring [1,2]. Speaking of the urban structure, this process developed in two major directions: *social*, by an upsurge of marginal phenomena grounded in unemployment and lack of viable alternatives for professional reconversion, corruption and "freedoms" wrongly understood and implemented, also *physiologically* through bankruptcy-induced closure of some industrial units and the development of new residential quarters and services areas [3,4]. Thus, spatial reconversion produced new dependencies between production and consumption, new poles of population concentration in the large cities [5].

Against this background the present study aims at highlighting the recent changes in the urban physiognomy integrated within a broader historical context, with political decision-making being a decisive factor.

Research, focussed on studying the influence exerted by territorial management policies on the urban make-up, represents an important contribution to the theory claiming the uneven development of cities [6,7]. Against this background, the stress falls on the characteristics common to cities in Central and Eastern Europe, influenced by the policies of central-based development specific to the latter half of the 20th century [8,9], as well as by the territorial disparities that opposed successive conservation and stagewise development of the urban outline (the urban palimpsest concept) [10,11] and the creative destruction in urban planning [12] to the policies of removing and building up, on the other [13-15], this topic generating vast polemical discussions within the Romanian scientific community even during the totalitarian period [16]. The case-study analysed herein comes from an area little approached in the international geographical literature, namely, Bucharest city, the capital of Romania.

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Political-ideological disparities would mirror in the built-up fond, basically in the “architectural layers” made of buildings with a similar physiognomy, raised within a certain time-period tributary to a given political-ideological cluster.

Since at the end of the 20th century, political-ideological constraints no longer existed, the urban development paradigm changed from a political-ideological one to that relying on economic-social constraints [17], where cultural influences, exerted by the globalising flows [18–20], play an ever greater role. Thus, the last section of this work tries to assess segregation of the urban space, based on socio-economic and cultural disparities, by evaluating the characteristic features of peripheral urban expansions as part and parcel of the current periurbanisation process [21].

## 2. METHODS AND DATA

For the purpose of this research, recognizable methods and approaches for collecting, analysing and comparing the data were used. For data collection, different sources were resorted to. Historical maps and pictures were analysed and compared to the present situation. Past and current laws and regulations concerning the discussed topic were examined. Contributions to the evolution of cities in Central and Eastern Europe were reviewed with special attention to researches into politics and their impact on territorial planning and urban physiognomy. Findings were compared to statistical data and publications of Romanian authors discussing this problem.

## 3. LITERATURE REVIEW

There is a rich international literature devoted to the urban physiognomy as a result of territorial planning policies made in the course of time [22,23]. By contrast, the ideological constraints imposed by the Central and East-European autocratic policies limited considerably both the frequency and objectiveness of this type of studies produced in these countries before 1990, except for some studies published West the former Iron Curtain [24–26]. Concomitantly, in Romania the first studies of systemic urban geography were being produced [27].

Beginning with the last decade of the 20<sup>th</sup> century, as ideological barriers came down and globalising fluxes got momentum, leading to vast socio-economic changes in this part of the Continent, the incidence of such studies increased and diversified [28]. The highlight falls on some issues of administrative organisation in the Central and East-European capitals [29], the relationship between urban morphology and local identity [30] and urban identity policies within a globalising context [31], the complex relations among cultural dynamics, social mobility and urban segregation [32,33], or between cultural models and traditional management. Within this context, theoretical approaches to changes in the physiognomy of Romanian cities as a result of globalisation and economic and social restructuring, or to changes in the urban-rural relationships in metropolitan areas, started developing and diversifying [34,35].

## 4. THEORETICAL GROUNDWORK. CORRELATION BETWEEN POLICIES AND URBAN PHYSIOGNOMY

Urban physiognomy covers all of the town external traits [36]; it is the cumulated outcome of the plans and shapes in which towns used to develop [37], of their morphostructure and parcelling, of the location of built-up areas, of green areas, of urban density, etc. It follows that urban physiognomy results from a complex of factors which act simultaneously and at intensities varying with the political and ideological context [38], its mental projection generating the urban image, that is, “a reality at town level filtered by a subject and highlighted as an information” [39], or an “integrated interface mediating the conflict of perceptions and acceptations of urban space” [40].

The impact factors can be divided into two categories:

- *natural factors* (relief, seismicity, etc.), acting constantly and assigning the urban layout certain particularities (height, main building material, shape of roof tops, colour, etc.) since constructions should be adapted to the natural environment [41,42].
- *anthropic factors*, basically political and ideological decisions that make urban physiognomy the outcome of will, the impact of which depends on the political and ideological context of a specific period of time, hence the *historical aspect* of the urban layout [43]. Thus, borrowing some political-ideological models ends up in assuming also their cultural patterns, that are reflected in literature, music, theatre, clothes, gastronomy and, last but not least, architecture [44].

“Urban physiognomy” is a term used mostly by the German anthropological school [45], while the French geographical school ([41,46,47]) opted for the term “forms of town concentration”, the Anglo-

American one ([48–50]) choosing to use “urban morphology”, which has been taken over by the Romanian geographical school, too ([51]).

Assuming a particular architectural style is tributary to a particular political - ideological model, characteristic of a certain historical period. At the same time, it is also the result of the dynamics of the urban population ethnical make-up, itself subordinated to political and ideological factors. A society based on a centralised political model, ideologically subordinated, will favour some immigration and culture-imported influences to the detriment of others [52]. This is the case of the East-European societies tributary to the Soviet cultural model after World War II, or of fundamentalist Islamic states which reject the Western cultural model. At the other end of the spectrum are the democratic states, which favour immigration and globalising fluxes from all directions, a reality visible in the economy, culture, and a modified ethnical structure through immigration and the emergence of ethnical neo-minorities [53]. What follows is the segregation of the urban space by preferential locations in certain quarters of the town, which thus acquire distinct architectural features (Bucharest hosts mosques, a Lutheran Church (founded in 1574), a Church of the Armenian community (first documented in 1685), a Bulgarian Orthodox Church (1841), a Greek Church (1893-1900), an Italian Church (1911-1913), an Anglican Church (1920-1945), and a Jewish Temple (first documented in 1866) [54].

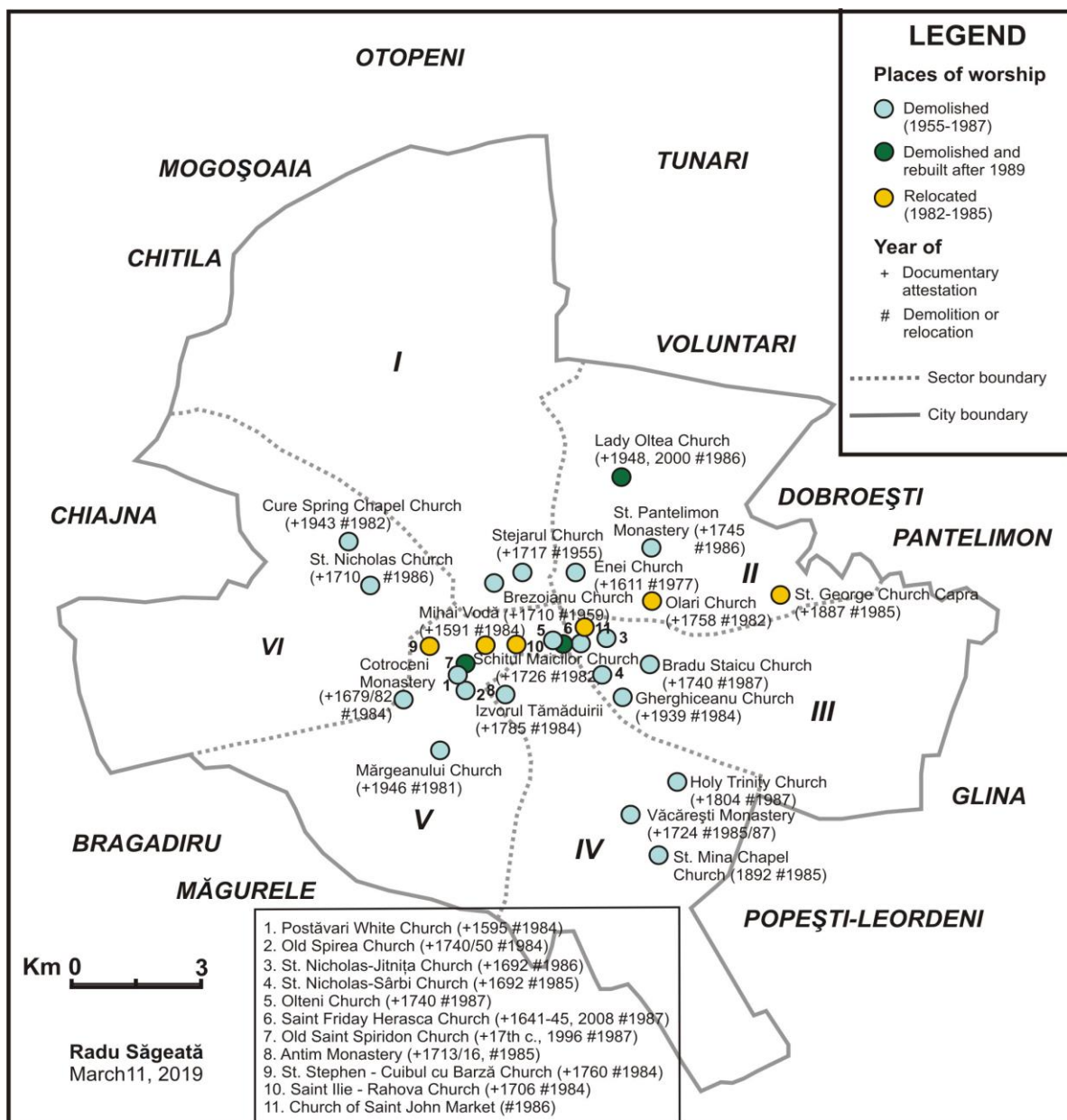


Figure 1. Places of worship in Bucharest demolished or relocated between 1950 and 1989 by political-ideological decisions.

Source: author, 2019

Therefore, the “architectural layer” can be defined as an ensemble of residential and industrial buildings raised in a particular historical period at time and political and ideological context. They are testimonies of the urban history, of a city’s development stages and of the different influences it has suffered in the course of time [55,56].

The political and the ideological will decided both on the building of architectural structures, influencing their physiognomy, and the demolition of buildings, which alongside natural disasters, have marked the whole urban history. Well-known worldwide are the Buddhist statues in the Bamiyan Valley (Afghanistan) demolished by order of the Taliban fundamentalist-Islamic authorities, or the numerous places of worship in Bucharest that had the same fate (especially in the 1980s) in the light of the “urban planning” policy promoted by President Nicolae Ceaușescu [57] (Figure 1).

The fall of the communist system and the elimination of ideological barriers created the premises for a closer connection among the urban systems in neighbouring countries [58]. Big cities tended to assume the role of cosmopolite cities due to an increasing ethnical diversity, as well as to the development of specialist services and the large-scale assimilation of consumption products of the global culture that go beyond cultural frontiers [59,60], which was reflected by a homogenization of their urban physiognomy.

## 5. DISCUSSION. ARCHITECTURAL LAYERS IN BUCHAREST

Romania’s Capital, Bucharest, situated in the south – south-east of Romania and inhabited by a compact Romanian population, has led to the specific organisation of the territory, primarily of the pattern of communication networks and the layout of the other regional metropolises.

City with a long-time history and with many architectural influences ever since [61,62], which is the consequence of its lying at the cross-roads of Eastern and Western cultures [63], Romania’s capital-city belongs to the physiognomical make-up specific to the great European metropolises featuring a wide-range of architectural styles [64]. These had a greater or lesser influence on the built-up fond in terms of its specificity, time-length and intensity of territorial-management policies succeeding one another for a long interval, and individualising what we named “architectural layers”.

### 5.1. The foundation and development of Bucharest in the Middle Ages. Mediaeval architectural Layer

Although first documented as a small settlement at the time of Prince Vlad Țepeș’s reign (1459) (Figure 2-a), and first recorded as a town in 1533, Bucharest had its ups-and-downs until the first half of the 19<sup>th</sup> century, having suffered numerous natural and man-made disasters: sacked and burnt by the Turks (1554 and 1595), the Tartars (1596, 1659 and 1738), hit by epidemics of plague (1706, 1718, 1738, 1792, 1812-1813) and cholera (1831), famine (1660, 1718), fires (1658, 1719, 1804, 1847), earthquakes (1793, 1802, 1838, 1892, 1940 and 1977), floods (1839) and wars (1769-1774, 1787-1791, 1806-1812, 1916 and 1944). So, despite having been proclaimed the permanent Capital of Wallachia (1659), its population dropped significantly from some 100,000 inhabitants in 1640 (Bakšić, cited by Ghinea [65]) to half that figure in the late 1600s (Anton Maria del Chiaro, cited by Ghinea [65]). In 1831, the city’s population was estimated at 58,794 inhabitants [54]. The Turkish-Phanariote regime being removed in 1821, and a native ruler (Grigore Ghica IV, 1822-1828) brought to power in Wallachia revigorated Bucharest’s political and administrative role and had a major impact on the city’s urban development (Figure 2-b).



**Figure 2.** Mediaeval architectural layer in Bucharest: **(a)** The Old Princely Court (“Curtea Veche”), the oldest testimonies of Bucharest (13<sup>th</sup> cent.), **(b)** Manuc’s Inn, built in 1808 by an Armenian entrepreneur, Emanuel Mârzaian, better known under his Turkish name Manuc-bei.

Source: author, 2018

Therefore, what characterises the mediaeval architectural layer is, on the one hand, the diversity of styles (e.g. Brankovan, Wallachian) and the architectural influences, on the other, its discontinuity wrought by subsequent destructions and demolitions. This consists of the oldest buildings in Bucharest, raised in the city's historical centre and discharging mostly cultural-religious functions.

It is in that period that streets were stone-paved, numerous palaces built (Ghica, Suțu, Știrbei), Eforia Spitalelor (Hospital Administration) (1831), Filantropia Hospital (1839) were set up and a modern water supply system was developed (metal pipes) (1844) [66]. So, in less than three decades, the city's population doubled (121,734 inhabitants in 1859) [67].

The unification of the two Romanian Principalities (Wallachia and Moldavia) and the choice of Bucharest as their Capital (1862) played a decisive role in pushing it to the top of the urban hierarchy, its demographic evolution being constantly positive: 177,646 inhabitants at the time of the War of Independence (1878), 184,488 in 1889, 282,078 in 1899 [42] and 341,321 on the 30<sup>th</sup> of December, 1912 (census data) [68] (Figure 3). Referred to the second largest city, the ancient capital of Moldavia (Iași), the hypertrophy index registered a spectacular rise, from 1.21 (1831) to 4.27 in 1912.

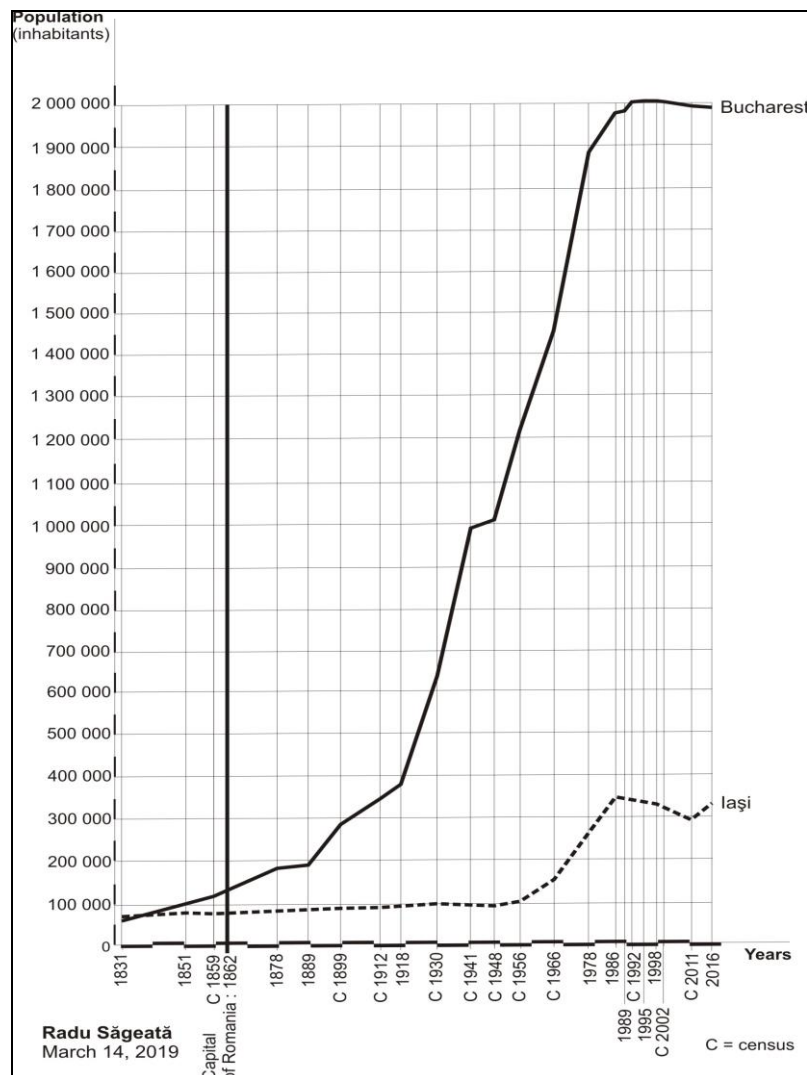


Figure 3. Comparative demographic evolution the capital-cities of the two Romanian Principalities (1831-2016).

Source: author, 2019

## 5.2. Bucharest in the modern period. Developed as a result of capital investment and the impact of the French cultural model

If until the 6<sup>th</sup> and the 7<sup>th</sup> decades of the 19<sup>th</sup> century, the city still looked quite rural, full of mudbrick houses, while cattle moving about in the central streets was a common sight, becoming a capital-city (1862) and the capital of an independent state (1877) had a many-sided impact, entailing not only a significant demographic growth, but also a sustained building and urbanistic activity in line with its new

city function of a European metropolis [69]. The French cultural model gaining ground at that time, did influence the Romanian society recently emerged from under the Eastern cultural orbit and shifting towards the Western cultural values.

New streets were being built and paved, more brick-made buildings and imposing edifices were being erected (Figure 4-a,b) : The University of Bucharest - 1869, Filaret Station - 1869, Northern Station - 1872, Foişorul de Foc (Fire Tower) - 1890, The Palace of Justice and the Carol I Foundation (Central University Library) - 1893, The Ministry of Agriculture Palace - 1898, The Romanian Savings Bank Palace, The Post-Office Palace (currently the “National History Museum” of Romania) and the Cantacuzino Palace (the “George Enescu” Museum today) - 1900, the City Hall Palace - 1910, etc., new squares and public gardens were opened, public gas (1871) and electric lighting (1882), as well as public transport (horse-tram, 1894) were introduced, and in 1880-1882 complex works of correction, modernising and deepening the Dâmboviţa River were undertaken, and a vast network of bridges and canals was being built to prevent the effects of floods and epidemics; at that, time Bucharest was called “Little Paris” [70].



**(a)** **(b)**  
**Figure 4.** Representative buildings for the French Cultural model in Bucharest:  
**(a)** Romanian Athenaeum (1886-1888), **(b)** Palace of Justice (1890-1895).  
 Sources : [71,72]

The French cultural influence laid the premises for the penetration of architectural styles fashionable in Western Europe, e.g. Gothic, through the neo-Gothic and Romantic currents: the Şuţu Palace, 1935, the Universitariies House, 1860, the St. Joseph Cathedral, 1883; neo-classic: the University, 1857-1869, the Romanian Athenaeum, 1888; eclectic: the Palace of the National Bank, 1885, Palace of Deposits and Consignments, 1900, or the French Academic Style, representative for the Central Army House, 1911-1923. In addition, there are some buildings with commercial functions, e.g. the Central Markets-House (Unirii Market, 1872), built in the Paris Markets style.

### 5.3. Bucharest in the inter-war period. The influence of the North American cultural pattern

The city’s urbanistic development went hand-in-hand with the increase of its population and the enlargement of the built-up area. Between the 1912 and 1930 censuses the population doubled again, up to 639,040 inhabitants, and the degree of hypertrophy versus the second largest city rose from 4.27 to 6.21. At the same time, the built-up area grew from 2,714 ha in 1894 to 3,741 ha in 1935, due especially to migrations to the Capital during the First World War.

**Table 1.** Enlargement of Bucharest Municipality built-up area (1894-1934).

Period	No. years	Initial area (ha)	Final area (ha)	Enlargement (ha)	Growth rate (ha/year)	Causes
1894-1911	17	2,714	2,802	88	5.18	Small enlargement as the City Boundaries Law came into effect (1865)



1911-1929	18	2,802	3,741	933	52.17	Marked enlargement in the wake of World War I migratory flows to the Capital.
1930-1934	4	3,741	3,860	119	29.75	Small enlargement as the Law of the Organisation of the Communal Administration of Bucharest came into effect (1929)

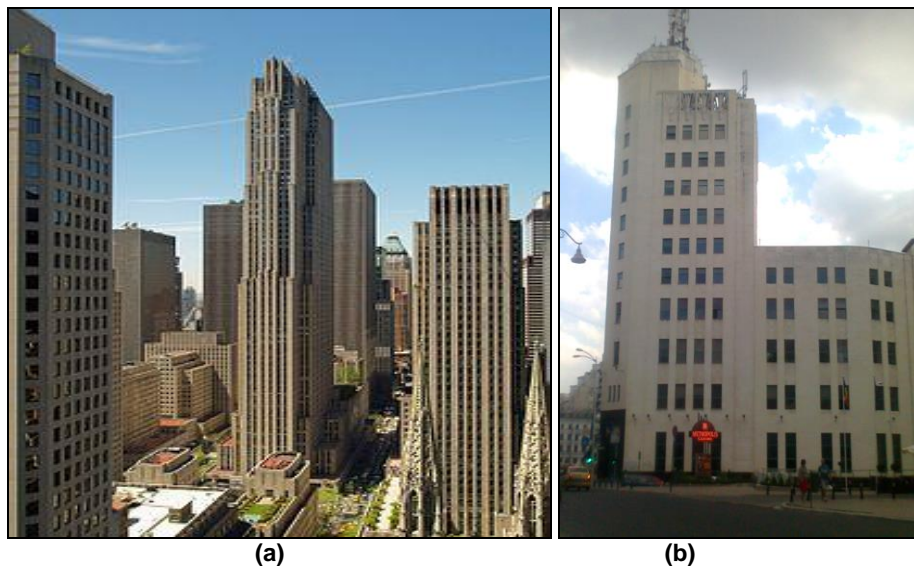
Source: Master Plan of Systematising Bucharest Municipality, 1935 [73]

It was at that time that the first laws were passed to limit chaotic development within the city bounds (the “Law of Bucharest Delimitation”, 1895 and the “Law for the organisation of the communal administration of the City of Bucharest”, 1929) (Table 1). For all that, the built-up area had a chaotic character, stretching out to the marginal perimeters of the core area and alternating with large agricultural spaces.

Industrial development, associated with West-European and North-American investments of capital in the inter-war period, favoured the import of the North-American architectural model (skyscraper buildings) which, given the powerful US industrial development in the early 1900s, was adopted also by the large European and Asian cities.

In Bucharest, this architectural model usually materialised, in the building of 10 storey-high blocks-of-flats, or offices along the main central streets and boulevards (Calea Victoriei, Magheru Blvd.) [74], influenced by the architectural current fashionable at the time (Art Deco, modernism, bauhaus, cubism, etc).

A representative building for this architectural model, in the style of inter-war North-American skyscrapers (Art Deco) (Figure 5-a), The Telephone Palace (Figure 5-b), was erected between 1929 and 1934.



**Figure 5.** North-American architectural model in the first half of the 20<sup>th</sup> century: **(a)** The Rockefeller Center (the first building opened in 1933), in Manhattan, New York), **(b)** The Telephone Palace, built between 1929-1934 in the style of North-American skyscrapers.

Souces: [75]; author, 2018

#### 5.4. The influence of the Stalinist-Soviet architectural model

The ideological and political discontinuity, created at the end of World War II, affected all the economic and social aspects of life, and no less so the built-up area, by imposing, often brutally, a new foreign architectural model: the Stalinist-Soviet one [76]. Its implementation was also facilitated by the damages produced by the November 10, 1940 earthquake the Anglo-American bombardments of April and July 1944 and the German ones of August 24, 1944.

Planned development, subordinated to the political factor, state-imposed control over the means of production and exchange, orientation towards the egalitarian development of all administrative and territorial units irrespective of their potential and specificity, barring the expansion of metropolises by

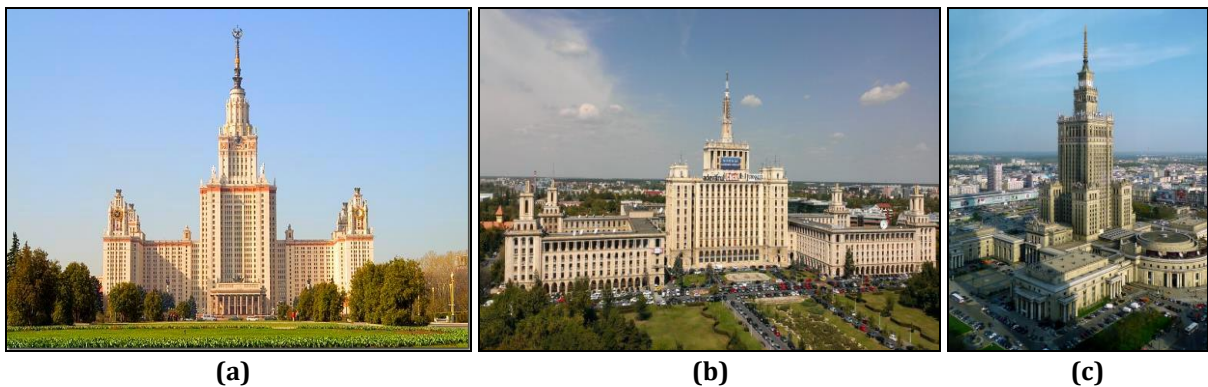
limiting immigrations, the imposition of collective agriculture, the close correlation of production with the economic and military needs of the “Big Brother”, promoting autarchy and breaking with the Western world, elaborating ambitious programmes of economic and social development and modernisation engendered an original geography peculiar to the East-European countries [77].

This “ideological export” was reflected on the political, ideological, social, institutional, cultural, psychological and architectural plane. All East-European towns have the same physiognomy determined, on the one hand, by the uniformity of the outskirts (Figure 6-a,b,c), with their big Soviet-like prefab structures, and by the presence of Soviet-style monumental constructions (Figure 7-a,c), on the other. “The Scânteia House” (today “The Free Press House”) (Figure 7-b), built between 1952 and 1957 to host the publication of the “state press”, especially of the daily “Scânteia” newspaper of the Central Committee of the Romanian Communist Party, is a hallmark of this architectural model.

The consistency of this type of architecture is far more obvious in the residential quarters, because it was at that time that the large residential area of Bucharest was conceived: block-type structures for workers in Ferentari district, standard dwelling-houses in Bucureştii Noi district, new dormitory districts in Titan, Drumul Taberei, Berceni, Colentina, Pantelimon, Militari, or the apartment-blocks planted along heavy traffic arteries: Mihai Bravu, Ştefan cel Mare, Griviţa, Rahova, Giurgiului, etc [78].



**Figure 6.** Residential architecture of the Soviet-Stalinist type in “Drumul Taberei” area **(a)**, **(b)** and in “Eroilor Sanitari Boulevard” area **(c)**.  
Source: author, 2018



**Figure 7.** Soviet architectural model reflected in the administrative buildings:  
**(a)** “Lomonosov” University in Moscow, **(b)** “The Free Press House” in Bucharest, **(c)** The Palace of Culture in Warsaw.  
Sources: [79–81]

Bucharest's large residential area displays quarters built in communist time, that have a relatively circular layout, the local convergence thoroughfares being the main entrance axes to the city [82]. This area has generally over eight-storey-high buildings, housing approximately 60% of the city population ([83]. It follows that this zone is particularly important, having maximum demographic concentration, hence the highest human pressure of the city [39].

Concomitantly, the population would steadily grow, from 992,536 inhabitants in 1941 and 1,041,807 in 1948 to over 2 million in the 1980s, but the degree of hypertrophy between Bucharest and the second largest city (maximum value 8.83 at the end of the Second World War), started narrowing down [39] (Table 2).

**Table 2.** Evolution of the Bucharest hypertrophy index (1831-2016).

Year	Hypertrophy Index	2nd-rank city
1831	1.21	Iași
1859	1.85	Iași
1912	4.27	Iași
1930	6.21	Iași
1948	8.83	Cluj Napoca
1956	7.61	Cluj Napoca
1966	7.36	Cluj Napoca
1978	6.67	Iași
1986	5.7	Brașov
1989	5.8	Brașov
1992	5.89	Constanța
1998	5.79	Constanța
2002	6.00	Iași
2002	6.05	Iași
2016	5.81	Iași

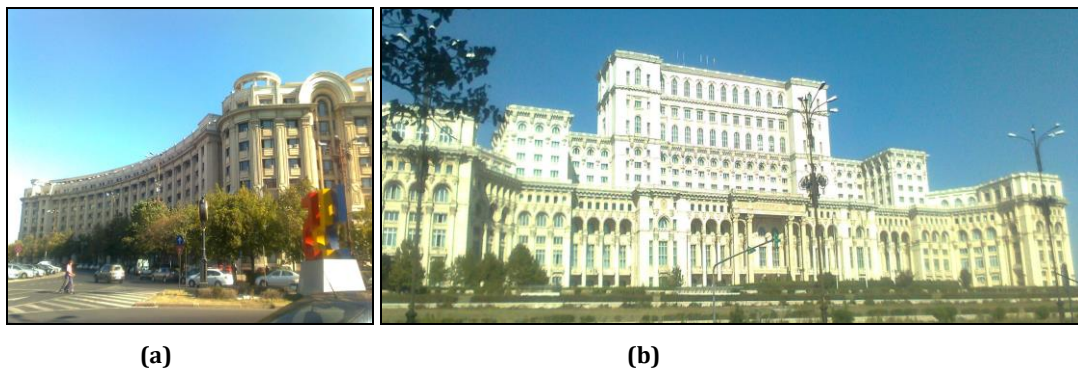
Source: Processed data based on Censuses and Statistical Yearbooks [84]

### 5.5. The end of the communist period and the North-Korean architectural model in Bucharest

The tendencies to reform the communist political system in the 8<sup>th</sup> decade of the 20<sup>th</sup> century made Bucharest politically open to the North-Korean-type of communism, then the only one still compatible with that in Romania. Once extrapolated to architecture (Figure 8-a, b), this tendency led to adding North-Korean elements [85] to Bucharest’s architecture, strikingly visible in the entire architectural perimeter between Unirii, Libertății Boulevards, and Alba Iulia Square (Figure 9-a).



**Figure 8.** Administrative buildings in Pyongyang (North Korea) (a, b).  
Sources: [86,87]



**Figure 9.** Representative buildings for the North-Korean architectural model in Bucharest : (a) residential buildings in the former “Uranus” neighbourhood, (b) The Parliament Palace, the biggest administrative building in Romania.  
Source: author, 2018

In this great architectural ensemble, the Parliament Palace (“The People’s House”) (Figure 9-b) occupies a central position; the building works started in 1983, are still unfinished. This building is the second largest administrative structure in the world after the United States’ Pentagon in Washington. It has approximately 1,000 rooms, among which 440 offices, over 30 halls and salons, restaurants, etc.

### 5.6. The fall of ideological barriers. Generalisation of globalising fluxes and ethnical-social segregation of the urban space

The political-ideological fault-line that marked the collapse of the communist political system in 1989 also reflected in architecture, in that the North-Korean model was abandoned and the contemporary North-American model would gain ground.

In other words, the last 20<sup>th</sup>-century decade witnessed the globalisation of the North-American architectural model, the natural outcome of the fall of ideological barriers in Romania, too. Concrete and glass-made buildings, mainly services-oriented (bank headquarters, offices, hotels, etc.), similar to, but not that tall as those of the great North-American, European and Asian cities (Bucharest being prone to seismic risks) became customary [88], [89] (Figure 10).



**Figure 10.** “Asmita Gardens”, placed on the banks of the Dâmbovița River, new residential complex, representative for the contemporary North-American layer.

Source: [90]

As the building area has been developing due to globalisation and foreign direct investments, the phenomenon of urban space segregation, with two distinct components, an *ethnical* and a *social* one, has become obvious [83,91].



**Figure 11.** Social segregation in the urban physiognomy

(leftside image: workers’ blocks of flats built in the 1960s-1970s mostly for single persons, in response to the development of an industrial zone in the west of Bucharest city; presently, it is low-income families that live there; rightside image: “West-Gate”, a new residential and business quarter developed after the year 2000, inhabited by families with over-average incomes. Note: separated by a concrete wall).

Source: author, 2018

The *ethnic* component is the result of ethnical neo-minorities discharging commercial and business activities in the city (around 20,000 foreigners live in Bucharest now, each having chosen its own quarters where the business is located, e.g. the Chinese have the Obor - Colentina - Voluntari area (Red Dragon Shopping Centre), the Arabs have the Crângași - Militari - Drumul Taberei district (Grozăvești & Regie Student Campus) [92]. Hence, social and spatial segregation of the urban structure [93].

*Social* segregation is based on financial segregation. On the one hand, are the communities facing serious social problems (unemployment, deficient technical-urbanistic infrastructure, high crime rate, etc.), on the other hand, is the high-income population which tends to migrate towards the periurban areas, creating *gated communities* of the wealthy elite who can afford good quality urban environments and cut themselves apart from the rest of the population (Figure 11). In the beginning, like districts had developed in the north of Bucharest (Pipera, Primăverii, Tei, Băneasa) where the corresponding infrastructure existed before 1990 (high concentration of embassy headquarters and diplomatic missions, residential and different services areas that attracted over-specialised services for a wealthy clientele), later such communities extending (new real estate projects) to other city areas [94].

Although more comfortable and having a larger living space than the pre-1990 dwellings, reaching the new residential quarters (Figure 12) is not an easy matter given that roads are narrow, partly not asphalted, basically unsuitable for the present-day traffic [95].



**Figure 12.** Land parceling and urban expansion in Chiajna – Bucharest’s ring road area.

Source: author, 2018

The action of updating them, which is the task of the local sectoral authorities, has not been coordinated with urban development [96]. Beside these dysfunctions, there is a shortage of car-parking places, in many cases there are no public transport connections with the central areas; moreover, education and sanitation facilities are missing and wherever they do exist, they are usually privately owned and in many cases costs are prohibitive, or it is usually only the dwellings of the respective residential quarters which are intended for the people living there.

## 6. CONCLUSIONS

This outline of Romania’s capital-city current landscape is the result of numerous influences, a temporal impact of various intensities and variable interaction periods. The determinant factor that marked the complex process of interactions is the political one which acted either directly, through the “import” of some foreign architectural models (Figure 13) fashionable in a certain historical period, as an integral part of a politically coordinated development alternative with a complex economic and social impact, or indirectly through the intermediacy of some immigrant communities (political or economic refugees, the economic factor being in this case tributary to the political one, economic evolutions being the consequence of political developments).

The phenomenon itself is by no means a new one, being deeply rooted in the communist period, when the policy of “internationalizing the left”, made Romania promote a vast campaign of attracting foreign students, mainly Arabs originating from areas, which at that time had fallen into the orbit of socialist development, or which embraced this trend (Palestine, Syria, Algeria, Libya, Iraq, etc.). In addition, there were the flows of refugees (Greeks, Poles, Chilians, Kurds, Somalians, natives from the Congo Democratic Republic, Korea, etc.). After 1990, these people would become engaged in commercial activities, developing small entrepreneurial businesses located in the proximity of students’ camps, subsequently concentrated into commercial complexes.

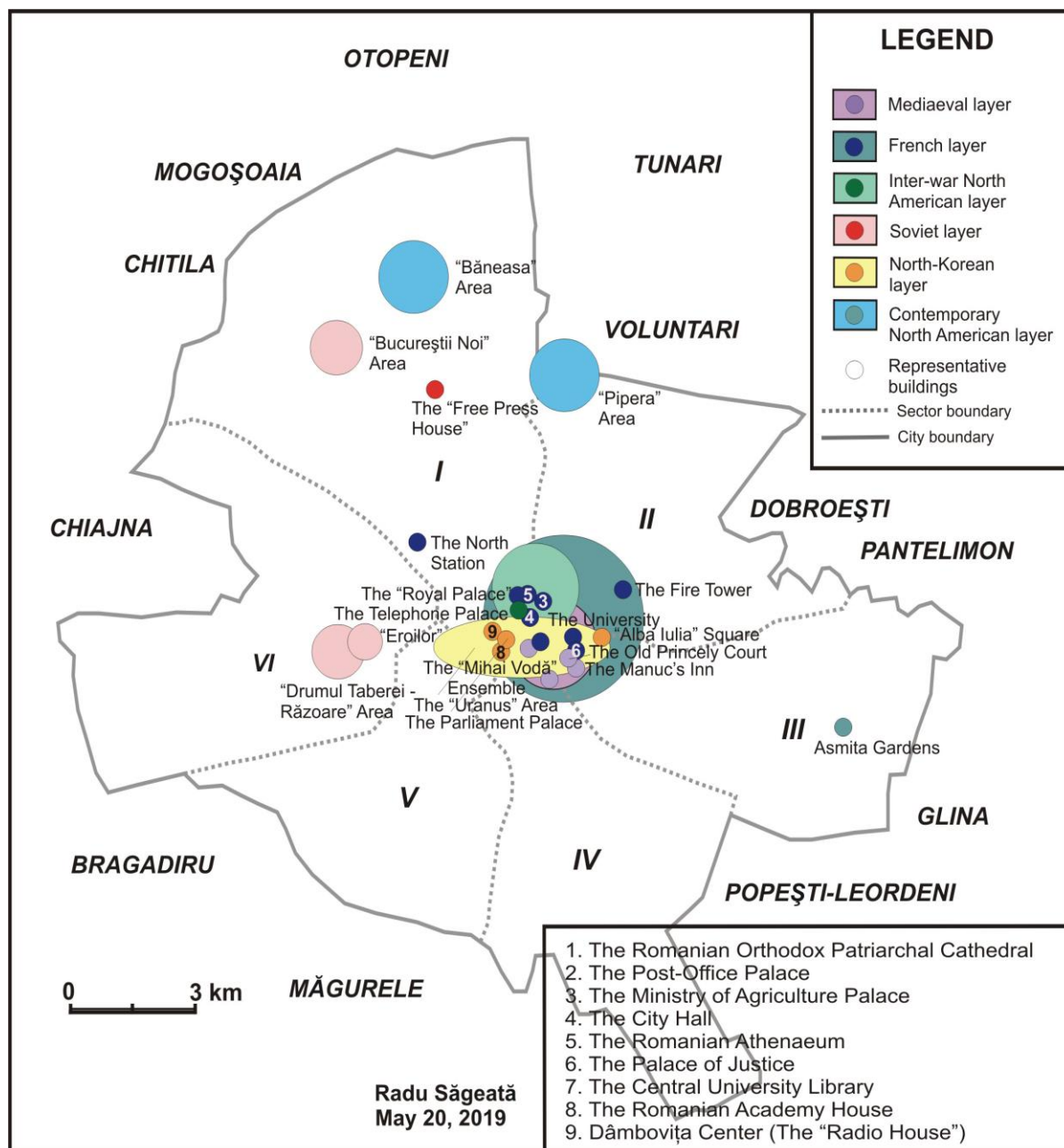


Figure 13. Architectural layers in Bucharest.  
Source: author, 2019

On the other hand, industrial-restructuring led to the dissolution of some industrial units, which through deficient management and corruption were closed down, hence unemployment, while the respective areas were taken over by house dealers, the groundwork for housing investments.

Future evolutions indicate a similar trend i.e. Romania's EU integration, and prospectively its joining the Schengen Area, makes this country an attractive destination, particularly for the emigrants from less developed countries outside the European Union, Romania becoming a gateway to it. In view of this situation, Romanian towns, and the capital-city in particular, will become ever more cosmopolitan by taking over, often uncontrolled, some influences alien to this country and extrapolating them to the urban physiognomy [97].

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## BOOK REVIEWS

### **MANUALE DI GEOGRAFIA DEL TURISMO. DAL GRAND TOUR AL PIANO STRATEGICO**

LORENZO BAGNOLI

UTET Università, Torino, 2018, 272 pp., ISBN 978-88-6008-544-3

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The "Tourism Geography Handbook", now in its fourth edition, helps to build systematic knowledge of the discipline by presenting a review of themes, and the literature that has dealt with it, according to their appearance in Italian scientific production, up to the most recent updates. The approaches followed are many, and each of them has suggested different themes and tools: from the economic to the political, from the human to the environmental and to the perceptive. The Handbook is addressed to university students - but also to all those who for the first time approach the subject - placing itself as an agile instrument of study or work where the treatment of each single theme is carried out through an appropriate but suitable scientific language to the understanding of all readers. In this fourth edition, the exemplification takes place through emblematic cases more or less known, from the European Capitals of Culture to the tourism of video games, to show and demonstrate how they can adapt, modify and transform the places, and especially the ways in which these are presented, depending on the demand of tourists. A useful book to understand how best to value one of the most important resources of our Italy and our Europe. Tourism has become so much a part of human behavior that it represents a habit, a foregone conclusion. But what is tourism? Although this is a current phenomenon and involves and involves a large number of people, there is no common definition, as there is no agreement on its pre-eminent characteristics. Moreover, if until a couple of decades ago tourism was essentially due to a permanent holiday, induced by a desire for escape, today it knows a variety of ways, forms and motivations in continuous increase and change: the cultural journey, the trekking adventure, the food

and wine tour, the travels of the elderly, the study holiday and many more. This manual of geography of tourism presents an organic and systematic mapping of the discipline, reconstructing how it has evolved in Italy since the Fifties. Each aspect is analyzed, also through real and current examples that help the reader to understand, in order to give back a vivid and complete picture. Through numerous case studies, the Author wants to demonstrate how places, and especially ways in which they are presented, can be adapted, modified and transformed according to the demand of tourists. The volume is divided into six chapters and each of them is dedicated to one of the main themes of the geography of tourism presented according to the Italian scientific-disciplinary tradition in the last fifty years. The first three chapters place particular emphasis on tourism as an economic asset and just as other economic assets are characterized by demand, supply and a market. The difference, however, with other economic goods, is its immobile supply and, instead, a great mobility of financial flows and of people that tourism is able to generate.

In particular, first chapter "Tourism and geography" highlights how the Geography of Tourism is a branch of Geography and how much the disciplinary tradition in Italy is consolidated. Toschi, in 1947, was the first geographer to deal tourism phenomenon with a methodological approach; he transferred reflections of economists about the transfer of money from a non-tourist region to a tourist to studies of geography of tourism; furthermore he elaborated some interesting considerations on the human aspects of tourism, above all concerning motivations of the trip and tourist flows deriving from movement of

people from place of habitual residence to other destinations. In his analysis of tourist flows, Toschi considered environmental, social, landscape and other consequences that tourism phenomenon imprints on territory. In addition to examining subsequent methodological approaches, Bagnoli reflects on "place", on new meanings of "landscape" and "territory" and on modern inconsistency of tourist region as, currently, it is the result of visitors' perception «If on one hand, passive tourism region no longer exists or perhaps there are as many as tourist collectives that "perceive" the same place, on the other active tourism region does not even exist anymore or maybe, even in this case, there are as many as there are social groups that from time to time, driven by different motivations, are going to abandon their habitual residence for a short time" (page 15). Thus, the Author, sharing the view of Schimdt di Friedberg (2005), underlines the role of Tourism Geographer not simply as a compiler of tourist guides or lists of tourism resources but his professionalism goes far beyond «mountains, rivers, capitals».

Object of Chapter 2 "Tourism and Economic Geography" are the typically economic effects of tourism movement; analysis therefore includes tourist demand and offer, circulation and distribution of capital, migration, employment and vocational training. Finally, particular attention is given to the issue of territorial integration and international cooperation. Territorial cohesion policies look to tourism in two ways: either as an object of a cohesion policy or as an instrument of that policy.

Geographic-political themes are dealt with in third chapter. Bagnoli still considers useful to highlight the difference between Political Geography, the branch of geographic science that studies how the constituted power administers the territory and, in the case of volume, its tourism policies, from Geopolitics that is the study of all aspects of State territorial organization and their effects on tourist flows. He concludes that in both cases, political action has had and is of considerable importance on tourism. Examination of European and national tourism policies is interesting to understand the development path of a strategic economic sector such as tourism. In particular, the text focuses on Local Tourist Systems and the Strategic Development Plan of Tourism, both Italian strategies to promote new proposals in the tourism offer (in the first case) and new lines in tourism policies, in the second case.

Chapter 4, "Tourism and Human geography", focuses on three key ideas: identity and travel motivation; types of tourism; new tourism approach. If the traditional geography of tourism identified tourists through two characteristics: leisure and visit over twenty-four hours outside their usual residence, contemporary geography of tourism needs to broaden horizons of analysis. With the evolution of geographic thought in postmodern sense, much more attentive to reality as perceived by the subjects, the meaning of tourists is also charged with identifying meanings: rather than objectively studying what a tourist is, today the research investigates who feels like a tourist or who society feels like a tourist. The concept of tourism makes sense only in societies that recognize it as a specific activity, name it and attribute certain traits to it (Volli, 1993). Profiling of the different travel motivations, is also an opportunity to deepen a closely related geographical theme, such as environmental protection, the authenticity of cultures, the self-awareness of the tourist, the deterritorialization, the tourist stereotypes, the *dépaysement* and so on.

After having briefly recalled the evolution of contemporary geographic thought from determinism to sustainable development, Chapter 5 is dedicated to the impact of tourism activities on the territory. The Author prefers an optimistic vision according to which the choices of local communities can combine, in tourism sector, environmental protection and durable economic development, through, for example, creation of naturalist areas, literary parks, ecomuseums and brands of quality.

Finally, the construction of the tourist imitations of a region is outlined in last chapter "Tourism and Image". In order for a locality to become a tourist destination it is necessary to take care of accessibility, receptivity, safety, but, underlines Bagnoli, it is also essential to create a suitable image for the complex current market. After a careful examination of multiple tools useful for the dissemination of an adequate tourist image, the Author introduces several interesting case studies that help readers to understand the transformation process of a tourist destination.

In conclusion, it represents a valuable scientific contribution and a precious book to understand how best to value one of the most important economic resources of a country.

## LEADERSHIP AND THE RISE OF GREAT POWERS

YAN XUETONG

Princeton University Press, 2019, 280 pp., ISBN 978-06-9119-008-2

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Global geopolitical balances will change much more rapidly in the next decade than in previous decades. The current bipolarity between the two world economic powers, China and USA is, perhaps, destined to become a concentration of decision-making power in the Asian area. This and other hypotheses on future international relations are central to the reasoning articulated in Yan Xuetong's book *Leadership and the Rise of Great Powers*. Unlike Western theories, which link the power of a nation to institutions, to the political form of the State, to governance, according to Beijing theories the independent variable that gives shape and speed to changes in the global order is leadership. The author is a leading academic authority in China and dean of Tsinghua University's Institute of Modern International Relations, considered the country's leading university, where many of the other Communist Party leaders including secretary Xi Jinping graduated. The theories that Xuetong presents in the book are the result of the intense debate underway in China, aimed at understanding the characteristics of the current challenge among the great powers. The book is published in Great Britain and the United States as confirmation of the fact that the Chinese political summit intends to inaugurate a new strategy in international relations with the West. The author claims that the strategic interests of a state are defined by its "all-encompassing capabilities", which consist of four elements: politics, military apparatus, economy, culture. It is on the basis of the strength of these capacities that a state can have an interest in maintaining a *status quo* of world domination; to try to get this dominion if it is an emerging power, it can point to a regional hegemony if it is an average power, it can protect its survival if it is a weak state. Of the four state capacities, the last three are "resource elements", while the political one is the "operating element" which applies a multiplicative effect on the other three elements. As a consequence, the improvement or decline of a state's capacity is determined by the political capacity of that country. The question, therefore, that Xuetong asks itself is: what is it that determines the political capacity of a State? The national leadership that can be inactive, conservative, proactive, or aggressive and which, in all cases, is strengthened when it makes reforms and when it changes the international reality. Yan defines

political leadership through the lens of morality, specifically the ability of a government to fulfill its domestic responsibility and maintain international strategic credibility. Examining leadership at the personal, national, and international levels, Yan shows how rising states like China transform the international order by reshaping power distribution and norms. Yan also considers the reasons for America's diminishing international stature even as its economy, education system, military, political institutions, and technology hold steady. The polarization of China and the United States will not result in another Cold War scenario, but their mutual distrust will ultimately drive the world center from Europe to East Asia. The book consists of eight chapters. The first chapter "Morality, Power, and Authority" investigates the shift of the center of world power over the centuries. Spain, Portugal, the Netherlands, France, the United Kingdom, and the United States were successively the world's dominant states after the formation of a global system of states in the sixteenth century. Along with the changes of dominant state came occasional shifts of the world power center from one region to another. Scholars of IR have long sought to trace and explain how various great powers have risen and fallen relative to one another over the past five centuries. The second chapter is dedicated to the leadership and strategic preferences as mentioned above. Based on the definitions in chapter 1 of morality, capability, power, and authority, and the roles of leadership types as discussed in previous chapter 2, chapter 3 "Corollaries of International Change" will expound a new theory about changes in international configurations, norms, orders, and systems. As a branch of international relations realism, this theory follows fundamental realist assumptions, paramount among which is that the nature of interstate relations has not changed fundamentally throughout human history. The chapter 3 attributes the international redistribution of power to the different capacities between the national leaderships of the nascent states and the dominant state. The bipolarity that occurred in the second decade of the 21st century is a case that illustrates this argument. Nevertheless, the current bipolarization has coincided with the displacement of the global geopolitical center. Although both cases result from

the redistribution of power, they occurred in different conditions. The chapter 4 "Power Redistribution and World Center" reflects on three aspects of the problem. They are the key factor driving the current bipolarization between China and the United States; the conditions that could trigger a global cold war; and the reasons for the displacement of global decision-making power. The theme of the fifth chapter is the fact that international norms change according to the conduct of the foreign affairs of the Member States in an international system. In distinguishing the international order from the international system in chapter 3, we have noticed that both the main international values and the international norms are components of the international order. Since international standards are formed under the guidance of traditional international values, the character of the first will change along with changes in the second. Therefore, the normative character of the international order changes according to changes in traditional values and norms. When emerging states espouse values different from those of previous dominant states, value conflicts become part of strategic competition between nascent and dominant states. This is discussed in the sixth chapter "International

mainstream values". Chapter 7 reflects on the use of the expression "transformation of the international system", often used casually to refer to changes in international orders, or configurations, or norms, or actors, rather than to the system as a whole. We therefore need to rethink this expression, especially when it refers to emerging countries. An international system transformation is a complete and complex change that includes changes in the type of actors, configurations, rules, orders and leadership. Based on the analyzes in the previous chapters of the relationship between leadership and changes in configuration, norms, political values and systems, this chapter will illustrate through historical cases how leadership types influence the transformations of the international system. The final chapter selects both ancient Chinese and global modern cases to illustrate the theoretical arguments made in this book. These cases vary according to their geographical location and size, their historical and cultural background and their political systems. In conclusion, using the point of view of classical Chinese political theory, the book *Leadership and the Rise of Great Powers* offers a provocative and alternative perspective on the change of the domination of nations on the global stage.