

PROBLEMS OF THE FORMATION OF THE SYSTEM OF ENVIRONMENTAL-ECONOMIC ACCOUNTING

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Abstract

The paper identifies the necessary steps in preparing for the formation of a satellite environmental-economic account: an analysis of the legislative, methodological, institutional and information bases. The possible difficulties in their analysis are considered.

Keywords: data science, environmental-economic accounting, system formation

1 Introduction

Today it is not enough just to analyze economic, social, or environmental systems separately. Requirements for the results of analysis at the macro level are complex. In turn, the introduction of the system of environmental-economic accounting (SEEA) contributes to the expansion of the system of national accounts through additional satellite accounts of environmental topics, that is, the integration of economic and environmental data.

For the formation of a satellite account of SEEA, it is necessary to analyze the legislative, methodological, institutional and information bases.

2 Legislative base

The significance of the legislative base cannot be denied. Despite the fact that scientists can work autonomously, the presence of legislative justification, the consolidation of the need for such information greatly facilitate public understanding of the work done by the researcher.

The legislative base is considered in accordance with the thematic area within which it is planned to form a satellite account. And if, for example, the Law on Environmental Protection and the Law on State Statistics are present in the practice of most countries of the world, then legislative consolidation of SEEA accounts is mainly observed only in developed countries. In particular, the Regulation of the European Parliament and the European Council No. 691/2011 “On European environmental economic accounts” works in the EU countries. In Belarus, the issue of forming the SEEA is reflected in the Strategy for the development of state statistics for the period up to 2022, which can be attributed to the first step on the way to legislative fixation of this issue.

3 Methodological base

The methodological base is the international statistical standard “System of Environmental-Economic Accounting Central Framework” (SEEA-CF), other methodological guidelines developed by international organizations in various areas of SEEA (for example, water resources, energy resources, agriculture, forestry and fisheries), scientific researches.

Based on SEEA-CF [1], as the leading document in the field of environmental-economic accounting, it should be noted that all the accounts of SEEA are divided into three groups: physical flow accounts; asset accounts; environmental activity accounts and related flows. Each of the groups represents the issues of accounting for natural resources and related activities.

Physical flow accounts characterize the involvement of a resource from the environment in economic activity. In SEEA-CF, accounts of flows of energy resources, water resources and flows of materials are defined. Methodologically, physical flow accounts can be called quite affordable, since their coverage is limited to involvement in the economy. Therefore, with the quality of primary accounting and proper consolidation of information, their formation, both in physical and in monetary terms, is more possible.

Asset accounts are formed for the purpose of accounting for a specific natural asset, for example, mineral and energy resources, land resources, timber resources and other biological resources. The fundamental difference in this case is the physical and monetary estimate for the components of the account. The asset account in physical terms is wider than the asset account in monetary terms for the amount of an asset that is not involved in commercial activities.

Environmental activity accounts and related flows capture issues of environmental expenditure analysis, environmental taxes and subsidies, environmental goods and services. This group of accounts is the “most economic”. They are formed only in monetary terms. Their formation is directly linked to the system of national accounts and depends largely on the quality of the SNA.

Despite the fact that SEEA-CF is the leading methodological document in the formation of environmental-economic accounts, it does not limit the actions of researchers to the question of its expansion and the addition of new satellite accounts. For example, FAO as the leading international organization in the area of agriculture, forestry and fisheries along with recommendations from SEEA-CF offers to produce an account of the physical flows of timber resources [2].

At the same time, if you intend to introduce SEEA accounts into the national practice and use a structure that is comparable at the international level, special care must be taken, since the structure of the accounts in different methodological sources may be different. In particular, compared to SEEA-CF, FAO offers a slightly different structure for the forest land asset account and the timber asset account. Also, as compared with SEEA-CF, significant differences are observed in the structure of the water resource flow account recommended in the additional UN guideline SEEA-water [3].

A very urgent task in the present development of SEEA methodology is ecosystem

accounts. Ecosystem accounts, unlike SEEA-CF accounts, characterize environmental services and assets from the point of the ecosystem as a whole, rather than a specific resource.

The definition of ecosystem services offered in the guideline on experimental ecosystem accounting [4] is rather diffuse and characterizes them as a contribution to the benefits used by society in economic and other activities.

In 2013, the first full version of the Common International Classification of Ecosystem Services (CICES), according to which all ecosystem services fall into three categories: provisioning services, regulating services and cultural services. On the example of forest resource accounts, provisioning services include picking berries and preying of game animals; regulating services – carbon dioxide absorption, protection from wind erosion; cultural services – the use of forest for aesthetic, research and educational purposes.

Ecosystem assets include complex systems consisting of both biotic and abiotic components.

In contrast to the accounts formed in accordance with SEEA-CF, methodological approaches to the formation of ecosystem accounts are not currently accepted as a standard because of the multiplicity of existing approaches to their formation and are additionally called experimental.

Analyzing the methodological base recommended at the international level, in order to further introduce into national practice, it is also necessary to keep in mind its nationalization, that is, harmonization with the current national legislation and accounting system. It is also recommended to develop and approve national methodology for the formation of accounts in order to make the future results of the construction of natural economic accounts transparent.

4 Institutional base

The analysis of the institutional base is another important step in exploring the possibilities of forming the SEEA. Depending on the complexity and thematic direction, a SEEA account may be formed within the same department or interdepartmental working group.

The issue of interdepartmental communications never loses its relevance, despite its clarity. Thematic interdepartmental working group is a convenient platform for discussing methodological features, searching for new information sources, as well as verifying results. In addition, it facilitates the exchange of experience and the dissemination of the results obtained. At the same time, world practice shows that the national statistical office acts as a coordinator of work in such interdepartmental working groups. Despite the wide involvement of various organizations in the process of forming the SEEA, this area in most countries is still considered to be more statistical and requires precise coordination and popularization. In Belarus today there are two interdepartmental working groups for the SEEA implementation in national practice: on water accounts and on forest accounts.

5 Information base

Finally, the analysis of the information base is the final stage on the way of preparing for the formation of the SEEA. Information sources for the formation of a satellite account can be thematic official statistical information or administrative data (data from departmental reporting, monitoring, inventories, registries, etc.). When analyzing the existing information base, it is necessary to determine the sources of information, their quality and assess the coverage of the account with the obtained data.

Sources and quality of data are determined through interdepartmental interaction using approximate account layouts. Questions of inadequate data quality often emerge during the formatting of accounts, with the result that measures should be taken to improve them. At the same time, the duration of the data quality improvement process can reach up to a year or more.

After determining the sources, the coverage of the account by data is estimated. As a result of such an assessment, the researcher understands where additional evaluation is required to form an account in full. Methods for additional evaluation are determined by the researcher independently and subsequently reflected in the national methodological paper.

When assessing the information base, it is necessary to note the particular difficulty in compiling of physical flow and asset accounts in monetary terms. Most often, the valuation of natural resources in monetary terms requires additional research and, accordingly, the involvement of additional sources of information.

The considered stages of the analysis of the legislative, methodological, institutional and information bases are a necessary basic work in the formation of the satellite account of the system of environmental-economic accounting. They are universal for any SEEA satellite account. The only difference is the time spent studying them, depending on the complexity of the area being researched.

References

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