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Higher Education for Sustainable Development: Challenges in Russia

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*Peter the Great St. Petersburg Polytechnic University, Polytechnicheskaya, 29, St. Petersburg 195251, Russian Federation** Corresponding author. Tel.: +7-812-545-4248; fax: +7-812- 545-4248. E-mail address: kankowska_alina@mail.ru**Abstract**

Sustainable development must be the basis for the development of a national innovation system in the transition to a knowledge economy. The article analyses the spread of the concept of sustainable development in Russian higher education as a subsystem of the national innovation system. We have analysed state educational standards and educational programmes of universities and identified problems in the implementation of the concept of sustainable development in Russian higher education, and formulated principles for the national innovation system based on the concept of sustainability.

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1. Introduction

Sustainable development is the only possible basis for the progress of the national economy in the context of the deepening of global human problems. It is necessary to discuss and to create a system of principles that implement the concept of sustainable development in all sectors of the economy. Primarily it is essential in the sphere of education, knowledge and innovations, because the development of a national innovation system (or national system of innovation) plays a key role in the transition to a knowledge economy.

Sustainable development has a number of definitions, but the most frequently quoted definition is from *Our Common Future*, also known as the Brundtland Report [1].

In our opinion, this definition quite clearly describes the purpose and objectives of education for sustainable development. The need for activity in the field of environmental education was recognized a long time ago, but “education for sustainable development” is a broader concept. The main objectives of it were formulated in Resolution 57/254 of the General Assembly of the United Nations (2002) [2], which established that education is an indispensable element for achieving sustainable development and

proclaimed the ten-year period from 1st January 2005 to be the United Nations Decade of Education for Sustainable Development.

Russia takes an active part in the regional Strategy on Education for Sustainable Development. On the one hand, Russia is rich in natural resources. On the other hand, there are many plants causing irreparable damage to the environment. So the problem of education for sustainable development has a special importance for Russia.

The history of education for sustainable development in Russia is discussed in detail by Pavlova [3] and Zhevlakova [4]. We agree with them on key problems:

- The role of the government is extremely small.
- The narrow approach – programmes of environmental education, the teaching of natural sciences and different activities in the field of ecology are called “education for sustainable development”.
- A lot of educational projects of all sizes have been realized in Russia, but they have had a local character, used small resources and therefore could not give a systemic effect.

Crotty and Hall [5] note the importance of school education and workplace training, and the necessity of informal routes for persons who have graduated from the school system, such as through non-governmental organizations. In our opinion, these organizations cannot be the backbone in education for sustainable development in Russia, because the Russian social model needs strong government backing.

Thus the goal of the paper is to identify problems in the implementation of the concept of sustainable development in Russian higher education and to formulate principles of the national innovation system based on the concept of sustainability, because higher education is one of the main subsystems in the NSI.

The following tasks are to be done to achieve the goal:

- to examine existing federal state educational standards from the position of the concept of sustainability;
- to analyse programmes of higher education in terms of sustainable development;
- to formulate proposals for the development of higher education as an NSI subsystem based on the concept of sustainability.

2. Overview of Russian national educational standards and educational programmes: data and results

Analysis of higher education in terms of sustainable development in Russia needs the following data sources.

In the Russian Federation, the first level of the system of state regulation of education is the Federal Law on Education in Russian Federation (the newest version—No. 273-FZ—was adopted on 29th December 2012 and came into force on 1st September 2013)[6].

The second level is the system of Federal State Educational Standards, which sets out requirements for learning outcomes in education, including areas of professional activity, objects and types of professional activity and development of competences [7].

The third level is the universities' level, so it is necessary to examine universities' sites and various educational sites to identify admission quotas and the content of educational programmes.

Our analysis of the system of Federal State Educational Standards shows a very narrow approach to the understanding of sustainable development.

The competence model in Federal State Educational Standards includes three types of competence: general cultural, general professional and professional (instrumental). Curricula and content of courses are defined by this set of competences. So if any standard contains a competence, it will certainly be implemented in the learning process. If the standard does not include the competence, we can hope only for the professional standard and teacher with a global perspective. However, the concept of sustainable development is little known in Russian society, as confirmed by Salimova et al.'s research [8]. Understanding of the idea of sustainable development is at a very low level.

The main part of higher education (except medicine) includes 54 groups of educational programmes in eight areas. The total number of educational programs is 179.

We can find sustainable development as an area of professional activity only in four educational programmes: Ecology and Nature Management, Geography, Cartography and Geoinformatics (a group earth science), and Landscape Architecture.

In the next step, we investigated admission quotas to universities. When data were not available for a programme on the university website, we used the averaged data of various educational sites (Table 1). The number of budget places is an important characteristic of Russian higher education, because it shows the government's educational and professional politics.

Table 1. Education in the sphere of sustainable development in Russia.

Educational programmes (Bachelor degree)	Universities	Budget places
Ecology and Nature Management	128	1245
Geography	58	915
Cartography and Geoinformatics	16	397
Landscape Architecture	24	678

An analysis of the list of universities which realize these educational programmes has shown that:

- Predominantly classical universities have Geography and Cartography and Geoinformatics programmes.
- Ecology and Nature Management is realized mainly in biological and geographical faculties. Efforts to implement this educational programme in the economical universities are not supported by the government.
- Landscape Architecture is realized in agricultural and forest technical universities.

Thus, we see a very narrow approach to education on sustainable development at bachelor's level.

At Master's level, these four educational programmes are continued by most universities. In addition, several universities in Moscow and St. Petersburg implement programmes for sustainable management, but in most cases these programmes are double degree programmes with foreign universities, expensive and not very popular. Individual graduates cannot form a new approach to sustainable development.

The leading Russian universities have the right to develop their own educational standards, but this does not bring about a fundamental change in the overall picture. For example, the Moscow State University has an Ecology and Natural Resources programme for the integrated Master's (in fact, it is one unified six-year programme, Bachelor + Master's). Educational standards at the Peter the Great St. Petersburg Polytechnic University are aimed primarily at enhancing professional competence, not at interdisciplinary links.

So, education for sustainable development is concentrated only in a few educational programmes in the field of earth sciences. The National Strategy on Education for Sustainable Development in the Russian Federation [9] declares the aims

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