



International Journal of Applied Business and Economic Research

ISSN: 0972-7302

available at <http://www.serialsjournal.com>

© Serials Publications Pvt. Ltd.

Volume 15 • Number 13 • 2017

Statistics in Information Support the Sphere of Natural Resources

Olga F. Sverchkova¹, Eugene Yu. Moskvitin², Natalia M. Zibrova³ and Svetlana A. Maryanova⁴

¹⁻⁴*Institute of Entrepreneurship and Service sector of the Don State Technical University, Shakhty, Russia. Email: ¹ylo79@mail.ru*

ABSTRACT

The article substantiates the need to improve the efficiency of information support of nature and the environment, and creating a better information base for management decision-making in the field of protection, reproduction and use of natural resources. The place and role of environment statistics outlined in the common information security management of the economy and social sphere, and it invited the author's rationale for its selection as a separate independent branch of statistical science, has its own object of study, information structure and organizational structure. Information base for management decision-making in the field of protection, reproduction and use of natural resources. The article highlights the problem of reliability of information support of indicators such as the gross national product and value of individual resource or pollution flows. To solve these problems, the authors suggest, information support system, formed in the framework of integrated spatial inventory of natural resources. The main activities in the field of international statistical cooperation and international exchange of information should be directed to ensure convergence of the Russian statistical methodology and practices with international standards, the effective use of foreign experience in organization of statistical observation of new economic phenomena in the Russian Federation, improvement of international information exchange, satisfying domestic needs and foreign nationals.

JEL Classifications: A20, L11, C19, C10.

Keywords: Statistics, information technology, natural resources.

1. INTRODUCTION

The problem of the relationship of human society with the environment requires urgent solutions, the success of which is determined by the substance of the relationship is now understanding the environmental

and socio-economic systems. Understanding these issues will determine the further development of any of an independent state.

Many scientists supported the idea of strengthening the role of information in solving the problems of nature and the environment and developing new scientific approach in its maintenance. So scientists Pakhomova N.V., Richter K.K. note that the management of today's complex world, including environmental management, based on decisions resulting from balancing the conflicting objectives and requirements of the various sectors of society (business, consumers and their unions, government and environmental control, parties and groups in the protection of the environment, trade unions, etc.) (Bobylev, 2004).

The process of development of administrative decisions should be transparent, accountable and fair. And all this can be achieved only if the right of all walks of life to accurate and timely environmental information. And, as emphasized in the field of modern management experts, the state does not provide its citizens such information, will inevitably lose the trust of citizens and ceases to be lawful.

According to many, who objectively assess the present socio-economic, environmental and demographic situation in the world of scientists, politicians and public figures, the market economy in its classical form, naturally embedded in its foundation of functional relationships between society and nature, can't resolve the challenges facing humanity problems (Akimova et al., 1994, p. 54).

For fractures of the ecological crisis it need a radical restructuring of the entire economic system in accordance with the objective requirements of the ecological imperative. Further development of civilization must be based on a new paradigm of development.

Currently, one of the resources that determine the further development of mankind becomes information. It is no accident many call post-industrial society information society. The reliability and completeness of the information depends largely on the correct decision in every area, and especially in the environmental, as today's impact on the ecosystem will manifest itself only through the decades (Cherkesova, 2012).

2. THEORETICAL ANALYSIS

The availability of the necessary information about the environment and natural resources depends on the correctness of the received practical solutions and the formation of regional and federal systems of environmental-economic accounting, aimed at improving the effectiveness of state management of the natural environment at all levels.

The principles of environmental protection are intertwined environmental, socio-economic, legal, political and other requirements and approaches.

A good example in this respect is the principle, which reflects the citizens' right of access to environmental information and to participate in environmental decision-making. It reflects this feature of modern economic life as its democratization, including the democratization of the development and adoption of decisions on the protection of the environment.

The Russian people's right to health, a healthy environment, reliable information about its condition and to compensation for damage caused to their health or property by ecological violations is enshrined in Article 42 of the Constitution.

The right of access to environmental information recorded in the tenth principle of the Rio Declaration (Dumnov, 2008). It reads as follows: “environmental issues solved successfully with the participation of all in the process of all concerned citizens.

At the national level, each citizen shall have appropriate access to information concerning the environment and held by public authorities, including information on hazardous materials and related risk and dangerous work in their area. They should also be able to participate in decision-making. States should inform and promote greater public awareness of, and promote its participation in the solution of these problems by providing access to information. It must be ensured effective access to judicial and administrative mechanisms, including compensation for damages and the possibility of judicial protection.”

Great importance is given to the freedom of access to environmental information, and in the European Union. Implementation of this right is considered as an important condition for the formation of ecologically-oriented public opinion, the perception of understanding the population, business entities and others to tighten environmental policy measures, the introduction of new standards, regulations, environmental taxes (Khabarova, 2000).

Thus, at the present time it has formed a new progressive, focused on environmental issues, information space in many countries around the world.

Environmental information is currently represented by the following sources (Figure 1).

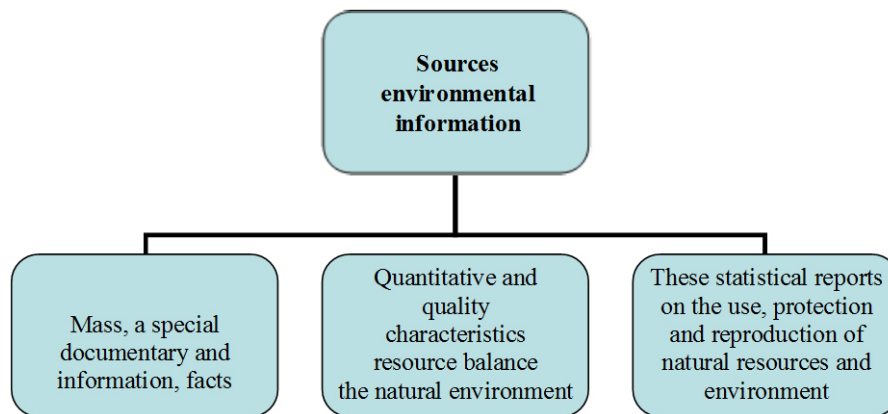


Figure 1: Sources of environmental information

The information base for the characterization of environmental economic status are the ecological and economic passport of enterprises and territories, complex schemes of nature protection and so on. Some environmental information can be found in other forms of statistical reporting by sector – of forestry, water, agriculture and so on.

Meeting the need for such information it gets by means of radio, television, Internet, print media environmental focus. The media contribute to the process of continuous environmental education, uprochivaya way from awareness of the whole society to target environmental education of individual recipients (Lukyanchikov & Potravny, 2007, p. 591).

For Countries and international organizations is important provide data about the environment, natural resources and development necessary for the management of sustainable ecological and economic development in line with the objectives of the territorial environmental management and environmental protection.

Evaluation of sustainable development of territories is largely linked to the problem of combining diverse indicators of the ecological situation, the scope of technological and socio-economic situation of the company. To ensure that the system of evaluation criteria could find practical application, it must be based on the existing legal and information base. To solve the wildlife management and environmental issues is necessary to choose the best options in the collection, processing and analysis of information (Pakhomova & Richter, 1999, p. 488).

Information provision of natural resources and environmental protection are:

- scientific and technical information;
- specifications and technical documentation;
- information on natural resources;
- cartographic material;
- patent information;
- training and educational information;
- design information;
- technological and operational information;
- legal information;
- financial and economic (business, commercial) information;
- statistical information;
- archival records.

The main systems for obtaining objective assessments of the state of the environment is shown in Figure 2. Their place has not yet been fully defined in the decision of problems of sustainable development of territories.

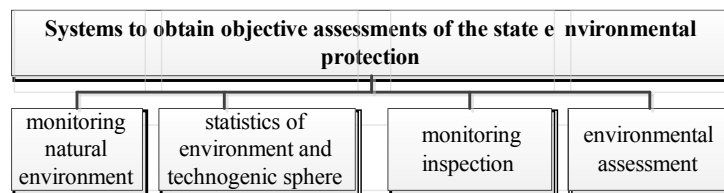


Figure 2: Environmental information systems

The importance in the information support of nature management and environmental protection are the requirements for statistical information. Such information our authors must be prompt, affordable, reliable, high-quality and relevant to each level of territorial differentiation: regional, local and local (Figure 3).

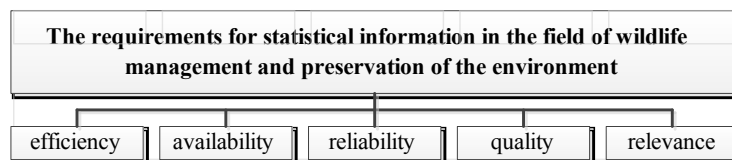


Figure 3: Requirements for statistical information

The criteria for usefulness and timeliness are closely interrelated and interdependent with the criterion of authenticity of the estimated information. Unreliable information nullify to zero the timeliness and usefulness.

It is also important for such criteria as completeness of the information. However, to talk about how full of information about a particular object (fact) and where its borders are, quite difficult and also ineffective.

The main tasks in the field of environmental monitoring and information management defined the Environmental doctrine Russia, these include providing state and municipal bodies, legal entities and citizens with reliable information about the state of the environment and its possible adverse developments (Bobylev, S.N., 2004).

This requires:

- development of a unified state system of environmental monitoring throughout the country, including the monitoring of biotic and abiotic components of the environment;
- improving the regulatory framework governing the interaction of federal executive bodies, exercising state environmental monitoring, including the formation of the Information Resources;
- improving the performance of the system, the establishment of a methodology for environmental monitoring of the Russian Federation, as well as technical and material support environmental monitoring activities;
- ensuring the reliability and comparability of environmental monitoring data for individual industries and regions of the country improving the system of registration and control of nuclear materials, radioactive substances and wastes;
- work on identifying the zones of ecological disaster;
- identification and designation on the ground all the areas affected by radioactive and chemical contamination on the scale representing a danger for the environment and the population;
- inventory of environmentally hazardous industrial, facilities and landfills;
- risk assessment of environmental emergencies and ways to prevent them;
- formation and maintenance of inventories of environmentally hazardous facilities at the federal, regional and municipal levels;
- inventory of the territory for the identification and special protection of land suitable for the production of ecologically clean agricultural products, water bodies with strategic reserves of drinking water, natural systems that perform very important habitat-forming functions, and have a special recreational and recreational value;
- the formation of the system of state inventories of natural resources, specially protected natural territories and territories of traditional nature;
- providing information on the state of openness of the environment and potential environmental hazards;

- free access to citizens in the area of environmental information vital for their safety;
- support informational results of the state ecological examination of all projects, programs and facilities subject to mandatory Environmental Impact Assessment.

Development and introduction of the system of state statistics indicators of environmental policy, the ability to target them tax, credit, insurance and price mechanisms, to monitor the progress of the investment – an indispensable condition of the real environmental improvement and economic stabilization (Soshnikova, 2006).

At present, already accumulated a lot of information that can be used for decision-making in sustainable development and environmental protection. However, there are some problems in obtaining such information and compliance with the requirements for it. Consider the main ones, and give the point of view of various scholars on their decision.

Summarizing the range of existing information support of nature management and environmental protection issues are the following, the most pressing of them:

1. the complexity of the legal regulation of access to environmental information;
2. the absence of a comprehensive and integrated information on natural resources, Russia;
3. the problem of the influence of environmental factors on the dynamics of GDP;
4. the problem of the reliability of data;
5. the problem of constructing enterprise environmental information systems;
6. reduction in demand for objective statistical data.

The first problem is the complexity of the legal regulation of access to environmental information which should be carried out at the same time the requirements for information security and ensuring the rights of citizens.

The population is required:

1. More information about the state of urban air, freshwater, land resources (including forests and rangelands), desertification, soil degradation, biodiversity, the high seas and the upper atmosphere, the concepts and mechanisms of environmental management.
2. More information about the population, urbanization, poverty, health and the right to access to natural resources. Information is needed on the relationship between different groups of people, including women, indigenous peoples, youth, children and persons with disabilities, and environmental issues, the environmental principles of sustainable environmental management.

The second equally important problem is to identify the relationship of production and consumption with indicators of pollution volume of the medium, which is aimed at solving a complex methodological problem – to identify environmentally adjusted macroeconomic indicators for assessing the sustainability of the national economy.

The essence of the problem lies in the fact that the commonly used indicators such as gross national product, and the value of individual resource or pollution flows do not provide sufficient information

about the development of resistance. You must use the environmental, demographic, social, and reflects the development of information for the development of indicators showing or not we contribute to the creation of their natural activity, the stability of the territory of the world (Ryabushkin, 2007).

Get a quantitative evaluation of the fight against pollution of the environment (Soshnikova, 2006) we proposed to use the concept of analytical calculation of environmentally adjusted gross domestic product by deducting environmental costs, as well as additional added value created as a result of pollution control.

In the last period in the media, including in government publications, speeches, public officials, academics and journalists have repeatedly touched upon the problem of the dynamics of the gross national product and environmental protection.

In the present study, the problem is the lack of a comprehensive and integrated information on natural resources of Russia. Despite the fact that now is used a lot of the most diverse economic valuation of natural resources, the methods proposed by economists and used by different agencies in charge of natural resources, the problem of monetary valuation of natural resources, Russia has not been got uniform principles and methods for the evaluation of the whole complex of natural resources. The Russian press, you can meet a lot of estimates for certain types of natural resources and their peer groups.

Effective environmental management in the conditions of transition to a market economy is only possible if there is a comprehensive and integrated information on natural resources in Russia, which is currently concentrated in the departmental inventory. According to N.N. Lukyanchikova, IM Potravny (Lukyanchikov, 2007, p. 591) such inventories have a number of disadvantages:

- the inventory do not cover all the natural resources and facilities;
- the natural resource information is mainly of a departmental character;
- not defined procedures for the use of departmental information, the basis of the inventory, many data are closed even for use by public authorities and administrations in the regions is not installed as a single procedure for payment or free access to this information to stakeholders;
- individual inventory figures difficult to compare or completely incomparable with each other on the content. Even with data on individual natural resources on its own territory, is very difficult to draw a conclusion about the relationship to their use;
- forms of storage and updating of information is also different and incomparable (the type of media, size, compression ratio, software, etc.);
- in the majority of industry inventories are no indicators to assess the socio-economic efficiency of resource utilization in a given territory;
- existing inventories virtually no capacity revaluation of natural resources in the changing socio-economic conditions of production and consumption;
- environmental factor insufficiently taken into account in the assessment of natural resources.

According to the authors, for management decision-making in the field of protection, reproduction and use of natural resources necessary to create a better information base.

To solve these problems, the authors suggest, information support system, formed in the framework of integrated spatial inventory of natural resources. This system is a public summary of the natural resources and natural sites in the territorial aspect required for management decision-making in the field of economic and social development areas, taxation and environmental management.

Creating such a system should be based on a unified organizational, methodological, metrological, regulatory and programmatic approach to database formation, interaction and coordination of all departmental and regional services, with the first stage without destroying the existing federal, territorial and administrative departmental structure in this area.

Information in this system should be presented in the form of geographical and other maps, tables and descriptions on paper and electronic media and standardized scale maps, standards for data collection, genera classifications, requirements and methods of use of modes of socio-economic evaluation. The list of mandatory inventory indicators on the characteristics of each type of natural resource, developed by the Ministry of Natural Resources in cooperation with other federal bodies of executive authority in the field of nature and environmental protection.

The authors propose a system of cadaster and environmental management software that is implemented using software, and a special information system, including, if necessary, an automated information system (AIS standard) based on software tools focused on the use of information technology. software system should carry out the processing of inventory information in accordance with the objectives of the different levels of the state system of conducting natural resource inventories. It need for a single regulatory and methodological basis of the cadastral maintenance of natural resources.

Next problem – a problem of reliability of data. Currently, the issue of reliability has reached the state known severity (Ryabushkin & Dumnov, 2003).

As a result, sometimes done categorical conclusion about the total unreliability of environment statistics.

Firstly, such an argument is based on the recognition of higher objectivity of economic data in comparison with the environmental, as well as the presence of unconditional officially proclaimed by the pace of economic growth. And then, and another self-evident

Second, a generalized approach to the whole country does not consider the nature of the trends in the individual regions and industries.

Third, for ascertaining the reliability or unreliability of the data on the pollution of change (degradation) of the environment need to examine the entire set of influencing factors which can have an opposite direction.

Fourth, in any case it is necessary to clarify the causes of the environmental performance of multi-vector. And finally, if a priori recognition of the unreliability of environmental statistics inevitably raises a number of issues. For example, was there any demand in recent years, statistics of the environment in general, and objective environmental information in particular? As it gets in similar cases, the collection of payments made for a negative impact on the environment? How qualified are these various specialists, including criticizing the accuracy of the statistics for the weak? There is a real opportunity to get some data and what is their reliability?

The correct interpretation and updating of official data requires a certain responsibility and consistency. There are cases when, after a peremptory declaration of invalidity begins statistics analysis “unreliable” data without a full specification, or in the absence of verified principles such refinements.

Thus the findings of this “analysis” is invited to consider somehow credible. Especially unacceptable cases where factual information accompanying the sharp criticism of environment statistics, contains a large number of errors and distortions, unverified information and absurd information. Similar approaches are completely confusing an already difficult situation, discredit and undermine the credibility of any information and, most importantly, seriously impair the ability to solve environmental problems on the merits.

The next most important problem at the present time – a reduction of demand for objective statistical data on the part of management and general economic bodies of the Russian Federation. It is not enough to fully use the relevant information in the Ministry of Natural Resources of Russia, The Federal Service of Ecology, Technology and Nuclear Supervision and other ministries and departments. There is a weak interest in the analysis of environmental statistics environmental trends.

This includes, for example, water consumption reduction for the whole country in 2015-2016 gg. 7%, while the gross domestic product Is growing by more than 40%. For water-intensive domestic economy, in the absence of structural changes and management of small investments in water conservation, this fact for a long time it requires study. analysis findings could seriously affect the state water policy, in particular the collection of payments for water (Dumnov, 2008).

3. CONCLUSIONS

To solve the wildlife management and environmental problems in the region need to create a bank of information, including an assessment of:

- natural-resource potential of the region and the extent of its use;
- economic impact of anthropogenic changes on the environmental components and the total level of degradation;
- positive and negative results of the environmental impact of proposed economic projects.

Thus, at the regional level requires a database, including regulatory support and environmental regulations. Given that at the regional level address issues of natural resources strategy, resource and environmental safety, these issues are solved comprehensively with the issues of recreation, mineral, water, energy, soil, forest and labor resources.

At the present time is an issue about the need for information on the actual environmental assessment. Therefore, an important role in the knowledge society, the seriousness of environmental problems, the need to integrate them into the economic development and forecasting should play statistics, which is the basis of scientific knowledge and practice.

The main activities in the field of international statistical cooperation and international exchange of information should be aimed at ensuring the convergence of the Russian statistical methodology and practice with international standards, effective use of foreign experience in the organization of statistical observation of new economic phenomena in the Russian Federation, the improvement of international information exchange, satisfying domestic needs and foreign people are high-quality and comparable statistical information on socio-economic development of Russia in comparison with other countries.

The priority of the Russian Statistics Committee must be release of statistical publications that meet user needs for timely, methodologically comparable statistical information on socio-economic development

of Russia and foreign countries. Thus, this article defines the place and role of statistics of the natural environment in general, information support management of the economy and social sphere.

References

- Akimova, T.A., Batonyan, V.V., Moiseenko, O.V., & Haskin, V.V. (1994). *The main criteria for eco-development*. Moscow: Publishing House of the Roseco Academy.
- Bobylev, S.N. (2004). *Russia on the way of anti-resistant development? Questions of economy*, 2, 43-54.
- Cherkesova, Je.Yu. (2012). The human factor in the knowledge economy. *Vestnik Messenger of the South-Russian State Technical University. Socio-economic sciences*, 4, 124-128.
- Dumnov, A.D. (2008). Statistics of environment: past and present. *Questions of Statistics*, 3, 5-18.
- Khabarova, E.I. (2000). Environmentally oriented production management. *Management in Russia and abroad*, 3, 19-24.
- Lukyanchikov, N.N., & Potravny I.M. (2007). *Economics and organization of nature: a textbook* (3rd ed.). Moscow: UNITY-DANA.
- Pakhomov, N.V., & Richter, K.K. (1999). *Environmental Economics and Environmental Management*. St. Petersburg: University Press.
- Ryabushkin, B.T., & Dumnov, A.D. (2003). Environmental statistics and national accounting. *Questions of Statistics*, 2, 23-34.
- Soshnikova, L.A. (2006). Simulation based production and conservation activities on the basis of input-output balance. *Questions of Statistics*, 7, 25-31.