Sociotopic component of the socio-economic potential of rural areas

A N Baidakov, O S Zvyagintseva, A V Nazarenko
Stavropol State Agrarian University, Stavropol, Zootehnicheskiy Ln., 12, 355000, Russia
E-mail o-zvyagintseva@yandex.ru

Abstract. The article presents a model for the development of rural socio-economic space. It proceeds from the idea of rural areas as complex natural, socio-economic systems. An important direction of the current stage of socio-economic development of rural areas is to eliminate the gap in the quality of life of the urban and rural population of the country. At the same time, an important factor is the ongoing changes in the agrarian economy, which must also meet the social transformations of rural areas. The proposed model for the development of rural socio-economic space and the algorithm for its use is based on the identification and differentiated elimination of problem areas of this space in accordance with the established standards of quality of life in rural areas.

Keywords: socio-economic potential, rural areas, natural and socio-economic system, sociotopic component of potential, quality of life, development.

1. Introduction
Currently, there is a transition to a qualitatively new stage in the socio-economic development of rural areas in Russia. Its previous stages were primarily characterized by the industrialization of agriculture. Now the priority belongs to the social aspects of territorial development. This is due to the rapidly decreasing demand for labor in the agricultural sector of the economy, while the requirements for its quality are increasing, due to the transfer of agricultural production to a new technological level [1,2]. The consequence of this is the need to purposefully level the gap in the quality of life of the urban and rural population of the country.

These circumstances increase the urgency of solving problems related to the areas of rural housing construction, engineering and social infrastructure and public space in rural areas.

2. Informal statement of the problem
The investigated problems necessitate the consideration of the rural area as a complex natural-socio-economic system. The solution of the complex of the problems of the development of rural areas is largely determined by the dynamic market balance "supply-demand" in relation to housing construction, engineering and social infrastructure in the countryside.

The key problem is increasing the income of the rural population in the context of decreasing their direct employment in agricultural production.

Another problem is related to ensuring the required quality of life for a spatial distributed population, including in small settlements.

The third problem relates to the purposeful increase in the attractiveness of the arrangement of rural areas for construction organizations.
The above problems determine the need to solve the problems of information and analytical support for managing the processes of socio-economic development of rural areas in the context of the modern global information space.

3. Formalization of the rural socio-economic space development model

The prevalence of urbanization inevitably leads to the aggravation of a number of social and economic problems associated with overpopulation, ecology and localized concentration of economic and other resources. In this regard, the question arises of stimulating the reverse process - ruralization, that is, the movement of urban residents to rural areas, and in a broader sense - changing their role and appearance. This necessitates a purposeful qualitative transformation of the appearance of rural areas, including, first of all, raising the standard of living of the rural population, more precisely, leveling differences in everyday life in the city and in the countryside [3].

The change in the status of rural areas presupposes, first of all, the convergence of the quality of life of the rural and urban population, as a result of which a new type of lifestyle is emerging - this is bringing the quality of life in the countryside to the urban level while maintaining the advantages of rural life.

The change in the status of rural areas is taking place in the context of a decrease in the number of people employed in agricultural production itself. This leads to a reassessment of their socio-economic content and role.

Bringing the quality of life in rural areas closer to urban standards is possible through the formation of a high-quality sociotopic potential of rural areas. This potential is the basis for the formation and development of the space created as a result of human activity in rural areas. The elements of sociotopic potential include: housing with all its quantitative and qualitative characteristics, public spaces, social infrastructure, engineering communications, a comfortable living environment, and the population of the territory [4, 5].

The main tool for the formation of material components of sociotopic potential is the construction and reconstruction of residential buildings, public centers, social infrastructure facilities, their arrangement, and the like. Stimulating the processes of creating a comfortable socio-economic space in rural areas involves the development of an appropriate model (Figure 1).

The model for the development of rural socio-economic space is intended to assess the existing living conditions in rural settlements and develop an appropriate roadmap of measures aimed at improving the sociotopic appearance of the village and, as a result, at the formation of its economic potential.

The model singles out municipalities as subjects participating in the procedure for assessing the conformity of the living conditions of rural areas to the standards of housing construction and a comfortable living environment. The administration of the municipality, together with the relevant committees, is directly involved in such an assessment and implements a set of measures aimed at eliminating the identified inconsistencies.

On the other hand, the model includes stakeholders (the state, citizens, construction and credit organizations) who are actively involved in the development and implementation of measures aimed at compliance with housing construction standards and a comfortable living environment in the countryside with the help of financial and non-financial instruments.

An important role in ensuring housing construction standards and a comfortable living environment in the model belongs to tools for positioning the existing level of housing construction and living environment and identifying problem areas. They are based on the correlation of the actual values of certain indicators from the Passport of Rural Areas with their normative values from the Standard, the development of which is carried out by order of the Ministry of Agriculture of the Russian Federation.

After identifying of the problem areas, the subjects of municipal government assess the cost of eliminating the identified inconsistencies and compare it with the available resources and capabilities, on the basis of which a roadmap of actions is formed to eliminate the imbalance between the actual situation and the required one in accordance with the standards.

In the process of assessing the possibilities of eliminating the identified problem areas, the socio-economic potential of the rural territory is also assessed, which is primarily intended to form a high-quality rural socio-economic space. Various components of potential are assessed: demographic, financial, investment, social, innovation, economic, production, natural and climatic, and others. Assessment of the
existing potential of the rural area makes it possible to understand what the administration has and what resources are lacking to form the required appearance of the socio-economic municipal space.

Figure 1. Model of development of rural socio-economic space
The roadmap for eliminating the identified inconsistencies with the standards and norms of the quality of life and the socio-economic potential of the rural area is the fourth main element of the model. Its formation involves both the subjects of assessment, municipalities, and stakeholders. The roadmap may contain various measures of a financial and non-financial nature. Thus, the state can provide financial support for the implementation of individual measures, and control and monitoring activities.

Construction organizations should be motivated to adhere to construction standards and to use productive capacities and resources efficiently.

Credit organizations should use programs of concessional mortgage lending for citizens, concessional lending for construction organizations engaged in construction in rural areas as support instruments, and provide an opportunity for credit vacations in certain cases.

Municipal authorities play a key role in shaping the roadmap. Their participation consists in constant monitoring of the state of the socio-economic space and assessment of the current socio-economic potential of the rural area, which should be used to implement the roadmap measures. At the same time, an assessment of the existing potential provides a basis for its future transformation in accordance with modern trends in socio-economic development and the requirements for the sociotopic appearance of rural areas.

In turn, citizens wishing to improve their living conditions or move to rural settlements should monitor compliance with housing construction standards and have an active civic position, coming out with initiatives to the administration of the municipality. An important tool is family budget planning, taking into account all sources of income for members of a rural family. This means that the development of a rural area is primarily determined by its economic potential and the efficiency of its use.

4. Practical application of the rural socio-economic space development model

The algorithm for implementing the development model of the rural socio-economic space is based on four blocks of assessed indicators, characterizing (Figure 2):

1) the quantity and quality of residential premises and their equipment with life support systems;
2) provision of rural settlements with social infrastructure of established transport accessibility;
3) the comfort of the living environment - comfortable public spaces, the required level of illumination of common areas, elements of an accessible environment for persons with disabilities, etc.
4) Assessment of the socio-economic potential of the rural area for the implementation of the necessary measures.

For conformity assessment with housing construction standards, it is necessary to determine the area of study of problem areas and a list of indicators for their identification, for example, presented in Table 1.

| Table 1. Indicators of provision with housing construction standards |
|---------------------------------------------------------------|
| Indicator                                                      | unit  |
| The number of square meters of living space per person          | sq. m.|
| Specific gravity of the area of comfortable living quarters    | %     |
| Average level of depreciation of the housing stock             | %     |
| Average level of depreciation of communal infrastructure       | %     |
| Specific gravity of the area of emergency housing stock        | %     |
| The level of provision of the rural population with drinking water | %     |
| Share of housing stock equipped with water supply              | %     |
| The share of the housing stock equipped with sewerage          | %     |
| Specific weight of the housing stock equipped with power supply| %     |
| The share of the housing stock equipped with heat supply       | %     |
| Gasification level of residential buildings (apartments) with network gas | %     |
Figure 2. Algorithm for applying the model of development of rural socio-economic space
To assess the provision of rural areas with social infrastructure facilities and their accessibility for the population, it is necessary to determine the area of study of problem areas and a list of indicators for their identification, based on the Passport of Rural Areas and Standards for a comfortable living environment (Table 2).

Table 2. Indicators of provision of social infrastructure facilities

| Indicator                                      | Unit     |
|------------------------------------------------|----------|
| Pedestrian accessibility of preschool educational institutions | minutes  |
| Pedestrian accessibility of educational institutions       | minutes  |
| Pedestrian accessibility of institutions of additional education | minutes  |
| Average travel time of an ambulance vehicle               | minutes  |
| Transport accessibility of medical services on an outpatient basis and in a day hospital | minutes  |
| Transport accessibility of medical services in a hospital setting | minutes  |
| Pedestrian accessibility of a pharmacy or pharmacy         | minutes  |
| Pedestrian accessibility of flat sports facilities        | minutes  |
| Transport accessibility of the sports hall                | minutes  |
| Pedestrian accessibility to information resources of the library | minutes  |
| Pedestrian accessibility of cultural and leisure facilities | minutes  |
| Transport accessibility of the social service center      | minutes  |
| Pedestrian accessibility of a grocery and non-food store  | minutes  |
| Pedestrian accessibility of the catering point            | minutes  |
| Pedestrian accessibility of the consumer service point of the population | minutes  |
| Average travel time for fire department access            | minutes  |
| Transport accessibility of post office services access    | minutes  |
| Transport accessibility banking services access           | minutes  |
| Transport accessibility of legal and notary services access | minutes  |
| Average travel time for security officials access         | minutes  |

To assess a comfortable living environment in rural areas, respectively, it is necessary to compare the current state of the indicators presented in Table 3 with their standard values for a particular rural settlement.

The assessment of the potential of a rural area should be carried out according to its main components that are important for the formation of socio-economic space. These components include:

- natural and climatic conditions of the territory;
- the financial capabilities of the municipality, including the attraction of borrowed funds;
- the economy of the municipality - its state and cooperation of business structures with the administration of the municipality;
- investment climate, including the possibility of attracting new investment projects to rural areas;
- the innovative potential of the socio-economic development of rural areas;
- production facilities that can be used to eliminate the problems of the socio-economic space of the rural area;
- human potential as a basis for the socio-economic development of rural areas.

In the future, deviations of the actual values of the indicators from the values determined by the current norms and standards are assessed:

- for absolute values according to the formula:
  \[ C_{ct} = \frac{|p_i - c_i|}{c_i} \times 100\% \tag{1} \]
- for relative values according to the formula:
\[
C_{ci} = |P_i - C_i|, \quad (2)
\]

где \( C_{ci} \) – the degree of compliance of the actual value with the normative; \( P_i \) – the actual value of the i-th indicator from among the evaluated; \( C_i \) – standard value of the i-th indicator.

| Indicator | unit |
|-----------|------|
| Share of the area of equipped public centers | % |
| The number of square meters of green areas of common use per person | sq. m. |
| The share of public roads of local importance with hard surface in the total length of public roads of local importance | % |
| The share of paved roads (asphalt) within the settlement in the total length of rural roads | % |
| The proportion of illuminated streets as a percentage of the total length of rural streets | % |
| The share of the area of sports and children's playgrounds, leisure areas in the total area of the residential area | % |
| Share of public facilities and places equipped with elements of an accessible environment for persons with disabilities as a percentage of the total number of public facilities and places | % |
| Regular transport connections | yes/no |
| The share of the population provided with the service of regular removal of solid household waste | % |
| Share of the area of unauthorized landfills in the total land area | % |
| Share of rural households with broadband Internet access in total households | % |

Each constituent entity of the Russian Federation establishes a scale of possible deviations from the standards, in accordance with which they are eliminated in priority and terms:

- "Red zone" - immediately;
- "Orange zone" - no more than six months;
- "Yellow zone" - no more than a year;
- "Green zone" - either standards are met or deviations from them are currently considered acceptable.

Based on the results of correlating the actual and normative values of indicators, a static assessment is determined, on the basis of which each indicator belongs to one of four groups, depending on the degree of compliance with the standards and the regional scale.

In the process of accumulating information on the actual state of the considered indicators of the passport of a rural area, a static assessment should be supplemented with a dynamic assessment, which will make it possible to assess the variation in the values of each indicator in dynamics.

Three scenarios are assumed:

- The value of the indicator remains stable - the results of the static assessment are accepted and the deviations corresponding to the position on the measure scale are carried out.
- The value of the indicator has a positive trend - the assessment results are shifted towards the "green zone".
- The value of the indicator has a negative trend - the assessment results are shifted towards the "orange or red zone".

Dynamic assessment of compliance of indicators with standards will allow adjusting the planned actions to eliminate non-compliance accordingly. Similarly, a dynamic assessment of changes in the socio-economic potential of rural areas will become the basis for determining the directions of its transformation.
The head of the administration of the municipality plans a set of measures to determine measures for each indicator for the presented ranked list.

An assessment is made of the cost of eliminating inconsistencies for each indicator with the help of specialized committees under the administration of the municipality.

The most effective procedure for the implementation of the necessary measures is determined using the following criteria:

1. **Priority:**
   - emergency and pre-emergency condition - housing stock, communal infrastructure;
   - educational institutions - preschool and school;
   - medical care;
   - social services;
   - fire department;
   - protection of order;
   - post office;
   - objects of increased social tension in a rural settlement;
   - the importance of indicators has a rapid negative trend.

2. **The magnitude of the discrepancy between the values of actual and standard indicators:**
   - ranking of indicators according to the size of discrepancy within each "zone";
   - ranking indicators by the amount of costs - financial and / or time - to eliminate inconsistencies;
   - ratio of damage from integral non-compliance with the standards of a number of indicators (for example, from the “yellow zone” with damage from individual indicators of the “orange zone”).

3. **Possibility of attracting funds from federal or regional programs, if the specified discrepancies fall within their competence.**

4. **Elimination of inconsistencies in indicators that are included in the sphere of interests of economic entities of a given rural settlement with the attraction of their funds.**

5. **Assessment of the possibilities of using the socio-economic potential.**

Based on the analytical received information, the administration of a rural territorial entity (settlement, municipal district), together with stakeholders, develops a roadmap of measures that are advisable to implement to ensure housing construction standards, maintain a comfortable living environment in rural areas, develop and transform socio-economic potential.

The procedure for assessing the implementation of standards and norms for housing construction, ensuring a comfortable living environment, as well as socio-economic potential can be both mandatory and proactive; can be carried out both for all indicators and selectively.

In order to conduct a mandatory assessment, it is recommended to impute this obligation to the administration of the municipality and establish a mandatory annual assessment procedure.

Tools for assessing compliance with standards and regulations, as well as the state of socio-economic capacity must be available for use by the municipal administration when carrying out ordinary or extraordinary conformity assessment villages housing standards and provide a comfortable environment.

5. **Conclusion**

The presented model for the development of rural socio-economic space is aimed at ensuring an adequate systemic socio-economic development of rural territorial natural and socio-economic systems that meets modern requirements and opportunities. It is based on the integrity of such systems and taking into account the principle of entropy compensation during their purposeful development, including the processes of forming the socio-economic potential of rural areas. In the future, it is necessary to develop and make widely available information and analytical tools for its practical use. It is also assumed that the model will develop both on the basis of the experience of its use and by expanding the number of variables used in it [6-9].
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