

# Foreign Experience in the Development of Strategic Planning Theory and Practice of Sustainable Development in Rural Areas on the Foresight Technologies Basis

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**Abstract.** The article actualizes the need of foresight technologies in the development of strategic plans of socio-economic development in rural municipalities at the level of the Russian Federation. It is pointed out that in modern conditions of development in rural territories it is necessary to work out strategic programs and anti-crisis measures that should focus on the use of foresight technologies. On the basis of using a systematic approach foresight projects and foresight programs used in the management and forecasting of rural development were analysed which were worked out by specialists in economically developed countries. The systematic approach usage in combination with foresight technologies allows to develop strategic plans for the development in rural territories from the perspective of long-term improvement of their economic and social component. The foreign experience of foresight studies in rural development is generalized. Theoretical approaches are specified and the basic foresight technologies applied by foreign researchers in strategic planning of rural development are defined. Priorities and promising directions of international foresight programmers are pointed out. It is shown that the modern methodology of foresight studies is quite flexible and multifaceted, has a wide targeted application at different hierarchical levels of management in economically developed countries. The algorithm stages of foresight research of strategic planning development in rural territories and the mechanism of its implementation at the municipal level are presented. It is concluded that the foreign experience and scientific research on the use of foresight technologies in the practice of strategic planning and forecasting in rural development requires adaptation and adjustment in relation to Russian conditions. It is concluded that foresight technologies should be used as the system tool for the formation and implementation of sustainable development strategy in rural territories of the Republic of Bashkortostan.

## 1. Introduction

Currently, there is an increased interest of the scientific community to the problems of the foresight technologies usage in strategic planning of sustainable development in rural areas. The usage of foresight technologies in combination with a systematic approach allows predicting the development in rural areas from the perspective long-term improvement of their economic and social component [1, 2].

It should be noted that foresight technologies are widely used abroad at all levels of production management. In economically developed countries, the concept of "smart specialization" is widely



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practiced, which allows to concentrate efforts not on individual sectors of the agricultural economy, but on certain types of activities of owners (agro formations). The general methodological principle of developing and conducting foreign foresight studies is the involvement of various social forces - business, the scientific community, public authorities and civil society in the discussion of the processes of developing long-term forecasts and strategies for sustainable development in rural areas [3]. The main vector of the methodology development of modern foresight is aimed at more active use of the experts knowledge involved in the projects [4]. At the same time, in some foreign foresight projects, the research initiative comes from above (top-down), and, consequently, interaction with experts is of insignificant importance.

## 2. Results and discussion

Currently, in the context of the development planning and program documents for sustainable rural development, the integration of systemic and synergistic foresight, the integration of foresight and Competitive intelligence is actively taking place [5]. It should be pointed out that the methodology of foreign foresight has incorporated dozens of traditional and new expert methods [6]. According to the European Foresight Monitoring Network, on average, no more than five or six different foresight methods are used in one study. At the same time, the only one method can be chosen, and the rest complement the overall picture of the future sustainable development in rural areas.

At the same time, each country or region uses its own combination of foresight methods (tools) to design a sustainable development strategy. Meanwhile, there is a constant improvement of methodological approaches, correction and testing of techniques and procedures, which, in turn, ensures the validity of foreseeing the prospects for sustainable development in rural areas [7]. The most popular foresight tools are Delphi, critical technologies, scenario development, trend extrapolation, literature review, motor mapping and expert panel formation (Table 1). Becoming increasingly popular quantitative methods such as a reverse-forecasting, analysis of mutual influence (cross-impact analysis), methods of synthetic nature (scanning the external environment, multicriterial and patent analysis, "relevance tree" ("tree of objectives") and simulation game) [8].

**Table 1.** Methods and techniques of foresight used by foreign specialists in strategic planning in rural development.

Country	The foresight methods and techniques	The examples of foresight studies and foresight projects
Brazil	The scenario analysis, in-depth text analysis, diagnostics and literature study, web Delphi, expert panels	The foresight project "Prospector", the foresight project "Brazil 3 Moments Project", the technological foresight program "Brazilian Technology Foresight Program»
The EU	Scanning the horizon, trend analysis, Delphi surveys, early warning system for new technologies	The foresight program FAST (Forecasting and Assessment in the Field of Science and Technology), foresight study "The FUTUR initiative", foresight project "the Millennium Project", the foresight study "Visit" (FinnSight-2015), the foresight project "Group to develop global scenarios"
China	The scenario method, critical technologies, motor mapping	The foresight project "Innovation 2030: a road map for development," foresight project "Science and technology foresight 2020»
The USA, Canada	The polls according to the Delphi method, brainstorming, the method of alternative scenarios, motor	The foresight projects of the Hudson Institute, the foresight project "Update" (Renewal)

	mapping, the method of back casting	
Japan	The Delphi surveys, the scenario analysis	The foresight project "Future Technology in Japan toward the Year 2030»

In the United States, foresight is developed within the individual sectors of agriculture, while the American foresight methodology itself is a template and defines the involvement of the key actors and networking as tools to improve the effectiveness of the innovation system. The American foresight on the example of the Hudson Institute can be called the institutional management of the future and it is implemented primarily as a management technology. In the US widely used the joint foresight programs (participatory programs) based on a linear model of the innovation cycle, open innovation, the circuitry triple helix. An important role in the design of sustainable development strategy is the method of back casting or "reverse" forecasting, reflecting the definition of the desired future and planning specific actions to achieve it.

In Canada, the successful implementation of the foresight project "Renewal" and holding foresight seminars "Building the future" actively attract experts with extraordinary personal qualities and "for-site" thinking. The key component of the foresight seminars is the definition of a list of the main socio-economic problems that, according to experts, will determine the development of rural areas in the long term [9].

In the European countries such international foresight initiatives as "The Group for the development of global scenarios" and "The Millennium Project", the program FAST (Forecasting and Assessment in the Field of Science and Technology) are successfully implemented. The modern European version of foresight is based on the inertial development in rural areas, and, as noted by foreign researchers, there is no ontology in its methodological basis [10, 11, and 12]. At the same time, most of the methods of European foresight are extremely formalized and subject and they do not contain a prognostic element [13, 14, and 15].

In the UK, the results of foresight studies are widely used in the development of sustainable rural development strategies at the regional level (Northeast and West Midlands, Scotland and Northern Ireland). The Irish experience of using foresight as a factor of sustainable economic growth is based on the definition of new and correction of existing foresight platforms for rural development.

In Germany, foresight tools are actively used to assess and predict rural development [16, 17]. Promising German foresight developments are a tracking system (Monitoring System), which searches for and distributes new relevant information and a mechanism for strategic dialogues among experts.

The peculiarity of Scandinavian foresight programs is the widespread use of retrospective analysis (Technology Hindsight) and the refusal to use the Delphi method, the creation and grouping of "sections" corresponding to the experts interests. In the Swedish foresight model, the initiator of the development of the agricultural sector is, first, private business. The most ambitious of the Finnish foresight projects in the last decade is the national Finn sight study (Finn sight-2015).

The foundations of Brazilian foresight inherent in the research agenda of the National Council for scientific and technological development (National Council for Scientific and Technological Development, CNPq). Effectively implements programs and Prospector Brazil 3 Moments Project, the Brazilian program of technological foresight [18].

In Japan, long-term foresight projects for rural development (mainly for a 30-year perspective), coordinated by the Council for science and technology policy (CSTR), are very popular. It should be noted that the Japanese foresight focuses primarily on two key areas: review of long-term trends, identification of promising technologies and monitoring of the current state development of rural areas [19]. Among the successfully implemented Japanese foresight projects, it is necessary to highlight the foresight project "Future Technology in Japan Howard the Year 2030", developed by the National Institute of science and Technology Policy.

In China, 2 major foresight initiatives have been successfully implemented in recent years, namely, "Science and technology foresight 2020" and "Innovation 2030: motor map for development", in the study of which scenario methods, critical technologies and motor mapping are widely used [20].

It should be noted that abroad there is a development of contextual or "open" foresight today, based on the consideration of environmental factors. At the same time, modern foresight studies are usually carried out in one of the two "modes" or in their combination, which provides a deeper study of the most "unexpected" scenarios (wild cards) in the methodology of the for-site. The first "mode" is aimed at improving or optimizing the existing system, and the second "mode" focuses on discussing opportunities and stimulating fundamental changes in the existing paradigm of sustainable development in rural areas. If the foresight is "open", the forecasts are most often included in the social stage, forming its technological module. In case of "closed" foresight, on the scenario of sustainable development basis in rural areas, "motoring maps" are developed, where specific institutional and regulatory solutions are developed.

### 3. Conclusion

The review of a number of foresight technologies used by experts from foreign countries allows concluding that the foresight apparatus is widely used in the theory and practice of sustainable development in rural areas and in practical application brings a significant economic effect. In our opinion, it is necessary to actively adopt the best foreign practices of foresight, improve its methodology for the development of strategic programs for sustainable development in rural areas.

However, not all foresight developments can be applied to the implementation of specific rural areas in the Russian Federation. Of course, the foreign experience of scientific research on the use of foresight technologies in the practice of strategic planning of rural development requires adaptation and adjustment in relation to Russian conditions [21, 22]. We need a practical approach to the use of foresight tools and methods, taking into account the specific capabilities of the domestic agro-economic systems development. In conducting foresight, studies should take into account the natural resource potential, local specific conditions that determine the development of production and placement of social facilities and infrastructure of rural areas of the Russian Federation.

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