SYSTEM OF INDICATORS TO ANALYZE REGIONAL DEVELOPMENT DISPARITIES IN ROMANIA

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Abstract

The orientation of spatial development policies in Romania is governed by the directions established in the European Union by the Lisbon and Gothenburg Strategies and the ESPON Program, and nationally by the principles of the Regional Operational Program and the National Plan of Development. The monitoring of their implementation and the study of their territorial effects require the development of advanced techniques and instruments for the spatial planning of the national, urban and rural territory in order to strengthen the administrative capacity to absorb structural and cohesion funds, as well as the use of informational technology to monitor the development level of Romania with respect to regional development. A set of regional development indicators was proposed for each region, and embedded in a Geographical Information System. This paper synthesizes the results of analyses and proposes actions that should govern regional development in Romania.

Key words: regional development; GIS; EUROSTAT indicators; ESPON; Lisbon strategy

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The European Council has established in March 2000 a 10-years strategy aiming to transform the European economy into “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion” (Lisbon European Council, 2000).

The targets of Lisbon strategy refer to a yearly growth of the GDP, human resources and occupation of the labor force, increased quality of education, development of research and access to the information technology, and environmental protection. The strategy has been revised in 2005,
focusing on three priorities: labor market, research, and energy. To assess its implementation, the European Commission has proposed a list of 14 structural indicators, with a solid statistical substantiation, to be used by the member states. The list, structured in 6 chapters, has been modified by the European Council on December 8, 2003 as follows (Lisbon European Council, 2000):

- Economy (GDP per inhabitant, labor productivity);
- Labor force (occupation by gender; occupation by gender for the elderly);
- Innovation, resources, training (education of the younger by gender; share of research and development expenses in the GDP);
- Economic reform (compared levels of prices; businesses investments);
- Social cohesion (rate of poverty risk before and after social transfer; long term unemployment rate by gender; regional dispersion of occupation rates);
- Environmental protection (emissions; energy use in economy; share of freight transport in the GDP).

- The indicators are used by EUROSTAT in the NUTS (Nomenclature of Territorial Units for Statistics) European system.

The Gothenburg strategy targets are specific to environmental protection, including: prevention of increased volume and congestion of traffic, noise, and pollution; reduced emissions; stop the loss of biodiversity; reduce the weight of car transportation favoring other types; provide for the safety and quality of food; invest in environmental infrastructure (Gothenburg European Council, 2001).

The ESPON program proposes for the 280 NUTS II regions (UE 27+2, respectively Norway and Switzerland) 17 indicators grouped in 7 chapters: economy; labor force; population; environment; hazards; accessibility; spatial structure (Espon Monitoring Committee, 2007).

The operational program 2007-2013 includes the 8 regions of development established in Romania by Law no. 151/1998 on regional development, modified by Law no. 315/2004 and the strategy proposed within aims to diminish socioeconomic gaps of development among Romania and the other members of the European Union (EU) and within Romania and support a balanced and sustainable development of the territory and regions, according to their needs and resources, concentrate the poles of development, improve the infrastructure and business environment.

Balanced regional development in Romania is one of the objectives of the National Plan of Development 2007 – 2013, aiming to stop and diminish existing gaps due to the different territorial impact of market-driven economic
development. The 2007 – 2013 strategy reflects the Romanian development needs, in order to reduce the gaps compared to the EU. The strategy is based on the EU cohesion, Lisbon and Gothenburg strategies: increased competitiveness, full employment of human resources, and sustainable environmental protection (Government of Romania, 2005).

The spatial consequences of processes derived from the decisions on the development of Romania and re-integration in the EU regard issues related to the correlated national and regional development of networks of development poles, complimentary poles, activities stimulating socioeconomic development, organized cooperation on reducing regional development imbalances, systemic approach of environmental issues, organized inner accessibility and connection to the European and international systems. These approaches provide for regional, transnational and interregional territorial cohesion and rely on programmed public investments and interventions in local and territorial development; on the other side, public efforts on sustainable territorial development are based on the national capacity to generate income and engage in long term processes and investments [1]; [2].

With respect to the aforementioned objectives and criteria, 450 socioeconomic and environmental indicators were selected and grouped in the following 15 chapters:

1. Population
   1.1 Total population and structure
   1.2 Evolution of the population
   1.3 Natural growth and migration
   1.4 Demographic projections

2. Health and security
   2.1 Medical assistance
   2.2 Security
   2.3 Social assistance

3. Education and training
   3.1 Education
   3.2 Culture

4. Labor market
   4.1 Labor market
   4.2 Unemployment

5. Housing and lifestyle
   5.1 Housing
   5.2 Town infrastructure
   5.3 Incomes and expenses

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5.4 Possession of cars
5.5 Internet access by households

6. Economy
6.1 National accounts
6.2 Competitiveness
6.3 Foreign direct investments
6.4 Small and medium size enterprises (SMEs)
6.5 Business support infrastructure
6.6 Prices and wages

7. Research-development

8. Industry

9. Transports

10. Energy

11. Agriculture

12. Forestry

13. Tourism

14. Environment
14.1 Natural protected areas
14.2 Air pollution
14.3 Water pollution
14.4 Soil pollution
14.5 Wastes
14.6 Environmental protection expenses

15. Spatial structure
15.1 Spatial structure
15.2 Administrative-territorial structure of the regions of development
15.3 Size classes of administrative-territorial units
15.4 Evolution of municipality/city population by size class
15.5 Concentration of population in residence-county municipalities
15.6 Density of urban areas
15.7 Urbanization
15.8 Urban poles
15.9 Structure of lands by use category

The values of indicators (according to the unit) were structured as follows: UE - 27; Romania; regions of development North-East; South-East; South-Muntenia; South-West Oltenia; West; North-West; Center, and Bucharest-Ilfov, plus Ilfov County and Bucharest separately.

The selection of indicators aimed to underline quantitative and qualitative elements allowing for a complex measurement of the sectors,
possibility for monitoring in time, and nationwide representative comparisons with the European average, and between the regions and the national average.

The number and structure of indicators were proposed based on the importance of the sector and available information. Consequently, some chapters used over 50 indicators (population, spatial structure, economy), and others, lesser indicators (8-15): research-development, energy, forestry.

The analyses revealed gaps in the economic development and socio-cultural and town infrastructure among the regions of development, aggravated during the recent years.

**Stopping the aggravation of regional disparities** is a major priority of the next 5-10 years regional development policy, in order to create the conditions for stimulating the accelerated development of some regions, consistent with the 2007-2013 cohesion and Lisbon strategies of the EU.

The main issues justifying this priority are:

- Increased development gaps between Bucharest-Ilfov region and the others, reflected by the GDP/inhabitant;
- Imbalances between the east and west - North-East, South-East, South-Muntenia, South-West Oltenia, and West, North-West, and Center;
- Chronic underdevelopment of the North-East region (border with Moldova) and regions South and South-West, adjacent to the Danube;
- Important intra-regional disparities among counties and the urban and rural areas;
- Massive decline of small and medium cities, especially mono-industrial, due to industrial restructuring, or loss of industrial activities;
- Poor attractiveness of regions due to:
  - Precarious transport infrastructure due to low share of modernized railways and highways, lack of inter and intra-county connections valorizing the undeveloped areas;
  - Demographic ageing; insufficiently qualified labor force for the plus-value information technology; poor work discipline and management;
  - Poor health and social assistance infrastructure, number of personnel, status of buildings, and quality of the assistance;
  - Poor education infrastructure, low efficiency of curricula.
- Insufficient experience in managing regional/local development programs;
- Low valorization of regional and local touristic potential. All regions have touristic potential (high diversity of resources distributed in all regions, allowing for all forms of tourism: mountain, seashore, balneary, cultural, rural, eco-tourism etc.) The main issue is the poor valorization of this potential due to
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to undeveloped touristic infrastructure, poor diversity and structure of the offer, inefficient management. Most touristic resources of major importance are situated in poorly developed areas, and fostering this sector could lead to their revitalization.

The following paragraphs present proposals for the development of the 8 Romanian regions of development in the next 5-10 years.

**North-East Region**
- Develop accessibility – develop the airports Iași, Bacău, and Suceava and provide N-E and E-W connections by express highways, auto routes.
- Provide a safe and healthy environment for the population, including drinking water, sewerage, modern waste treatment facilities, protection against floods and land slides etc.
- Stabilize lands, stimulate production and its valorization, increase competitiveness, agricultural production, food (and wine) industries – create small enterprises networks.
- Rehabilitate the centers of cities; protect the natural and cultural heritage.
- Develop Iași – international competitive center with a transboundary influence, able to become a European regional center.
- Develop the logistic and circulation possibilities in the border areas.
- Create innovation centers supporting the SMEs in large cities: Iași, Bacău, and Suceava.
- Based on the cultural heritage, develop and valorize the network of monasteries, citadels, historical centers; restore important monuments.
- Support eco-tourism in protected areas, natural and national parks.
- Support programs for museum, theaters, and concerts.
- Support the wine industry.
- Develop human resources, training in foreign languages, information technology, and communication; establish partnerships, strengthen the regional identity.

**South-East Region**
- Increase accessibility modernizing M. Kogălniceanu airport – Constanța and Tulcea and create a new airport for the other 4 counties (Brăila – Galați area).
- Finish A2 auto route and an express highway to Galați.
- Develop sea and Danube ports.
- Rehabilitate abandoned industrial and military sites within the cities.
- Develop human resources, by increasing the level of education, and
adapting qualifications to the labor market.
- Protect green spaces threatened by sub-urbanization, avoid extensive land use.
- Ensure the equality of chances.
- Develop activities for the elderly.
- Valorize renewable resources, especially solar energy.
- Support landscape restoration, leisure and fishing in Tulcea and Constanța counties.
- Develop poor areas, especially small villages, using government funds.
- Modernize touristic infrastructure.
- Develop networks of areas with special landscapes, particularly for international tourism: Danube Delta – restoration and development of a new high-quality international tourism, the seaside – rehabilitation of the coast, improved quality of tourism, and mountain areas – rural tourism, SMEs using specific local products.
- Support wine industry and leisure fishing.
- Elaborate integrated programs and investments for developing the technical infrastructure – water, sewerage, gas, modern highways etc..

South Region
- Rehabilitate abandoned industrial and oil areas; develop existing industry accounting for environmental protection;
- Develop non-industrial areas accounting for environmental protection;
- Diversify activities in stagnant agricultural areas, ecological agriculture, and wide use of irrigations.
- Develop railroads and highways, rehabilitate and modernize the ports.
- Develop networks of regional centers – conditions for innovation by developing higher education; use the results of research and adaptive potential of the SMEs to create industrial clusters.
- Develop in a complex and sustainable manner the Danube floodplain promoting new highways and bicycle routes and rehabilitating the bank.
- Increase welfare modernizing the technical infrastructure (water, gas, sewerage), protect and rehabilitate architectural and urbanistic values.
- Modernize the institutional system creating European touristic clusters, developing the infrastructure, attractiveness and accommodation capacity.
- Develop touristic services, especially in poor areas with small villages.
- Develop cultural tourism in historical places (citadels – Târgoviște,
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churches – Prahova, Argeș, and Dâmbovița).

- Develop wine industry and leisure fishing.
- Develop transboundary connections.

South-West Region

- Balance the access to technical infrastructure (there are extended areas without water and sewerage).
- Improve N-S and E-W accessibility, building the Calafat Bridge.
- Promote Craiova as an internationally competitive city with transboundary influence, able to become a European regional center.
- Strengthen regional identity through cultural institutions, rehabilitation of centers in small cities, protection of cultural and folk heritage.
- The priority is agricultural competitiveness through a diverse structure of production, environmentally-friendly technologies, and irrigations.
- Protect the environment and natural heritage, revitalize traditional land use, stimulate reforestation of deserted areas, and reduce industrial and agricultural wastewater pollution by using modern waste treatment technologies.
- Develop in a complex and sustainable manner the Danube floodplain promoting new highways and bicycle routes and rehabilitating the bank.
- Invest efficiently in human resources, strengthening all educational levels and the research potential of Craiova University, reduce brain drainage.
- Create a regional logistic network developing services for the enterprises.
- Create regional touristic clusters, developing the infrastructure, attractiveness and accommodation capacity in Gorj and Vâlcea counties.
- Develop cultural tourism in areas with an exceptional heritage (churches and monasteries of Vâlcea and Olt counties).
- Develop leisure tourism (speology, agro-tourism, bicycle-tourism, etc.) in mountain and hill areas of Mehedinti, Vâlcea, and Gorj counties.
- Rehabilitate balneary tourism, turn social tourism in business tourism.
- Develop wine industry and leisure fishing.
- Develop touristic services according to the European requirements.
- Reintegrate low qualification population, minorities (rroma people) into the labor market trough social and adult education programs.
- Provide equal and fair access to health services.
- Develop activities for the elderly.

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- Promote Timișoara as an internationally competitive city with dynamic development, benefiting upon excellent connections, able to become a European and national regional center. Also promote it as an administrative, health, science, education, culture, and tourism center able to diffuse innovation toward other regions.
- Promote Arad as a competitive regional, national and European center, with transboundary influence, able to become a European regional center.
- Develop networks of regional centers – conditions for innovation by developing higher education; use the results of research and adaptive potential of the SMEs to create industrial clusters. Small cities should become regional sub-centers carrying some of the activities of regional centers (manufacturing, logistic, tourism). Improve regional accessibility.
  - Valorize renewable energy, mainly wind and biomass.
  - Support landscape mobility; protect green spaces threatened by urbanization, water sources and modern waste collection and treatment.
  - Rehabilitate abandoned industrial, mining, and military areas.
  - Elaborate regional projects for sewerage, waste collection and treatment.
  - Increase the competitiveness of agricultural products based on the natural conditions and traditions of the food industry.
  - Create small networks of small producers, mainly for specific products, support and create agricultural enterprises.
- Develop the logistic and circulation possibilities in the border areas.
- Provide equal and fair access to health services and increase their quality.
- Develop cultural tourism by restoring special monuments and centers of county residence municipalities; valorize castles, citadels, historical cities.
- Develop touristic services, especially in the mountain regions.
- Create a European cluster of mountain resorts in Caraș County.
- Rehabilitate mountain areas and lakes in Caraș County.
- Rehabilitate balneary resorts, mainly Băile Herculane, at European standard.
- Promote new forms of tourism – bicycle, rural, wine, etc.
- Promote protected areas, national and natural parks.
- Develop activities for the elderly, raising the quality of their life.

North-West Region

- Polycentric development of regional centers able to provide resources and innovation to sub-regional centers and local poles.
- Promote Cluj-Napoca and Oradea as regional and national centers, competitive at an international level in economy, administration, health,
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- Create a network (industrial cluster) of large multinational companies strengthening their capacity including the SMEs.
- Strengthen the innovation capacity by developing research in higher education institutions; develop cooperation and spatial development of technology and innovation centers.
- Diversify the activities in areas with an agricultural tradition; create an ecological and sustainable agriculture.
- Create networks of small producers, mainly for the specific products, and support the manufacturing industry.
- Extend the craft industry specific to the region.
- Elaborate regional projects for sewerage, water supply, waste collection and treatment.
- Improve overall accessibility and the accessibility of regional centers and transboundary regions by railroad and highway.
- Valorize renewable energies, mainly biomass.
- Develop and valorize the network of castles, citadels, and historical centers; pay attention to the restoration special monuments.
- Support ecotourism programs in national and natural parks and protected areas.
- Modernize the touristic infrastructure.
- Develop cultural tourism in areas with a special heritage, with an European value (Maramureş wooden churches).
- Develop wellness and balneary tourism at European standards, accounting for the balneary resorts.
- Support active tourism - ecotourism, wine and food, bicycle, horses etc.
- Strengthen the regional identity by public cultural institutions, rehabilitation of degraded centers in small cities, protection of cultural and folk heritage.
- Provide equal and fair access to health, education, and culture.

Center Region

- Develop a network of regional centers able to provide resources and innovation to sub-regional centers and local poles.
- Promote Braşov and Sibiu as competitive international centers, able to become European regional centers.
- Develop industrial clusters able to rapidly foster regional development, create competitive SMEs.
- Develop research and innovation in higher education, cooperation and spatial development programs for technological and innovation centers.
- Create logistic centers connected to the international transport corridors.
- Increase the competitiveness of agricultural products, based on regional leadership; stimulate production and valorization; create consulting webs.
- Rehabilitate industrial areas in centers with a traditional industry, and deteriorated housing areas.
- Provide a safe and healthy environment for the population, including drinking water, sewerage, modern waste treatment facilities, protection against floods, accessibility.
- Increase the accessibility of settlements.
- Create networks of small producers, mainly for the specific products, and the manufacturing industry.
- Strengthen the regional identity by protecting the cultural and natural heritage and a sustainable use of resources.
- Rehabilitate the city centers and build a new airport around Braşov.
- Modernize the touristic infrastructure.
- Valorize renewable energies, mainly biomass.
- Create innovation centers in the large cities supporting the SMEs in a functional system for supporting and stimulating the innovation.
- Develop cultural tourism in areas with a worldwide exceptionally heritage (citadels, castles, churches) developing the infrastructure, attractiveness and accommodation capacity.
- Develop cultural tourism in important urban areas rehabilitating historical centers, eliminating degraded areas, restoring and protecting the green areas around the cities threatened by urban sprawl.
- Mountain areas in Braşov County must be developed providing the best quality of international tourism, based on their specific resources and objectives for sustainable development.
- Elaborate ecotourism programs for protected areas, natural and national parks.
- Rehabilitate balneary tourism, turn social tourism in business tourism.
- Support wine, food, active and horse tourism.
- Develop human resources providing information technology, communication, tourism, and entrepreneurship curricula.
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Bucharest-Ilfov Region
- Increase the role of Bucharest in the European network of cities by developing economic its services, innovation and logistic functions.
- Develop infrastructure and business services.
- Develop communication and strengthen its role as a knowledge center.
- Develop human resources at any level for a rapid adaptation to the labor market.
- Enlarge the touristic offer by activating the resources of suburban communes and renovating the historical center of Bucharest.
- Improve cultural and economic settings to increase touristic attractiveness and the innovation and adaptation capacity.
- Reduce territorial disparities through modernizing the technical infrastructure and better management of wastes.
- Rehabilitate socially and physically eroded areas, especially fringe neighborhoods, and avoid the emergence of new similar areas.
- Develop activities for the elderly, and increase the quality of their life.
- Create and protect the green belts.
- Accelerate the urban rehabilitation.
- Increase the competitiveness of public transportation through its integrated development and reduced noise and atmospheric pollution.
- Extend programs for increased environmental awareness of population.
- Reintegrate on the labor market less qualified people and minorities through social and adult education programs etc.

Conclusions
Spatial planning policies should be militant through economic, social, ecological restoration, urban and landscape restoration programs. Therefore, spatial planning must increase its role in developing systems and production networks relying on the cultural and natural heritage, and on the landscape. In this regard, the main document of the EU, the European Spatial Development Perspective (ESDP) establishes three main directions: (1) creation of networks of polycentric and balanced cities, and strengthening of urban-rural partnerships; (2) sustainable development, prudent management, and protection of the natural and cultural heritage; (3) equal opportunities for accessing the infrastructure and knowledge.

The EU cohesion policy is based on Lisbon and Gothenburg principles, and focused on a lesser number of objectives. Consequently, the European
Commission proposes three programming priorities: convergence, regional competitiveness and European territorial cooperation.

In this regard, the National Plan of Development for Romania during 2007-2013 includes 6 operational plans approved by the EU for a balanced territorial development, with 4 general territorial long term objectives: (1) stimulation of regional competitiveness, (2) diminishing development disparities among the regions to achieve the cohesion goals, (3) sustainable territorial development and protection of the heritage, (4) decentralization and regionalization.

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