

QUALITY OF LIFE AUDIT IN THE URBAN AREAS OF THE ROMANIAN SOUTH-EAST DEVELOPMENT REGION

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ABSTRACT. – **Quality of Life Audit in the Urban Areas of the Romanian South-East Development Region.** This paper aims to present the concept of quality of life and compare the standard of living in the urban areas of the South-East region, implementing a new method of analysis, based on quantitative data obtained from statistics. The process of aggregating the statistical data used in this analysis create partial indices (Demographic Index, Social Index, Environment Index, Information Society Index, Culture and Recreation Index) figured out by means of *Quality of Life Audit* method, which combines the concept and principles of the European program *Urban Audit* with the formula used by statistical software *Dashboard of Sustainability*. Finally, the Quality of Life Index is obtained by aggregating the five indices.

Keywords: *quality of life, urban area, indicator, index, Urban Audit, Dashboard of Sustainability*

1. INTRODUCTION

The South-East Development Region is made of six counties, Brăila, Buzău, Constanța, Galați, Tulcea, Vrancea. The largest, Tulcea, covers 24% of the whole territory and had 91,286 urban inhabitants in July 2008. The opposite, in terms of territory, is Galați with 12% of the South-East Development Region, but with an urban population of 291,608 inhabitants. In each county, local authority structures are the county councils, local councils, city, town and commune councils. South-East settlements are structured in 11 cities, 24 towns, 355 communes and 1,447 villages (ADRSE, 2010).

Urban area cities and towns classification, made according to 350/2001 law, reveals certain exceptions of Buzău, Focșani, Tulcea, which are included in the second rank, but not exceeding 70,000 inhabitants, while Adjud does not reach 25,000 inhabitants. Within the third rank of classification, Făurei and Berești towns do not reach 5,000 inhabitants.

The highest level of urbanization is in Constanța County where there are 12 cities.

The towns of the South-East Development Region receive their urban status in different periods. This was the result of different processes and factors throughout history, with a long-term existence from antiquity to the contemporary area.

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Constanța, Mangalia, Tulcea, Isaccea, Măcin, Hârșova, Babadag and Cernavodă are in the category of ancient cities, as their existence was certified starting with the 7th century until the 1st century B.C.. Constanța, the oldest city, situated on the Black Sea coast, was founded after the Greek colonization of the Black Sea basin, between 7th century B.C – 5th century B.C under the name of Tomis.

Medieval urban areas appeared since 1134 A.D.: Sulina, Tecuci, Buzău, Galați, Brăila, Râmnicu Sarat, Focșani, Adjud.

In the contemporary period, the following settlements received the urban status since after 1945: Panciu, Făurei, Târgu Bujor, Năvodari, Berești, Ianca, Nehoiu, Pogoanele, Ovidiu, Negru Vodă, Pătârlagele, Băneasa and Însurăței. Băneasa and Pătârlagele are the most recent towns, certified as urban areas in 2004.

South-East Development Region administrative organization

Tabel 1

Development Region/ County	Total surface (km ²)	% from regional territory	Number of cities and towns	Number of municipalities	Number of communes	Number of villages
Sud-Est	35,762	100	35	11	355	1,447
Brăila	4,766	13	4	1	40	140
Buzău	6,103	17	5	2	82	475
Constanța	7,071	20	12	3	58	188
Galați	4,466	12	4	2	61	180
Tulcea	8,499	24	5	1	46	133
Vrancea	4,857	14	5	2	68	331

Source: ADRSE, Audit teritorial SE, 2010 – 2020

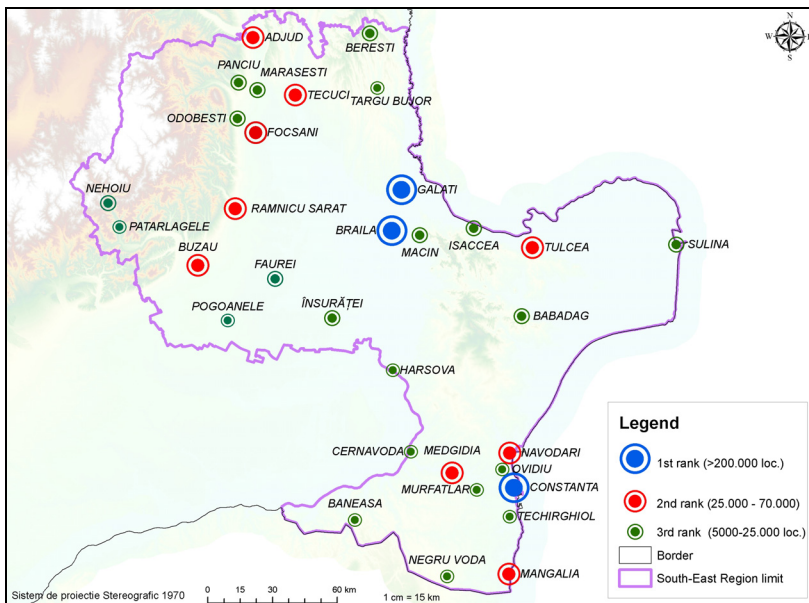


Fig. 1. Urban settlements according to their rank in South-East Development Region

2. MATERIALS AND METHODS

Characteristics of Urban Audit programme. In progress since 2003 at the European Commission, Urban Audit's main objective is to respond to the growing demand for an assessment of the quality of life in European towns / cities, where a significant proportion of European Union citizens live. The Urban Audit is a joint effort by the Directorate-General for Regional Policy (DG REGIO) and Eurostat to provide reliable and comparative information on selected urban areas in Member States (MS) of the European Union (EU) and the Candidate Countries.

The priority of the European Commission Regional Policy is the improvement of economic and social cohesion within the European Union, aimed at reducing disparities between EU regions. Urban Audit project's goal is to collect comparable statistics at European level for a considerable number of variables and for three spatial levels: the suburban, the city and the sector.

In order to adopt regional policy measures, the European Commission considers primary and important, if not crucial, the comparisons between cities, taking into account their position in Europe and the level of development in different areas (economic activity, public transport, education, etc.) and also the disparities between these.

These led to the implementation of the Urban Audit Pilot Phase for measuring the quality of life in selected towns and cities through the use of a simple set of urban indicators and a common methodology in May 1998. Following the evaluation of this pilot phase, Eurostat set up a suitable organizational structure for three phases of Urban Audit:

- Urban Audit I ran its course between 2003 and 2004 and aimed at collecting data for the period 1994 – 2002 just for E15 Member States.
- Urban Audit II ran its course between 2004 and 2005, data being collected for the 2001 – 2003 period ; in this phase were present the New Member States, Bulgaria and Romania.
- Urban Audit III was developed between 2007 and 2008, the data being collected for the period between 2001 and 2004.

The structure of Urban Audit statistics is composed of 9 statistical fields and 25 domains, as follows: demography, social aspects, economic aspects, civic involvement, training and education, environment, travel and transport, information society, culture and recreation.

Dashboard of Sustainability features. The Dashboard of Sustainability is a free, non-commercial software package that illustrates the complex relationships among economic, social and environmental issues. The visual format is suitable for decision makers and other interested in sustainable development. It was developed in 2002 by the Consultative Group on Sustainable Development Indicators, an international team of measurement experts, coordinated by the International Institute for Sustainable Development. The Dashboard project is part of the sustainability indicator initiative of the Bellagio Forum for Sustainable Development, one of the main funders of the work. It can be considered an online tool designed to be understood by experts, the media, policy-makers and the general public. The complexity of decision-making in the 21st century needs more adequate decision support tools. Using the metaphor of a vehicle

instrument panel, it displays country specific assessments of economic, environmental, social and institutional performance toward sustainability. The Dashboard presents sets of indicators in a simple pie chart format based on three principles:

- the size of a segment reflects the relative importance of the issue described by the indicator ;
- a colour code signals performance relative to others: green means “good”, red means “bad”;
- the central circle (PPI, Policy Performance Index) summarizes the information of the component indicators.

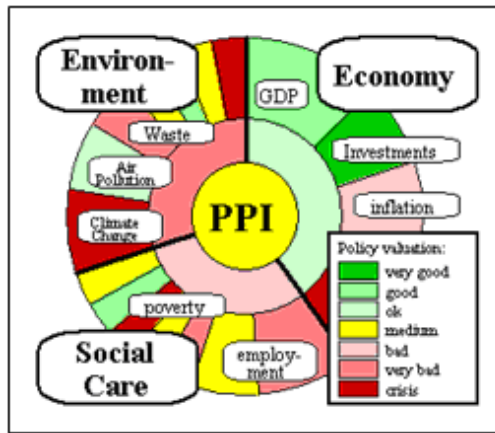


Fig. 2. Dashboard of Sustainability Pie Chart
(Source: Dashboard of Sustainability manual, 2002)

Ruxandra Mocanu-Perdichi used the software Dashboard of Sustainability for getting the “Sustainable Development Index in Romania at country and regional level”. The article published in 2009 developed a sustainability composite indicator, which consists of 19 indicators classified in four dimensions: environmental, institutional, economic and social. The purpose of this study is to provide a foundation for future strategies, local sustainable development plans, detailed analysis of development disparities between territorial units, regions and districts. In this case, the use of this application allows detailed view of all counties, both for overall index and for different dimensions of development. Bucharest has the highest sustainable development index among the 42 counties of Romania and Botoșani County the lowest.

Antonio Scipioni, Anna Mazzi, Francesca Arena from the Center for Quality and Environmental Studies, University of Padua, Italy, published in 2003 the article „Aggregated indexes to measure urban sustainability. The experience of Padua Municipality: a Quality of Life Observatory”. This paper presents the main outcomes of a research project aimed at the definition of synthetic indicators to monitor the quality of urban life, with particular focus on the Municipality of Padua and its way to realize a Local

Agenda 21. Using the Sustainability Dashboard and the European Common Indicators, allowed the definition of an Index of Quality of Life specifically for the Municipality of Padua, in the North-East of Italy. The research of Padua project led to the definition of a set of indicators, referring to different aspects of urban sustainability in Padua.

Quality of Life Audit implementation. During the research made upon the quality of life concept in order to reveal the multidimensionality of this concept, one raised the premise that sustainability gives the possibility for an enhanced quality of life, influencing its components in a beneficial and lasting way.

Dashboard of Sustainability application is an analytical method applied in quality of life status evaluation by creating a quality of life index, consisted of subindices areas chosen to be representative for this concept. As for the present study, for getting the Quality of Life Index in the South-East Development Region, we used Urban Audit indicators, figured it out through the application formula, therefore the method being called as Quality of Life Audit.

In order to analyse the quality of urban life by each indicator value, we established that value that contributes to quality of life index, which consist in the best result: for example the minimum value of unemployment rate is considered the best result, while the maximum value of the indicator – number of beds in hospital / 100.000 inhabitants is considered to have the best performance. In the process of accomplishing this new method, all needed data were not available for the entire urban region, in this case, the program divides the points for the available indicators at their number. Each analyzed unit indicator is automatically ordered on the range 0-1000, 0 points are going to the indicator with the lowest value (respectively, the highest rate of unemployment), while the maximum is going to the indicator with the highest value (respectively, the lowest unemployment rate). The accounts made through this method are based on this formula:

$$P = 1000 \cdot (x - \min) / (\max - \min), \text{ where:}$$

P = points awarded ;
X = analyzed unit value ;
Min = the value considered the worst ;
Max = the value considered to be the best

The quality of life index is figured out based on the total score obtained, its colour resulting from the city position in the database. Given its position in the quality of life rank, the South-East Development Region cities receive a colour code for each indicator, as follows:

- Dark green is an excellent performance of an indicator or life at high quality standards;
- Yellow has an average relevance for quality of life, in terms of development, being situated at the border of high quality of life and low quality of life;
- Dark red denotes a critical quality of life ;
- Purple is the colour which indicates the lack of data.

The dimensions used for aggregating the Quality of Life Index, included also in the Urban Audit programme, are the following: demography (DEM), socio-economic aspects (SEA), training and education (TE), environment (ENV), information society (Inf), Culture and Recreation (Cul).

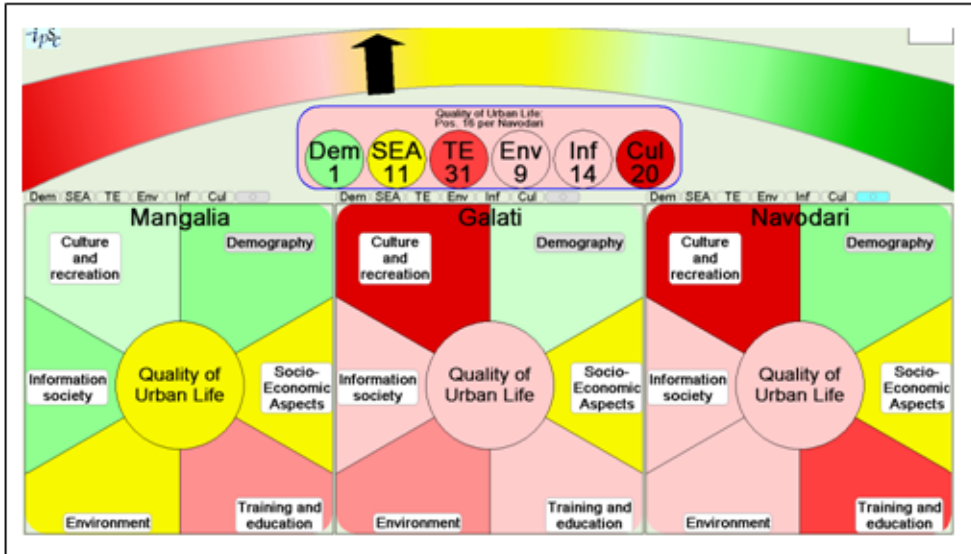


Fig. 3. Representation of quality of life dimensions

In turn, these dimensions were developed by aggregation of approximately 50 indicators (index of aging, the demographic dependency rate, birth rate, death rate, vitality index, the average area of housing, green space (m²/inhabitant), land line subscriptions/1000 inhabitants, accommodation units/1000 inhabitants, etc.), all these being calculated for each of the 32 urban areas in the South-East Region. The “rainbow” (fig. 3) represents the combined colour codes, the arrow pointing out the actual position of a city in the quality of life classification. The figures inside dimension of analysis are points, or results that urban areas receive from applying the Sustainability Dashboard formula. Thus, in terms of demography, Năvodari is on the first place out of 32 urban areas, while in terms of Culture and Recreation it is on the 20th place due to the poor results of component indicators.

3. RESULTS AND DISCUSSIONS

The Demographic Index of Quality of Life came up from aggregating several indices as: vitality index, aging index, mortality rate, birth rate and demographic dependency ratio. In order to standardize this index, by applying the used formula, points are assigned between 0 – 1000. The analysed urban areas extend from 682 to 122 points, combined in five categories of indicators given by each city colour code: excellent, good, average, bad and very bad. The points belonging to these colours, or to their demographic qualities, decrease from the first, Năvodari, with the highest number of points, to the last urban area, Pogoanele.

Năvodari, a rank II urban area and 35,453 inhabitants in 2008, holds the best performance of the Demographic Index due to the component indicators performance. Therefore, Năvodari has the lowest aging index of the 32 cities, with a 8.6‰ index, which represents an excellence performance, and the lowest mortality rate of 6.71‰.

The Demographic Index for Pogoanele is composed of indices with serious and critical performances, like a birth rate of 10.97‰ and a mortality rate of 14,24 ‰. The structure by age groups shows a low population growth, induced by an aging of 25.2‰, where the age groups have relatively equal proportions. In 2008, in terms of demographic dependency rate (which is the ratio between young and old people and 100 adults), 100 adults were responsible for 52.6 old persons, 3.4% more than in 1990.

Social Index is developed by aggregating the social and economic indicators like: the activity rate, the drinking water consumption, the urban density, the average area of housing, the unemployment rate, the divorce rate, the marriage rate, the infant mortality rate, the urban density. The performance indicators integrated in the Social Index fit in the same categories as the Demographic Index, except that the score starts from a lower level, 675 points for Techirghiol, which consists of three indices with critical and serious performance: 1.02 dentists/1000 inhabitants, 112.87 mc/1000 dwellings, a low value compared to other urban area capacities. There are also better indices, as the activity rate, with an average performance of 33.96‰, expressing the rate between the number of active people and total population. It is continued with indices of excellent, very good and fair performance such as the urban density of 188 inhabitants/km², given the total urban area of 38.76 km² and a total population of 7,295 inhabitants. Regarding the frequency of mariagges and divorces, the marriage rate has a good performance of 7.81‰, while the divorce rate is low and has 0.41‰. The infant mortality rate, an indicator of social issue based on Urban Audit structure, has an acceptable performance of 14.4‰.

The Educational Index combines indicators of quality of education, emphasized on educational infrastructure: number of kindergardens, number of primary and secondary schools, number of high schools, number of gyms in schools, sporting grounds, number of students per one teacher. Also, in this case, categories of performance are constituted, except that here the distribution of urban areas starts from a fair performance and not a very good performance as the previous indices were analyzed, continuing with bad, very bad, serious and critical.

The fair category includes two urban areas, Berești and Babadag, with 600 and 590 points respectively. Berești includes three indicators, whose score is excellent: 8.5 students to a teacher, 6.8 kindergardens to 1,000 preschool children, 4.29 high schools to 1000 students. The other indicators show a critical performance. Mărășești, Năvodari and Odobești with scores between 201 and 98 points have a poor educational infrastructure consisting of very bad and critical indicators, except for Năvodari, which has an average performance in the case of the indicator referring to 13.3 students to a teacher.

For the Environmental Index one took into account indicators concerning the emission harmful substances, spread in the air and in the water, the quantity of hazardous and non-hazardous waste and green space (km²/inhabitant). The latter one is the most important indicator of this dimension. Tulcea registers the highest

number of points, being included in the good category, consisting in indices with excellent performance as non-hazardous and hazardous waste (tonne/year) and the distribution of methane (CH₄) in the air. The category of critical performance indicators includes the value of 6.68 mp of green space/inhabitant. For the rest of the indicators the statistical data were not available.

Information Society index combines indicators that define access to information: number of dwellings with internet access, number of dwellings with land line access, number of computers in schools and elements of local government of the urban areas like the implementation of Agenda 21 and the existence of city hall websites. The excellent category includes one urban area, Constanța, which has indices with very good performance, like 130.4 computers/total students and an average performance represented by the number of dwellings with landline access, 306.19 subscriptions/1000 inhabitants. Also, one should highlight aspects related to the implementation of Local Agenda 21 in Constanța in 2006, which was a good opportunity to bring into question the medium and long term objectives of the local community, contributing to identify objectives and targets.

Serious and critical categories include urban areas with a poor level regarding public access to information and opportunities, with scores between 421 and 89 points: Negru Vodă, Hârșova, Năvodari, Galați, Berești, Brăila, Techirghiol, Ianca, Târgu Bujor, Tulcea, Mărășești, Medgidia and Sulina.

Culture and Recreation Index includes indicators regarding cultural aspects and recreation: number of libraries, number of museums, accomodation units and number of overnight stays. The urban area distribution is dominated by serious and critical performances receiving a score between 655 and 0 points shared in five categories: average, bad, very bad, serious and critical. Mangalia with the highest number of points has indices of serious and critical performances described by 0.35 libraries/1000 inhabitants, 0.02 museums/1000 inhabitants, indices of average performance like 303,762 arrivals in the city and excellent performance, like 1,262 places in the accomodation units/1000 inhabitants and 6.33 accomodation units/1000 inhabitants. Serious and critical categories includes urban areas with few accomodation units or without accomodation units and where the number of libraries and museums is very low related to the number of inhabitants. As a result, most urban areas have serious and critical performances: Târgu Bujor, Pogoanele, Focșani, Babadag, Râmnicu Sarat, Nehoiu, Isaccea, Ovidiu, Odobești, Medgidia. Component indices of these categories receive between 193 and 0 points. There are also urban areas, like Techirghiol, which have favorable performance in terms of accomodation units with 5.07/1000 inhabitants, Panciu and Berești which have an average performance with 1.13 libraries/1000 inhabitants and 1.09 libraries/1000 inhabitants, respectively.

Quality of Life Index. Finally, the aggregation of the six partial indices, the Demographic, Social, Education, Environmental, Information Society, Culture and Recreation Index by multiplying performance points and weighting coefficients results in calculating the Quality of Life Index. Therefore, the analysed urban areas receive between 553 and 243 points collected in three categories of performance, which decrease from the average category to very poor. The colours are represented as in the case of the indices, according to the urban area position in the database.

The average performance category includes five urban areas: Mangalia, Constanța, Buzău, Tecuci and Tulcea (fig. 4). Mangalia has the highest quality of life index, holding 553 points from partial indices with good performance regarding Demographic Index, Information Society Index, fair performance for Culture and Recreation Index, average performance for Environmental and Social Index and very bad performance for Educational Index. The other components of this category decrease in value and performance, such as Constanța with bad performance for Culture and Recreation, Demography and Educational Index. Bad and very bad performance category includes the other urban areas of the South-East region, which have between 412 and 243 points Odobești has the lowest Index of Quality of Life with a very bad performance consisting of critical performance for Culture and Recreation and Educational Index, serious performance correlated with the Information Society Index and an average performance for Social Index.

The Environmental Index for Odobești did not receive a particular performance, because its composition consists only of the value for green space (m²/inhabitant). Data regarding the other indicators in the analysis of environmental components (air and water pollutants) are not available. Therefore, the Environmental Index was framed as having a purple colour, standing for the lack of data.

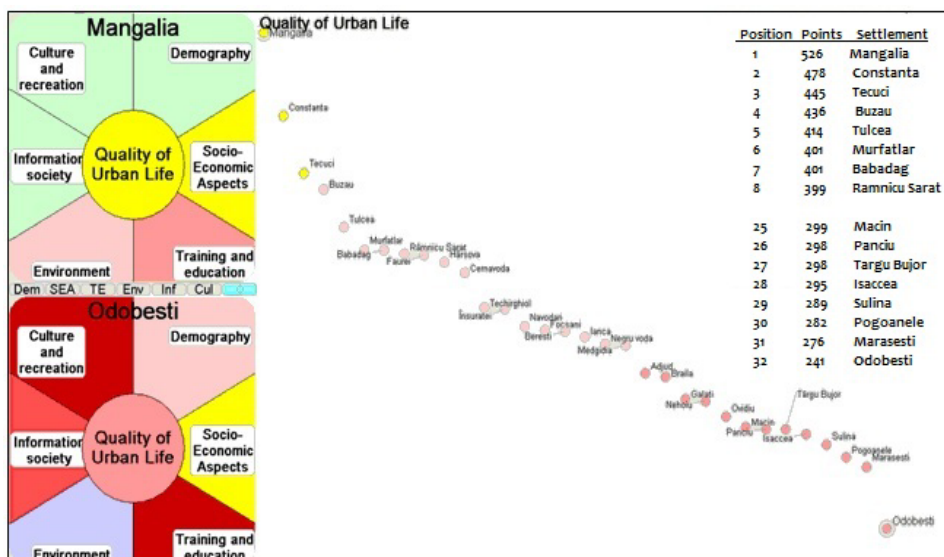


Fig. 4. Quality of Life Index distribution in Romania South-East area

4. CONCLUSIONS

The Quality of Life Index for the South-East Region offers a partial image of what is the level of the quality of life in 2008, considering the six fields, the components of the concept addressed in the present paper. In turn, these fields include certain indicators, that were figured out for 32 urban areas, finally achieving an index for each area.

This new method for creating the Quality of Life Index combines the current structure and implementation of Urban Audit European programme with the calculation method required by the Dashboard of Sustainability, that allows a structured ranking of each urban area depending on the status and value of each indicator or index. Thus, one can say that the Quality of Life Audit is a new and useful method, presenting its feasibility by its applications in other fields of research, which use comparative analysis, and proving its effectiveness in a rather new area, within the geographical sciences.

REFERENCES

1. Agentia pentru Dezvoltare Regionala Sud-Est, (2010), Audit Teritorial SE 2010 – 2020.
2. European Commission, (2004), Urban Audit – *Methodological Handbook*, Office for Official Publication of the European Communities, Luxembourg, p. 6.
3. Institutul National de Statistica, (2010), Baza de date statistice TEMPO-Online.
4. International Institute for Sustainable Development, (2003), Consultative Group on SD Indicators, The Dashboard manual, 2.3 version, May, 26, 2003.
5. Parlamentul Romaniei, Legea 350/2001 privind amenajarea teritoriului și urbanismul.
6. Mocanu-Perdichi, R., (2009), *Indexul dezvoltarii durabile in Romania la nivel judetean si regional*, Inovatia Sociala, Institutul de Cercetare a Calitatii Vietii, Academia Romana, nr.1, p. 1 – 19, Bucuresti.
7. Scipioni, A., Mazzi, A., Arena, F., Fornasiero L., (2003), *Aggregated indexes to measure urban sustainability. The experience of Padua Municipality: a Quality of Life Observatory*, Center for Quality and Environmental Studies, University of Padua, Italy.