

SUSTAINABILITY OF THE DEVELOPMENT OF MUNICIPALITIES IN THE PERIOD 2000-2004

Introduction

Municipalities are main territorial entities in Bulgaria, where the interaction „man – nature” is especially strong. A team of researchers from the Institute of Economics at the Bulgarian Academy of Sciences conducted a monitoring of the social-economic and ecological differences of the municipalities for overlapping three-year periods after 1994. The study determined general evaluations on the different aspects of the development of the municipalities, namely: economic state, financial state of municipalities, social status of population, unemployment level, infrastructure, population dynamics. An integral evaluation, characterizing their development level, is determined on this basis.

The concept of sustainability of the development of a municipality concerns its progressive and balanced development and the reporting of its specific characteristics. Presented in this way, the concept of sustainability of the development of a municipality includes the requirement of sustainable development, where the focus is placed mainly on the environment ecology.

Method of Studying the Sustainability of the Development of a Municipality

The method of studying the sustainability of the development of a municipality is developed in accordance with a work hypothesis. According to this hypothesis a certain municipality has a sustainable development, if its rank by integral evaluation coincides with the ranks of the different aspects of its development. In accordance with this work hypothesis, the bigger diversions of the ranks by different aspects of the development of a certain municipality from the rank by integral evaluation are, the higher its level of unsustainability is. Measurer, which evaluates the level of unsustainability of the development of i -th municipality, is the coefficient:

$$K_i = \sum_{j=1}^n |r_i - r_{ij}|$$

where r_i is the rank of the i -th municipality by integral evaluation, and r_{ij} is the relevant ranks by general evaluations.

The change in the unsustainability level is evaluated through the difference in the values of the measurer K_i for the first and last year of the studied period.

When the values of this measurer increase, the unsustainability level increases, and when they decrease – the unsustainability level decreases.

The results of the conducted studies of the sustainability of the development of the municipalities for different reported periods show that there is no municipality in the country, for which the coefficient K_i has a zero value, i.e. for which the ranks by general evaluations coincide with the rank by integral evaluation. However, the presented work hypothesis gives opportunity to evaluate the level of unsustainability of the development of each concrete municipality and to evaluate the occurred changes.

Four theoretical models of development of a municipality are built according to the changes in the ranking of the municipalities in the country by level of social-economic development in the first and last year of the studied period and the changes in the unsustainability level, schematically presented in table 1.

Table 1. *Theoretical Models of Development of a Municipality*

Municipality	Unsustainability level	
	decreases	increases
Moves higher in the ranking or maintains its rank	I model	III model
Moves lower in the ranking	II model	IV model

In the first theoretical model, the municipality moves higher in the ranking or maintains its rank, and the unsustainability level decreases. In this model, by moving higher in the ranking the municipality searches for its balanced place among the other municipalities in the country.

In the second theoretical model, the municipality also searches for its balanced place, but it happens by moving lower in the ranking and is accompanied with a decrease of the unsustainability level.

In the third and fourth theoretical model, the unsustainability level increases. In the third model it concerns the moving of the municipality higher in the ranking, and in the fourth model – lower in the ranking.

We have to point out that the increase of the unsustainability level should not always be considered as negative. In the third theoretical model, the increase of the unsustainability level concerns the moving of the municipality higher in the ranking, which undoubtedly is a positive trend. In the fourth model, the increase of the unsustainability level concerns moving of the municipality to lower positions in the ranking, which should be considered as a negative change.

Results of a Study of the Sustainability of the Development of the Municipalities

The studied period 2000-2004 is divided into two sub-periods 2000-2002 and 2003-2004, which aims at a comparison of the theoretical models, by which the concrete municipality has developed in these two sub-periods. Generally,

there are 16 possible ways for development of a municipality for two neighboring sub-periods.

Table 2. *Ways of Development of a Municipality for Two Neighboring Sub-Periods**

Theoretical model	First (I)	Second (II)	Third (III)	Fourth (IV)
First (I)	I-I	I-II	I-III	I-IV
Second (II)	II-I	II-II	II-III	II-IV
Third (III)	III-I	III-II	III-III	III-IV
Fourth (IV)	IV-I	IV-II	IV-III	IV-IV

* The first Roman numeral shows the type of the theoretical model, by which the municipality has developed in the first sub-period, and the second Roman numeral – in the second sub-period.

We have to mention here that the moving from one theoretical model of development to another concerns searching for the balanced place of each municipality in the ranking. The results of the conducted study show that in the period 2000-2002 the level of unsustainability of the development of the municipalities increases significantly. It is necessary to state once again that the increase of the level of unsustainability of the development of the municipalities should not always be considered as negative. For the municipalities, which have developed by III theoretical model, this increase is due to the higher places they occupy by different aspects of the development. Maintaining these higher positions requires purposeful efforts on the aspects, on which the municipalities are lagging behind. In this sense, the increase of the level of unsustainability of those municipalities, which have developed by III theoretical model, should be considered as positive.

However, for the municipalities, which have developed by IV theoretical model, the increase of the unsustainability level should be evaluated as negative, since it is determined by a significant lagging on different aspects of the development. The municipalities, which lag in their development, need purposeful impacts, since it is difficult for these municipalities to manage only by own efforts.

The comparison shows that in the period 2003-2004, according to the theoretical model of development, there is a substantial change in the ranking of the municipalities by regions. The number of municipalities, which have developed by first, second and fourth model, increases. The number of municipalities, which have developed by the third theoretical model, decreases.

Table 3 presents the ranking of the municipalities by theoretical model of development in 2000-2002 and 2003-2004.

The results of conducted study for the two sub-periods show that all 16 ways of development of a municipality are possible. For 27% of the municipalities the development has occurred by the same theoretical model for the both

Table 3. *Intensity of the Ways of Development of the Municipalities in the Period 2000-2004*

Theoretical model	First (I)	Second (II)	Third (III)	Fourth (IV)	Total
First (I)	17	17	13	14	61
Second (II)	14	14	11	19	58
Third (III)	24	15	18	19	76
Fourth (IV)	15	21	11	22	69
Total	70	67	53	74	264

sub-periods 2000-2002 and 2003-2004. For the other 73% there is a moving from one theoretical model to another. This result is evidence that despite the short studied period the change of the theoretical models, by which the municipalities have developed, prevails. However, it is logical that the more substantial changes in the ranking are reported by municipalities, which have developed by the same model.

Results of conducted studies show that in 2000, as well as in 2004, the „municipality” with average for the country values of the indicators is ranked on 39th place, i.e. the number of municipalities with level of development above the average for the country maintains. The comparison shows that 27 municipalities from the group of the developed ones in 2000 maintain their place in this group in 2004 as well. The following 11 municipalities fall out of the first group: Kameno, Suhindol, Dragoman, Rodopi, Yablanitsa, Sozopol, Sevlievo, Zlatitsa, Peshtera, Ihtiman and Treklyanovo. In 2004 the following 11 municipalities enter the group of the developed ones: Kavarna, Byala (Varna), Kostinbrod, Veliko Turnovo, Elin Pelin, Pleven, Pernik, Shumen, Gorna Oriahovitsa, Gorna Malina and Sopot. This means that industrially specialized municipalities, like Kameno, Sevlievo and Zlatitsa, are replaced by district centers, coastal municipalities and municipalities neighboring Sofia-Town.

In 2000 the number of average developed municipalities is 180, and the number of lagging municipalities is 46. In 2004 their respective number is 151 and 75, i.e. there is an increase of the number of the lagging municipalities on account of the average developed ones, which undoubtedly is a negative trend. The North-West planning region has the biggest number of lagging municipalities. In 2004 from all 32 municipalities in the region, the number of the lagging ones is 18, which is 56%.

As a whole in the period 2000-2004 there are significant changes in the ranking of the municipalities by level of development. It is considered that for the developed municipalities the change is significant – by 20 and more points; for the lagging municipalities the change is by 30 and more points. It is also considered that when certain municipality has developed by I or III theoretical model the changes are positive, and when it has developed by II or IV model – they are negative.

Despite the relatively short studied period, 119 out of 264 municipalities,

i.e. 45% of the municipalities in the country, report significant changes in the ranking in the period 2003-2004, compared with the ranking in the period 2000-2002. Table 4 presents the distribution of these municipalities by their level of development, as well as the theoretical model, by which they have developed.

Table 4 shows that the number of municipalities, which have developed by I theoretical model, is highest (47 municipalities). Among them the number of average developed municipalities is highest – 34. Among the municipalities, which have developed by I and II theoretical model, substantial changes in the ranking after 2004 should not be expected, since their unsustainability level decreases. For the municipalities, which have developed by III and IV theoretical model, more significant changes can be expected. Their number is respectively 18 and 21, since their unsustainability level increases.

Table 4. *Number of Municipalities with Significant Changes in the Level of Development*

Theoretical model	Developed municipalities	Average developed municipalities	Lagging municipalities	Total
First	10	34	3	47
Second	-	19	14	33
Third	5	10	3	18
Fourth	2	13	6	21
Total	17	76	26	119

Table 5 presents the municipalities, which report more significant changes in the level of development in the period 2000-2004. In the list of the developed municipalities, which have developed by I theoretical model, the municipalities – district centers prevail. Moving to higher positions, as mentioned already, these municipalities replace the industrially developed municipalities like Kameno, Zlatitsa and Sevlievo, which have been in the first group in 2000. The coastal municipalities Byala (Varna), Kavarna and Tsarevo, as well as Chepelare, i.e. municipalities with a potential for tourism development, are among the municipalities from the first group, which have developed by III model.

Lagging municipalities, which have developed by IV model, i.e. moving significantly lower in the ranking with increasing unsustainability of the development, are only 6 in number: Boinitsa (Vidin), General Toshevo (Dobrich), Sungurlare (Burgas), Tvurditsa (Sliven), Banite (Smolyan), Madgarovo (Haskovo). These municipalities are peripheral by their territorial location.

Dependence between Level of Development and Ecological Status

Results of a research, conducted by Dr. N. Chkorev, studying the ecological status of the municipalities based on indicators by main nature components in 2004 – air, water, waste, show that the first 10 municipalities with highest pollution are: 1) Sofia-town; 2) Radnevo; 3) Devnya; 4) Burgas; 5) Gulubovo; 6) Dimitrovgrad; 7) Bobov dol; 8) Mirkovo; 9) Beloslav; 10) Pernik. Except for

Table 5. *Municipalities with More Significant Changes in the Ranking in the Period 2000-2004*

Theoretic al models	Developed municipalities	Average developed municipalities	Lagging municipalities
First	Veliko Turnovo Pleven Russe Varna Shumen Maritsa (Plovdiv) Plovdiv Stara Zagora Elin Pelin Pirdop	Belogradchik, Vratsa, Oryahovo, Roman, Vurshets, Lom, Montana, Elena, Svishtov, Gabrovo, Teteven, Silistra, Turgovishte, Veliki Preslav, Yambol, Kurdgali, Bratsigovo, Velingrad, Purvomay, Rakovsky, Stamboliisky, Suedinenie, Borino, Zlatograd, Haskovo, Gotse Delchev, Petrich, Razlog, Hadgidimovo, Kyustendil, Pernik, Radomir, Samokov, Slivnitsa	Stambolovo (Haskovo) Belitsa (Blagoevgrad) Byala Slatina (Vratsa)
Second	-	Zlataritsa, Suhindol, Belene, Dve mogili, Ivanovo, Kotel, Elhovo, Malko Turnovo, Tundga, Brezovo, Bratia Daskalovi, Gulubovo, Opan, Kovachevtsi, Trun, Godech, Dragoman, Zlatitsa, Kamenno	Gramada, Makresh, Chuprene, Gorno Damianovo, Vurchi dol, Krushari, Alphatar, Glavinitsa, Hitrino, Bolyarovo, Strajitsa, Nevestino, Zemen, Treklyano
Third	Byala (Varna) Dobrich-city Kavarna Tsarevo Chepelare	Dulgopol, Razgrad, Novi Pazar, Dospat, Madan, Rudozem, Kazanluk, Gurmen, Yakoruda, Dolna banya	Omurtag Ardino Rakitovo
Fourth	Aksakovo Radnevo	Kula, Pordim, Karnobat, Sozopol, Batak, Belovo, Lesichovo, Luchi, Rodopi, Ivaylovgrad, Boboshevo, Rila, Koprivshitsa	Boinitsa, General Toshevo, Sungurlare, Tvarditsa, Banite, Madgarovo (Haskovo)

Dimitrovgrad, the other municipalities are in the group of the developed ones. Among these municipalities, Radnevo, Gulubovo and Pernik have the most significant change in the ranking by level of development in the period 2000-2004 (table 5).

In the period 2000-2004 Radnevo municipality has developed by IV theoretical model, i.e. it moves lower in the ranking by 11 points, with slightly increasing unsustainability level. Due to the worsened ecological status of the municipality, there are reasons to expect that the stated negative trend will remain.

During the studied period Gulubovo municipality has developed by II theoretical model – it moves lower in the ranking by 28 points, with significant decrease of unsustainability level. The municipality is searching for its balanced place lower in the ranking, which can be considered as a negative trend, added by the worsened ecological status of the municipality.

By level of development Pernik municipality has moved higher in the ranking by 45 points, though it is among the 10 most polluted municipalities in the country. Its unsustainability level significantly decreases, which shows that the municipality is searching for its balanced place higher in the ranking (I theoretical model). Due to the worsened ecological status of the municipality, there is a need of additional efforts for maintaining the achieved higher positions.

The dependence between the level of development and ecological status is revealed most strongly for the municipalities Devnya (3,3) and Mirkovo (8,8), where the first number in the brackets shows the place the municipality occupies by level of social-economic development in 2004, and the second number in the brackets shows its closeness to the most polluted „municipality”. Among them are the municipalities Sofia-town (5,1), Beloslav (7,9), Burgas (12,4) and Radnevo (15,2), i.e. developed municipalities with worsened ecological characteristics, where the dependence is strongly revealed.

In conclusion, there are reasons to consider that the results of the study of the sustainability of the development of the municipalities is interesting for each concrete municipality, as well as for the territorial entities of higher rank – districts and planning regions. They characterize the dynamics of the running processes in the municipalities in the period 2000-2004 and the place each municipality occupies by level of development among the other municipalities in the district, planning region and country. Conducting such type of studies is interesting also for evaluating the achieved results from carrying out.