

Improving of Human Capital Monitoring in Rural Areas

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Abstract — Currently there is a need to study issues related to the organization of human assets monitoring within rural municipalities. It is proposed to develop an effective rural human asset monitoring system starting from the formation of an integrated system of indicators (quantitative and qualitative). A system of relations between monitoring participants regarding its formation, ensuring the conduct and coordination of actions as the organizational mechanism for the practical implementation of monitoring is needed. The proposed mechanism includes two main components: theoretical (a set of tasks, principles and methods of a systematic assessment of the state of rural human assets) and applied (methodological, technical, legal, financial and organizational components). The components will ensure the effectiveness of mechanism implementation. In practical terms the mechanism will allow continuous problem-oriented monitoring of the state of rural human assets, timely identification and systematization of data on ongoing changes, as well as prevention of negative trends. An interdepartmental Monitoring Coordination Group should be created as the body responsible for monitoring. The policy adjustments within a specific rural territory can be carried out based on the results of monitoring. In particular, it is possible to search for new solutions through the use of morphological analysis.

Keywords — *monitoring; human assets; rural areas.*

I. INTRODUCTION

At the present stage of economic development, the emphasis is shifting from building institutions of the national level to the formation and development of regional institutional conditions. Therefore the intraregional human capital management is becoming extremely important. In such a case, improving the management of human assets in rural areas of the regions is of particular relevance.

Both the development of human assets in rural areas as well as the transition to ensuring the innovation orientation of this process is of great importance now. Hence there is a need to develop such a system for monitoring human assets at the level of rural municipalities that identifies problem areas in the development of human assets and carries out operational adjustment of rural local politics.

In this regard, the goal of the human assets monitoring of rural areas should provide state authorities and local self-government with the reliable information objectively reflecting the important characteristics of the development of rural human assets, which allows timely management decisions to be made.

II. LITERATURE REVIEW

The scientific works devoted to the study of the issues concerning arrangement and processing of the monitoring were considered as the theoretical justification of the conclusions within the research process [1].

It was revealed that a sufficient amount of scientific literature is devoted to the theoretical and practical aspects of various social systems and phenomena monitoring. So, according to Torbina E.S. monitoring of social development includes a monitoring system, assessment, analysis and forecast of the social situation prevailing within a certain territory, as well as the development of particular recommendations for making strategic management decisions [2]. In the research works of Makarova M.N. Monitoring is defined as a means of constant monitoring of the actual state of a social system for the timely detection and detailed analysis of changes occurring in it, prevention of negative

trends, as well as for short-term forecasting of the development of processes in the social sphere. G.N. Nikonova thinks that the globalization of the economy leads to the fact that classical factors of production are gradually giving way to productivity factors, among which human assets stand out [3]. The economist Mineeva N.N. refers to the socio-economic monitoring of the human assets of rural areas as a system of continuous monitoring, analysis, evaluation and forecasting of the economic and social situation of a particular territory in a special way to provide users with complete, reliable and timely data for making managerial decisions [4]. Koloskova Yu.I. emphasizes that monitoring is necessary for a qualitative analysis of the level of human assets in rural areas [5].

The results of the scientific works of these and other scientists create the necessary basis for the rural areas human assets monitoring. However, despite a significant number of studies, an in-depth scientific study is required concerning the rural human assets monitoring improvement, including the development of an effective monitoring system that allows timely adjustment of rural policies.

III. RESULTS

The monitoring is described as a specially organized and constantly operating system of recording, collecting, analyzing and disseminating information, conducting additional information and analytical surveys, assessing the status and development trends. Thus, it is necessary to determine the monitoring information base to develop an effective system for monitoring human assets at the level of rural municipalities.

The grounding of the indicators system for assessing rural human assets seems to be rather complicated and requires some study. The information base for monitoring rural human assets can be a comprehensive system of quantitative statistical indicators, including data on the elements of human assets (health capital, education capital, labor capital, social capital, organizational and entrepreneurial capital, etc.) [6].

There is a great variety of options for structuring human assets by elements. The problem of choosing quantitative indicators for monitoring rural human capital consists of the following issues: the absence of separately allocated information on rural territories; the orientation of the assessment on the conditions and factors of its development (healthcare and education, social and engineering infrastructure, incomes, etc.); the inconsistency of the indicators of official statistics on the levels of provision and collection of information (federal, regional, municipal).

Thus, we propose to develop the following system of indicators for a quantitative (statistical) assessment of the human assets of rural territories (municipal district):

1) health capital (the number of visits to medical organizations of the region; the proportion of the population regularly engaged in sports; the incidence of the population, etc.);

2) the capital of education (the proportion of children and adolescents covered by primary and secondary education;

academic performance of secondary schools; population structure by educational level; literacy and the ability to quantitative reasoning of the adult population, etc.);

3) intellectual capital (the proportion of the population using modern information technologies in the process of work or study; the proportion of specialists with high and medium qualifications; the proportion of the population who regularly increase their intellectual potential (at least once a year taking courses, receiving additional education, advanced training, etc.);

4) labor capital (average labor productivity of 1 person in the district; the proportion of people who have been promoted at the place of work or when moving to another place of work; the ratio of the average wage in the district and the average wage in the country as a whole, etc.);

5) social capital (the proportion of the population regularly attending cultural events or places of cultural recreation; the proportion of women working in local governments; gender employment gap, etc.);

6) organizational and entrepreneurial capital (the share of small enterprises in the region; the number of people who have completed advanced training courses by the employment service; the proportion of the population working outside their place of residence; the proportion of the population that has additional income, etc.).

At the same time, it is necessary to note that an exclusively quantitative method of measuring human assets is unlawful due to the low reliability of the results. In connection with the versatility of the category of human assets, each indicator can be attributed either to the areas of its reproduction or to the area that characterizes its use (in terms of generating income).

Therefore, we propose to develop a system of indicators that is formed on the basis of diagnostic cards (questionnaires) and an algorithm for its practical application in addition to ensuring a qualitative assessment of the human assets of rural areas. This will allow determining the level of development of human assets in a particular territory [7]. Consequently, this will help to identify negative processes and apply measures for their prompt correction. Special qualifications, staff and equipment are needed for conducting survey questionnaire. Therefore, it is advisable to assign this function to organizations specializing in conducting such studies, but with the involvement of local authorities.

It is assumed that there will be representatives of local self-government bodies, public sector employees (education, healthcare, culture, etc.) and private business leaders among the interviewed experts. The survey should be conducted once a year by local authorities consolidated and transferred to the Federal State Statistics Service for a detailed analysis.

The diagnostic card (questionnaire) for interviewing experts should be divided into blocks corresponding to the elements of human capital: health capital, education capital, social capital, intellectual and labor capital, organizational and entrepreneurial capital.

Each answer will be evaluated on a scale, for example, 0–25 points – unsatisfactory, 25–50 satisfactory, 50–75 points – good, 75–100 points – excellent.

The questionnaire for the blocks highlighted above should contain the following qualitative indicators necessary for monitoring rural human assets in municipal areas:

1. In order to assess the health capital, it is necessary to assess the satisfaction of the local population with the measures taken to improve the medical treatment provided or to promote a healthy lifestyle, to introduce a subjective assessment of the health of the population, to assess the possibility of high-quality treatment of chronic illness and emergency cases, as well as the need for the population to travel for receiving quality medical care.

2. When assessing the capital of education, it is necessary to assess the adequacy of the educational base for obtaining a quality education, the degree of qualification of the staff, the desire of the local population to receive a quality education that can generate income in the future, the level of use of distance learning methods, and satisfaction with the measures taken to increase the level of education, the need to leave for a quality education.

3. Assessment of social capital is associated with the possibility of population to access to modern means of communication [8], the standard of living compared to the regional center, the ability of the population to improve their cultural level, and the desire of the population not to change their place of residence.

4. Intellectual and labor capital can be assessed through the sufficiency of the level of professional education and qualifications of the working population, the possibility of applying the professional level and qualifications of the population for the existing types of labor activity, the degree of use of innovative technologies, the desire of the population to increase their intellectual and professional level, and the satisfaction of the population with activities, conducted by local authorities or employers aiming at improving the intellectual and professional level.

5. A qualitative assessment of organizational and entrepreneurial capital is associated with the desire of the population to organize their own business, the level of support for entrepreneurs from local self-government, the use of information technology by the population to organize self-employment in various fields, the sufficiency of the local population's income, which allows not to change their place of residence, the possibility of using terrain features and resources for organizing new jobs, increasing employment and additional income.

Clusters of municipal regions with different levels of quantitative and qualitative rural human assets will be formed based on a point-and-rating assessment. Then recommendations will be developed to governing structures to increase the level of development of human assets in each type of district.

Thus, the developed complex system of indicators for assessing rural human assets includes both quantitative

statistical indicators, delimited by the elements of human capital (health capital, education capital, labor capital, social capital, organizational and entrepreneurial capital, etc.) as well as qualitative indicators formed on the basis of diagnostic cards (questionnaires).

It is necessary to create a special automated information system that will not only collect data, but also reduce time spent on processing information, as well as speed up the process of providing the necessary reporting and reference information for high-quality monitoring using a large amount of diverse information. In such a case, the object of computerization becomes both the information on rural human assets and the methods of its processing and presentation in the form of reports.

The information structure of the human assets monitoring system of rural municipalities includes a combination of such elements as:

- data of statistical reporting of the district;
- rural-specific information qualitatively characterizing human assets;
- a single system of quantitative indicators for the development of rural human assets;
- Diagnostic cards (questionnaires) for a qualitative assessment of rural human assets in municipalities.

The created information system should provide: collection of primary information and its processing in accordance with the developed methodology; storage of primary information and its processing results in created databases; presentation of the final information in the form of specially designed reports; transfer of created databases and reports to other users, including remote ones.

Since the number of indicators can be easily increased or reduced without compromising the efficiency of work, the adaptability to the number and composition of indicators can be noted as the advantage of the developed information system. The advantage of organizing an information base according to the type of distributed network is that the system allows equal opportunities for access to relevant information, strengthens horizontal communications between the subjects of monitoring, and strengthens trust and partnerships necessary for high-quality and timely regulation of human capital development processes. It is assumed that the functioning of the monitoring information system should be provided by an organized workflow system.

An organizational mechanism is needed for the practical implementation and monitoring of human capital in rural areas. It is thought to be a system of relations between monitoring participants regarding its formation, conduct, and coordination of actions, resource, financial, information and other support.

The development of an organizational mechanism will help to form the necessary database, as well as summarize information on the state and dynamics of human assets development in all rural territories of the region. This will create a single regional information resource that provides

equal and prompt access to information for all legitimate consumers. This will be the starting point for improving the human assets management of rural areas.

Various points of view of economists were studied regarding the development of an organizational monitoring mechanism during the study [1–4]. In our opinion, the organizational mechanism should contain two important components. Its theoretical component will be a set of tasks and principles, as well as methods used by the competent authorities for a systematic assessment of the state of rural human assets. The applied component will include informational, methodological, technical, legal, financial and organizational components that, together, ensure the effectiveness of territory monitoring.

Let us consider the theoretical component of the organizational monitoring mechanism in more details.

It should be noted that the key goal of monitoring is to provide state authorities and local self-government with reliable information objectively reflecting the important characteristics of the development of rural human assets.

The organization of observation; obtaining reliable and objective information about changes in the human capital of rural municipalities; the identification of factors affecting the processes taking place in society, as well as the development of proposals and recommendations for improving human capital management as monitoring tasks should be highlighted.

The applied component of the organizational mechanism for monitoring rural human assets will include such components as:

- information (the system of information and statistical support of authorities) [9];
- methodical (the development and the use of a specific monitoring technique);
- technical (the formation of a distributed computer network while creating special software);
- legal (the legal support of the municipal monitoring system);
- financial (the resource support of activities in the form of a budget – determination of the main sources of financing and the formation of expenditure);
- organizational (the definition of stakeholders; the distribution of powers and functions between them; the development of mechanisms for their coordination and methods of work).

An important feature of the proposed rural human assets monitoring system should be the application of the network principle [10].

The activity of the network structure is based on the purposeful and well-organized attraction of various resources of partners and the establishment of participant's openness, which allows us to build interaction on the principles of social partnership and form fairly strong and effective connections

(both vertical and horizontal) between professional teams that solve related tasks. In this case, the order of work is organized on the basis of the usefulness of the actions, their common goals and logic, and to a lesser extent it is determined by strictly regulated procedures of formal institutions.

Within this framework, the network organization will improve the monitoring of human assets of rural municipalities due to its unique properties, such as:

1. A constant change in the number of subjects depending on the need for them, based on the necessity to solve a specific problem. The highest degree of structural flexibility of this form of monitoring organization allows us to ensure the quality of work.

2. The processes of such interaction are always focused on the concrete result, which ensures the coherence of the actions of the subjects of monitoring, mobile rearrangement of resources and the clarity of the implementation of interconnected procedures.

3. Management of the network structure is based on the principles of maintaining “weak” connections (partial leadership, outsourcing, etc.).

4. Information flows during the network monitoring organization are decentralized and have a wide specialization, and at the same time, information becomes the main asset.

This kind of network interaction helps to form a system of connections that allows developing, testing and timely using innovative management models in the community included in the network. This becomes especially important considering an unstable external situation, when it is advisable to rely on the internal processes of self-development and self-organization of already formed systems.

We should say that the organization of network interaction in the process of monitoring rural human assets can take two forms. The first option is the organization of a “vertical network” between local systems of different levels related to the monitoring of human assets in rural municipalities. In such a case, the basic function of interaction should be social partnership, which is thought to be a system of relations between municipalities. It helps to attract the resources for the implementation of specific activities of the rural policy. The second option is the organization of “horizontal interaction”. Accordingly, the most important function of the network is the creation of network groups that are close in terms of tasks to be solved in monitoring rural human capital. At the same time, the most effective is precisely the combination of the two options, which helps to unite their strengths. This option allows performing all the actions necessary to achieve the monitoring objectives; to ensure coordinated interaction of monitoring entities; to apply a differentiated approach to working with various rural municipalities [11].

Thus, the use of network structures based on cooperation and partnership strategies allows us to qualitatively design new ways of human assets management in rural municipalities. This allows responding to changing environmental conditions and challenges in a timely manner.

The use of the network principle of rural human assets monitoring acts as a significant mechanism of integration policy and leads to the important socio-economic effect. The network participants establish constant contacts, which allow them to exchange the necessary information, monitor the fulfillment of mutual obligations and quickly resolve conflict situations or quickly smooth them out. In addition, on the one hand, the necessary competitive tension is created and maintained. On the other hand, the mutual assistance is provided aiming at the stabilizing the whole situation in general. All this leads to the increased effectiveness of actions, the formation of trusting relationships, the strengthening of the business reputation of network participants and the formation of representations of collective interests.

The organizational mechanism for monitoring human assets at the level of rural municipalities is essentially a system of continuous, problem-oriented monitoring of the state of rural human assets for timely identification and systematic analysis of ongoing changes. It prevents negative trends and allows creating an information base for short-term forecasting of the most important processes in this area. Consequently, policy adjustments can be carried out at the level of a specific territory on the basis of monitoring results.

Time is needed to create the necessary information base for the proposed monitoring and to put into practice the developed mechanism for monitoring human assets at the level of rural municipalities. However, the problems existing in the village must be overcome today. Therefore, we propose to use morphological analysis to form economic instruments

for managing rural human assets in the near future. As soon as the developed proposals for improving the monitoring of human assets in rural areas are applied in practice, it will be possible to take more precise measures at the level of a specific rural territory.

Thus, we will consider the possibility of finding new solutions through the use of morphological analysis. Within this approach, it is proposed to find solutions to problems of the development of rural human assets of a certain type based on the best practices of developed rural municipalities, considering the long-term concepts for the development of the region, and also by contacting qualified experts in the relevant field [12]. We propose to separate the components of human assets in accordance with the most significant indicators of human assets growth (health, education, labor, sport, culture, entrepreneurial initiative) in order to use the method of morphological analysis. Rural territories should be classified according to the most frequently used classification by types (high, medium and low levels of human capital). The morphological matrix in the context of the types of rural territories for which generalized recommendations are given is presented in table 1. Such recommendations are typical and can be adapted to any region.

It should be noted that this is only a temporary solution to the problem in a generalized form. All the proposals developed above to improve the monitoring of human assets in rural areas should be put into practice in order to build a monitoring system that will fundamentally improve the situation with rural human assets.

TABLE I. MORPHOLOGICAL MATRIX CONSIDERING TYPES OF RURAL TERRITORIES BY LEVEL OF HUMAN ASSETS

Human assets growth indicators	Type of rural territories by human assets level		
	<i>Low</i>	<i>Medium</i>	<i>High</i>
Health	Developing the availability of medical services (coupons for free admission to regional centers, purchase and provision of mobile diagnostic points for servicing residents).	Infrastructure development of territorially isolated medical institutions.	Activities to maintain health. The introduction of modern information systems in the work of inter-territorial medical centers.
Education	The development of program aimed at receiving higher and secondary education by residents based on correspondence and distance learning.	Collaboration of organizations located in rural areas with institutions of higher and secondary education.	The use of new teaching methods and modern educational technologies in the educational process.
Labor	Professional retraining and advanced training. Improving the qualifications structure of workers	Increasing the level of professional competence and qualifications of managers and specialists. Organization of training jobs in large villages.	Involvement of employers in the process of training the specialists they require on a co-financing basis. Internships in rural enterprises using innovations and the sharing of best practices within other territories.
Sport	Reconstruction and construction of new sports facilities, development of the material base and technical equipment of institutions.	Maintenance of sports fields, support of creative and sports teams, etc.	Providing organizations and institutions with qualified staff.
Culture	Creation of modern technically equipped cultural complexes in the centers of settlements.	Technical re-equipment of cultural and leisure facilities.	Restoration and development of traditional cultural and leisure facilities. Organization of mobile cultural sites.
Business initiative	Allocation of free office space and provision of real estate on preferential terms to individual entrepreneurs. Formation of the mechanism of investment support for newly created small and medium-sized enterprises.	Sharing of best business practices in rural areas. Providing practical assistance in the formation and development of a business.	Formation of integrated business structures. Organization of assistance in the development and implementation of innovations. Assistance in obtaining land for individual projects and registration of land ownership.

It will be necessary to designate a body responsible for its implementation in order to organize monitoring of rural human assets. Such a unit may be the interdepartmental Coordination Group for monitoring the human capital of rural municipalities, organized on the basis of the Council of municipalities. Such a Steering Group will be called upon to perform the following functions:

- development of the basic conceptual provisions of monitoring (goals, objectives, activity plan, etc.);
- methodological support for monitoring;
- coordination of the system of actions for organizing and conducting monitoring;
- providing operational information on the monitoring process, difficulties and shortcomings encountered with proposals for their elimination;
- analysis and evaluation of monitoring results [13];
- organization of informing the public about the tasks, progress and results of monitoring;
- assessment of the achievement of the objectives of rural socio-economic policy in the region;
- making suggestions for improving rural social and economic policies [14, 15].

IV. CONCLUSION

The necessity of the development of an effective system for monitoring human capital in rural areas is substantiated.

A comprehensive system of indicators for assessing rural human capital is proposed to form the monitoring information base. The system includes quantitative statistical indicators delimited by the elements of human capital (health capital, education capital, labor capital, social capital, organizational and entrepreneurial capital, etc.), and quality indicators formed on the basis of diagnostic cards (questionnaires).

The organizational mechanism has been developed that represents a system of relations between monitoring participants regarding its formation, conduct, coordination of actions, resource, financial, information and other support in order to ensure the possibility of practical implementation and monitoring of human assets in rural areas. The organizational mechanism contains a theoretical component (a set of tasks and principles, as well as methods used by the competent authorities for a systematic assessment of the state of rural human capital) and an applied (including informational, methodological, technical, legal, financial and organizational components that together ensure the effectiveness of territory monitoring).

It is proposed to use the network principle of monitoring rural human assets to increase the effectiveness of monitoring. As the study showed, the use of network structures based on cooperation and partnership strategies will allow us to qualitatively design new ways of human capital management in rural municipalities and help to respond in a timely manner to changing environmental conditions and challenges. It is

proposed to create an interdepartmental Coordination Group for monitoring the human capital of rural municipalities as the body responsible for monitoring.

The developed monitoring system of human assets in rural areas will not only adequately and fully evaluate human capital, but also create a coherent information base with the possibility of sequential collection, synthesis and analysis of information for different levels of government (from self-government to federal authorities), but also accept reasonably sound management decisions for a specific rural area based on the calculations made.

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