

# The conception of the Atlas of Rational Economic Behaviour of an administrative area

Zoya V. Lysenkova,

Victor V. Rudsky

Smolensk University  
of Humanities  
214014, Smolensk, Russia  
E-mail: zoya.lysenkova@mail.ru,  
rudsky@mail.ru

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In order to make decisions aimed at the sustainable development of a region in general and its rational economic behaviour in particular, of primary importance is creating special decision-making support systems. All the stages of decision-making aimed at the development of a district have their spatial expression. In order to enhance the accuracy of the spatiotemporal binding of the decisions and their transformation into a rational economic behaviour, the role of corresponding supplementary cartographical materials cannot be overestimated. Thus, it is the availability of an atlas as a systemic collection of maps that can be considered the most suitable auxiliary form which helps to define criteria and guidelines for a correct economic decision-making by the district administration. The REB Atlas is not synonymous to the Sustainable Development Atlas. We are convinced that the rational economic behaviour is a precondition for sustainable development. In accordance with this view, the REB Atlas is a vital part of the Sustainable Development Atlas of an area.

**Key words:** rational economic behaviour (REB), decision-making figures, administrative area, REB Atlas, sustainable development

## INTRODUCTION

The idea of the Atlas came into existence during the implementation of a project carried out under the auspices of the Administration of Smolensk Region and Russian Research Foundation for the Humanities. This project is oriented to working out the system of principles, criteria and methods for decision-making aimed at the socio-economic development of an administrative entity. The project is based on a case-study of an administrative area within the Smolensk Region – the Demidovsky administrative district. As it soon became evident during the implementation of the project, the district administration often fails to perceive it as a systemic entity with its peculiar spatiotemporal features. It is common knowledge that one of the readily available and most reliable ways of such integral representations of a territory is application of cartographical methods. A couple of maps reflecting the socio-economic situation in an area under study are of little help in reaching the goals of our research. So it is the availability of an atlas as a systemic collection of maps that can be considered the most suitable auxiliary form that helps to define criteria and guidelines for a correct economic decision-making on the part of the district administration. Therefore, we need to solve a new – and very complicated – task to work out the conception of the Atlas of Rational Economic Behaviour of an administrative area and then to put it into practice.

The object of our research was the Demidovsky administrative district. The goal of this paper is to present the main principles of the Atlas of Rational Economic Behaviour of administrative area as a conception. The methods applied were systemic approach, cartographic, SWOT analysis.

## THE CONCEPTION OF THE ATLAS

To outline the structure of the Atlas, it is essential to define the key notions because their content is to a great extent linked to the general idea.

Rational economic behaviour (REB) presupposes achieving the maximum effectiveness of economic activities at minimum costs and / or using in full the potential of a territory. We are convinced that rational economic behavior is a precondition for sustainable development. In other words, REB can be considered as tactics and sustainable development as strategy.

The activities of the decision-making figures (district administration, heads of main enterprises) are directly linked to the quality of life of the population within the boundaries of the territory. Therefore, the effectiveness of administrative decisions can be “measured” by the local people’s living standard indices. Examples of such indices are per capita incomes, investments into the social sphere, the availability of housing, etc. These indices are part of the official statistics and are generally available not only on the regional level, but also to the key figures

of district administration. It is much more difficult to get the necessary indices for individual, mostly small, villages of a particular area.

Living standards of the population reflect the peculiarities of the area's socio-economic development, which come to the fore by way of the *SWOT-analysis* (Strengths, Weaknesses, Opportunities, Threats). Such analysis makes it possible to examine a territory both from within and without, as well as to apply different research scales. The results of the SWOT-analysis can be incorporated into corresponding maps.

#### **A brief characteristic of the Demidovsky administrative district**

The Demidovsky administrative district is one among 25 administrative districts of Smolensk Region, situated on the north-west of it. The area of the district is 2512 000 km<sup>2</sup> (it is the 7th among the administrative districts of Smolensk Region), i. e. 5.05% of the region area. The population of the district is 17.1 thousand people (the 11th place among the districts of the region). Natural diminution of population is typical of all districts of the region. The district is the 9th according to this index. Since 2002, when the last census was held, the population reduced by more than 2000 people. If such a tendency keeps, there will be about 15,000 inhabitants by the year 2010. The process of ageing is evident: the part of the children under 10 years reduced by half in 1989–2002. Able-bodied people (56.7%) prevail in the Demidovsky administrative district. The percentage of able-bodied people has changed from 62.7% to 79.9% in the most industrial developed districts of the region. The average income in the Demidovsky administrative district in 2004–2005 comprised 55% of the average regional index and was half as much as in Smolensk.

The zones of the modern active development of the Smolensk region are concentrated on its main transport axis (Moscow–Smolensk–Minsk–Western Europe), but the Demidovsky administrative district lies aside of it. Another drawback of transport is the lack of railway. However, at the same time the republic line to Pskov is situated on the territory of the district; its significance should be increased. The modern transport-geographical situation in the Demidovsky administrative district is characterized as disadvantageous. Nevertheless, its general economic-geographical situation is promising in view of developing new schemes of the region's development.

The difficult economic situation in the district resulted in the problem of population employment. It is interesting that nowadays this problem is manifested not in the lack of workplaces on the whole as in the 1990s, but in the lack of the work in need. First of all it concerns well-paid, interesting and available jobs for the youth. No wonder that the majority of youth leave this district for Moscow, Smolensk, etc. At the same time, according to the statistics, 30% of school leavers would like to return to the district after getting vocational education, about 40% don't think about returning home, and about 30% of school leavers cannot give a definite answer. On the one hand, these figures show the social-economic stagnation in the region, on the other hand, they demonstrate the reserve of human resources

which should be urgently developed by the administration of the district and other decision-making figures.

There are three groups of administrative districts in the Smolensk region:

- 1) successfully developing mainly industrial;
- 2) degraded – districts and towns that are far away from the transport axis of the region;
- 3) stagnated – that have development variants both in agricultural and industrial aspects.

The Demidovsky district belongs to the third group.

#### **The cartographical method and its peculiarities for solving the social-economic development problems of the region**

The application of the cartographic method is accompanied by a constant attention to regional research which combines inductive and deductive approaches to the study of a territory. As a result, it generates and certifies new conceptual approaches in which combined mapping substantial and methodical aspects of a concrete territorial unit are specified. Thus, the mapping study of urgent ecologic-social-economic problems on the regional and local levels becomes more frequent in the modern practice of territorial management (Краак, Омерлинг, 2005). This circumstance is expressed in the creation of territorial information systems as a whole (in the form of an atlas and other mapping works), which gets a considerable support of the administrative bodies that are interested in objective data.

In V. Tikunov's (Тикун, 2004) opinion, the further development of complex mapping on the local level concerns the mapping of cities. However, considerable attention to cities should not allow forgetting the rural areas which also need a complex study by the mapping methods.

The possibilities of using the mapping approach for the solution of different, complicated problems faced by the regions are unlimited. Paraphrasing the well-known geographer N. N. Baransky, one could say that one of the main purposes of cartography and atlases is to transfer the information from memory to understanding.

#### **Information resources: search, inventory, generalization**

It is obvious, that informational resources for complex atlas cartography in developing interest to any territory can be united in three interrelated sets – nature, population, and economy. The principal reference marks of district development are rather definite: the standard of living, the level of economic development, ecological stability. The context of these main principles is revealed by a set of figures of social, economic and ecological information blocks. Reach level of research (global, district, local) requires a separate analysis of geoinformational resources to allow applying the cartographic results for reaching the goals.

The structure of geoinformation figures of steady development is examined in detail on the global and district research levels. For district research whose results faster reach the consumers (up to the practical use), implementation principles of inventory investigation of geoinformation resources are defined (Тикун, Цанук, 1999). The main interests are presented by the following main elements of this generalization:

- 1) the principle of tendencies evaluation and changes in the conditions and necessity of geoinformation resources;
- 2) investigation of all information forms;
- 3) investigation principle of activation possibility of geoinformation resources.

These principles emphasize the potential character of geoinformation, which depends on the changing level of its demand and implementation possibilities for making concrete decisions. The first two principles are oriented to forming REB and the last one to sustainable development. These principles apply to investigation on the local level, too.

Mapping on the local level implies a situation when it is impossible to use the figures that are accepted for the territorial formations (regions, countries etc.). That is why there is a problem of defining territory's characteristics that are adequate to the aims, tasks and scale of investigation. They are able to become information sources for making decisions aimed at improving the national standard of living and the natural environment of a concrete district.

In Russia, like in other countries, the development of local territories depends on the external factors – resources, consumers, investments, etc. That is why the block of economic geoinformation for administrative districts should include figures that reflect dependence on external conditions. Such figures characterize the external situation of a local formation (administrative district) in relation to other districts of the region. It gives the opportunity to see “advantages” and “disadvantages” of a local formation derived from the SWOT-analysis of a territory. The block of social geoinformation includes figures that are reflected in official statistics and collected in the process of opinion polls: real income, birth rate and death rate, health figures, life expectancy, employment, migration intentions, etc. Figures of the ecological block should reflect different characteristics of the environment that are important for the quality of the standard of living of the district population and their neighbours. The information in the three blocks may be constantly supplemented for making new conclusions regarding the development of local formations and their rational economic behaviour.

The geoinformation cartography as a system should have some definite qualities to guarantee the reliability of its results. The main qualities of geoinformation cartography, according to B. Serapinas (Серрапинас, 2004), first of all are reliability (the ability of the system to keep characteristics and follow the rules defining the ability to fulfil functions necessary under specified conditions and restrictions).

There are considerable difficulties for cartography as regards sustainable development in general and rational economic behaviour in particular. The methodological basis for solving these problems should be, to V. Tikunov and D. Tsapuk's mind (Тикунув, Цапук, 1999), the study of the experience of ecologic-geographical cartography.

#### The content of the REB Atlas

Overall, The REB Atlas by its structure is similar to Atlas of the sustainable development (SD) of a region. V. Tikunov and D. Tsapuk (1999) have developed its concept. These authors

found the peculiarities and principles of SD cartography, the main being the regional ecological structure. It means that the maps of ecological contexts are most important in the SD Atlas. The main linking element between the SD Atlas and The REB Atlas is a high degree of the practical use of cartography results. It is reached with the help of the main direction characteristics of the district economics. The REB Atlas for an administrative district provides the following cartography levels: regional (1 : 1 500 000–1 : 1 000 000); municipal (1 : 500 000–1 : 100 000); local (1 : 100 000 and over). The context of each Atlas is revealed with the help of analytical, complex and synthetic maps.

#### The structure of The REB Atlas

The REB Atlas of an Administrative District includes the following subsections:

- I. Introduction – the geographical position of the Demidovsky administrative district in the Smolensk region (maps of general location, ecological and social-economic conditions).
- II. Natural conditions and resources (the traditional part of most atlases).
- III. Stability of the natural environment (its maps are necessary for sustainable development planning).
- IV. Retrospective survey of the area (only such retrospective maps make it possible to determine the dynamics and peculiarities of the development of the area in question).
- V. Demographic situation.
- VI. Economic population activity (including maps characterizing the main branches of economy and nature management).
- VII. Implementation problems of rational economic behaviour” (its main part is formed by most considerable maps of social-economic and ecological district problems).
- VIII. Strong and weak aspects in the development of the area.
- IX. Plan and Development Prognosis for the district.

In accordance with the aims of the REB Atlas, the functional purpose of its maps will be predominantly operative information and reference. The maps are to be supplemented with text materials.

#### CONCLUSIONS

Thus, the transformation to the conception of any district sustainable development supposes the implementation of a series of tasks. In our opinion, the main task is REB elaboration. This task can be successfully solved employing the cartographic approach and compiling the atlas. The proposed REB Atlas of an Administrative Area has the following peculiarities:

1. The Atlas should not reflect the need of department and district officials in cartographical support.
2. Large-scale maps prevail, conditioned by the territory proportions.
3. Renovation of the maps according to the situation, addition of new maps of corresponding parts.
4. The priority of the social-economic context of the Atlas, which follows from the context of the concept “rational economic behaviour”.

5. Use of information received with the help of opinion polls and interviews with decision-making persons, thus highlighting the situation in the district from two points of view: those of inhabitants and of administration.

6. A considerable part of complex maps which give the possibility to compare subject-matter characteristics among each other, to define location regularities of one index relative to another. It is important for revealing connections in territory development as a whole.

7. Synthetic maps (rating, prognoses, recommendations) uniting the different subject-matter figures.

As a whole, The REB Atlas might become an original base for further compiling the Sustainable Development Atlas of a district. We believe that the REB Atlas will contribute to the solution of the vital problems that impede the socio-economic development of a particular administrative entity.

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## RACIONALIOS ADMINISTRACINIŲ RAJONŲ PLĖTROS ATLASO KONCEPCIJA

### Santrauka

Straipsnyje autoriai supažindina su racionalios administracinių rajonų plėtros atlaso koncepcija. Siūloma metodika padės racionaliai spręsti ekonomines, teisine, gamtosaugines problemas.

Tyrimuose, atliktuose Smolensko srities Demidovo administraciniame rajone, buvo panaudotas sisteminis vertinimas, kartografinis tyrimų būdas bei SWOT (angl. *Strengths* – stiprybės, *Weaknesses* – silpnybės, *Opportunities* – galimybės, *Threats* – grėsmės) analizė. Kompleksinis metodų taikymas leido visapusiškai įvertinti teritoriją, o vertinimo rezultatus pateikti grafine forma. Visi SWOT analizės duomenys buvo įtraukti į sudarytus žemėlapius.

Smolensko srityje yra 25 administraciniai rajonai. Demidovo rajonas apima 2512 km<sup>2</sup> ir yra septintas pagal dydį; jame gyvena 17,1 tūkstančių gyventojų (11 vieta srityje). Rajonas yra srities depopuliacijos zonoje. Prognozuojama, kad 2010 m. gyventojų skaičius jame sumažės 2 tūkstančiais. Šiuo metu rajone vyrauja pensinio amžiaus gyventojai, kurie sudaro 56,7% rajono gyventojų. Rajono geografinė padėtis (į šiaurę nuo svarbios Maskva–Smolenskas–Minskas magistralės) dar labiau sustiprina depopuliacijos tendencijas. Smolensko srityje išskiriamos trys administracinių teritorinių vienetų grupės:

1. Plėtros – čia vyrauja pramonė.
2. Degradacijos – teritorijos nutolusios nuo pagrindinių transporto magistralių.
3. Stagnacijos – čia pramonės ir žemės ūkio degradacija ne tokia ryški.

Trečiai grupei priklausančio Demidovo administracinio rajono būklė vertinta lokaliu ir regioniniu aspektais panaudojant V. Tikunovo ir D. Capuko sukurtą geoinformacinę metodiką, paremtą tiriamų reiškinių ir procesų vertinimu, įvairių informacijos kaupimo formų ir principų panaudojimu bei geoinformacinių resursų atnaujinimo galimybėmis.

Administracinių rajonų subalansuotos plėtros atlasų serijoje išskiriami devyni skyriai:

1. Įvadas.
2. Gamtinės sąlygos ir resursai.
3. Gamtinės aplinkos stabilumas.
4. Retrospektyvinis teritorijos vertinimas.
5. Demografija.
6. Gyventojų ekonominis aktyvumas.
7. Racionalaus ekonomikos plėtojimo priemonės.
8. Stipriosios ir silpnosios teritorijos plėtros pusės.
9. Administracinio rajono plėtros prognozės ir planavimas.

Visi skyrių žemėlapiai papildyti plačia tekstine informacija.

Autoriai mano, kad administracinių vienetų racionalaus plėtojimo atlasai taps pagrindu kuriant sričių subalansuotos plėtros atlasus. Tokių atlasų kūrimas – vienas iš būdų spręsti gyvybiškai svarbias socioekonominės plėtros problemas.