

Sustainable Universities as an Essential Element of Education for Sustainable Development

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Abstract. The concept of sustainable development (SD) is aimed at preserving life on Earth and ensuring a decent level of life for the present and future generations. It is based on the values of conservation of natural resources, responsible consumption and ethical business practices, and confronts modern global challenges. The transition to SD implies a revision of existing values in the economics, ecology and social life of society. In this regard, education plays the most important role because it is responsible for the formation of the attitudes of the younger generation, and progress in the transformation of formal and informal institutional frameworks. In order to realize these processes, The UN has developed the global program "Education for Sustainable Development (ESD)" and formulated one of the specialized goals in the system of seventeen sustainable development goals approved by the UN for 2016-2030. Higher education plays a special role there, since it not only creates and disseminates knowledge about SD, but also influences the process of making future decisions by managers of various levels. In this context, the concept of "sustainable university" is becoming highly relevant and the experience of its practical implementation is gaining special importance. The purpose of this work is to overview the research papers of Russian and foreign authors to identify the specific features of a sustainable university as a necessary element of ESD.

1 Introduction

Researchers all over the world recognize that education is an essential tool for spreading the concept of sustainable development in society. "Education for Sustainable Development is not only a prerequisite for achieving a sustainable future, but also a priority and proactive means of achieving it, i.e. the transition to SD begins with the formation of education for sustainable development and the formation of a new globally sustainable consciousness"[1].

Higher education, in its turn, plays a special role in this process. On the one hand, the university creates and disseminates knowledge about SD through educational and research activities. On the other hand, the university acts as an active agent in the implementation of the SD concept into its own everyday activities. Taken together, these two areas create

values of sustainable development for both students and university staff. In the face of growing global economic, environmental and social problems, universities create the institutional basis for the implementation of the concept of sustainable development.

In the sphere of higher education, the academic community uses the term “sustainable university”, which is defined as a higher education institution (HEIs) that helps to minimize negative environmental, economic, and social consequences arising from the use of resources at a regional or global level. A sustainable university implements teaching, research, outreach and partnership functions to help a society’s transition to sustainable lifestyles [2]. In other words, a sustainable university is a university that works on the principles of sustainable development through five interrelated concepts [3]:

1. the concept of a green university, declaring and actively using the principles of environmental safety and environmental protection in its daily life;
2. the concept of a smart university that effectively uses all resources and implements modern information technologies to manage its key processes;
3. the concept of healthy lifestyles, providing its students, teachers and staff with conditions for harmonious and comprehensive development, healthy nutrition, sports, rejection of bad habits, etc.;
4. the concept of managing social and cultural diversity, fostering national, racial, and religious tolerance, respect for national traditions, promoting interaction and mutual enrichment of cultures and the realization of equal rights of men and women, etc.;
5. the concept of historical and cultural heritage management, which makes it possible to effectively use the historical and cultural values of a country, region, city, industry, university as intangible development assets.

Despite the recognition of the important role of universities in realizing the concept of sustainable development, the majority of higher education institutions remain traditional. “Many universities are still lagging behind the needs of companies, authorities, and do not provide society with the necessary assistance in the transition to a more sustainable future” [4].

2 Methods

This work is an analytical review of research papers, authored by Russian and foreign scholars, that is carried out by using the monographic method and the method of content analysis. These methods made it possible to identify the specific features of sustainable universities, as well as the main problems and obstacles that arise in the implementation of this strategy.

3 Results and Discussion

The necessary structural elements of a sustainable university are considered by various researchers. To date, one of the most cited is the work of R. Lozano et al. (2015), in which, based on a review of 60 peer-reviewed scientific publications, the following key elements of sustainable universities were identified [5]:

1. Institutional framework: strategy, policy, vision and mission;
2. Campus operation: energy use and energy efficiency, waste and water management, transportation, food procurement, accessibility for people with disabilities, equality and diversity;
3. Education: courses on sustainable development, SD programs, interdisciplinary courses and projects, curricula and teacher training programs;

4. Research: research centers, research funding, SD research used in teaching, publications, patents, new knowledge and technologies, cooperation and transdisciplinarity;

5. Outreach and collaboration: exchange programs on SD for students, joint degrees with other universities, joint research, partnerships (for example, cooperation with business, non-governmental organizations and authorities);

6. Implementation of sustainable development on campus: SD working groups, SD policy for students and staff, practice for students, visibility of sustainable development throughout the campus and employee engagement;

7. Assessment and reporting: SD assessment, environmental reports, sustainability reports, participation in HEIs sustainability ratings, as well as in environmental protection ratings.

The Authors made a conclusion, that many peer-reviewed papers have been published on the subject, with examples on education, and campus operations (mainly through case studies); however, most of the examples in the literature were focused on only one or two elements of the system [5].

Alghamdi et al. (2017) analyzed 12 different models for assessing the sustainable development of universities and identified five essential elements of a sustainable university - Management, Education, University Environment, Engagement and Innovation [6]. The implementation of sustainable development in all these areas gives the best integrated result, compared to universities that introduce SD in a limited way, only in certain areas.

Over the past two decades, many leading universities around the world have been actively involved in the implementation of sustainable development in their academic systems. However, to date, significant results in Russian higher education have not been fully achieved. Only a few universities implement programs and courses dedicated to SD, therefore, modern education at universities provides students with few opportunities to develop the values of sustainable development [7, 8]. Some Russian universities are making attempts to assess their sustainability [9-13]. However, these studies are local. Overall, there is a lack of comprehensive studies of the higher education for sustainable development at the regional or country level. It is possible that comprehensive studies are not being conducted due to the lack of assessment tools for sustainable universities adapted to Russian reality, as well as due to the high costs of data gathering on a sample of universities in the country.

The problem of the implementation of ESD in Russia is also the insufficient popularization of its ideas among a wide range of educational institutions and a slow exchange of experience with foreign countries, in many of which the introduction of ESD is proceeding at a much higher pace [14]. Sustainable development is not a critical goal for universities, if it is not outlined in the university' strategy. The most important functions for the university are education and research. They can be realized without using the SD concept. In this regard, (as the discussion of education managers at the IX International Russian Conference of Higher Education Researchers (2018) showed), university leaders sometimes do not see value in spending time, financial and material resources on these goals which are non-priority for them. This fact confirms insufficient involvement of universities in solving regional, national and global problems and the concentration of attention of university leaders mainly on internal problems. Teachers and students are much more involved SD implementation processes, both independently initiating various kinds of events, and participating in events initiated by other agents. Thus, the educational and cultural space is formed without the participation of the university leaders and their support, which imposes certain restrictions on the development of these processes. This indicates the

importance of understanding of sustainable development values at the highest level of university management and sustainable development inclusion into university strategies.

Unlike Russian universities, the world's leading universities are actively involved in the process of introducing sustainable development principles into their academic systems, which is confirmed by participation in international sustainability ratings. For example, the authors of [15] analyzed 25 different methods that underlie the sustainability ratings of universities. Using expert assessments, the authors evaluated each approach to assessment using 7 criteria and determined a complex index of agreement. The highest index of agreement (70%) was received by the Association for the Advancement of Sustainability in Higher Education (AASHE), which represents 999 universities from various countries (USA, Canada, Germany, France, Greece, Spain, etc.). The peculiarity of this rating is that universities are assigned to levels, not just places (Fig), and each level represents significant sustainability leadership.

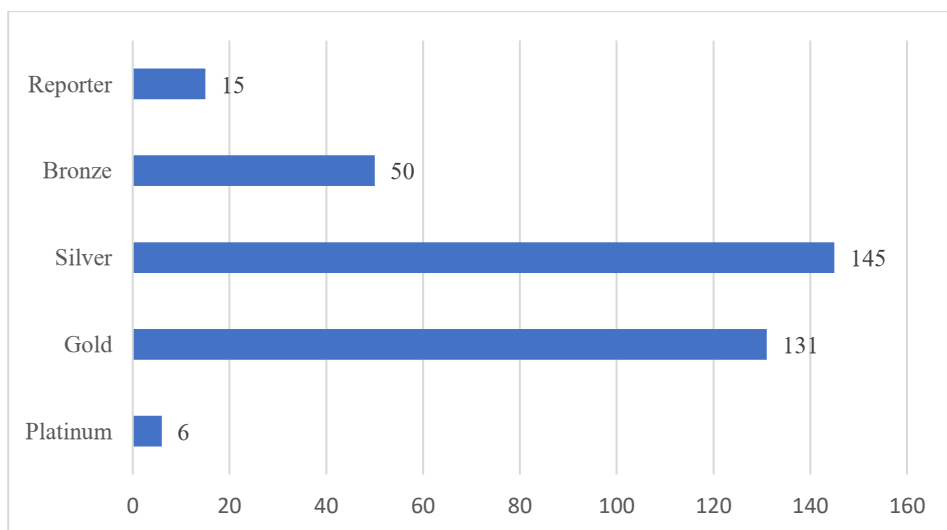


Fig. 1. AASHE Rating of 2020[16]

In 2020, five universities from USA were awarded platinum levels in the AASHE ranking - the University of Arizona, the University of Colorado, Stanford University, the University of California (Irvine) and the University of New Hampshire; and one university from Canada - Thompson Rivers University. It is important to note that none of Russian universities is included in this ranking.

Russian universities are more actively participating in the international ranking of universities - UI GreenMetric World University Ranking. This ranking considers the following criteria: University infrastructure (15%), Energy and climate change (21%), Waste (18%), Water (10%), Transport (18%), Education and Research (18%). The index of agreement in terms of the completeness and depth of assessment of this method turned out to be at the average level (56.1%) [15]. Table 1 shows that over the past 5 years, the number of Russian universities represented in this ranking has been increasing. Over the past 4 years, the RUDN University has taken the best position and has been steadily improving its position in this rating.

Table 1. Russian Universities in UI GreenMetric World University Ranking [17]

Year	Total Number of Universities in Rating	Number of Russian Universities in Rating	The Best Position of Russian University in Rating
2019	780	46	38
2018	719	42	41
2017	619	30	44
2016	516	25	115
2015	407	18	80

Participation in international sustainability ratings offers a number of benefits. Firstly, the university gets the opportunity to evaluate its activities according to clear measurable criteria of sustainable development and compare itself with other universities to understand the directions for further development in this area. Secondly, regular participation in the ratings increases the level of trust to the university from different stakeholders and increases the recognition of the university in the international community. Thirdly, the place in the ranking can be a competitive advantage which can attract students from different countries.

Despite a high level of importance, there are a number of obstacles to the introduction of the ESD concept in Russian universities. First of all, for the transition to education for sustainable development, significant changes are required, which imply the development of new scientific and ideological approaches and fundamental changes in traditional universal human views, values and stereotypes of thinking [18]. As with any new idea, the implementation of the concept of sustainable universities inevitably faces resistance from at least some stakeholders. This resistance can be explained by the fact that people are usually unwilling to change their attitudes and values. In other words, the reason probably lies in internal complexity, since SD requires systemic transformation, and not just adaptation [19, 20]. The university does not function in isolation from the external environment. It has to actively involve itself in the interaction with enterprises, regional and federal authorities, and society as a whole. If stakeholders do not form a certain request about sustainable development competencies of the graduates, it is difficult for the university to implement changes that are necessary for sustainable university development.

According to Scharmer, the problem here is not a lack of awareness of the concept of sustainable development in general. «The problem is a knowing-doing gap: a disconnect between our collective consciousness and our collective actions. In most societal systems we collectively create results that (almost) nobody wants...To address these issues at their root requires two things: new platforms for cross-sector co-creation and an upgrade in the operating system that people use to collaborate—practices that facilitate a shift from ego-system to eco-system awareness» [21]. This confirms that complex system solutions are needed for the introduction of the concept of sustainable development into universities' academic systems.

Researchers paid attention to the issues of the introduction of the sustainable development concept in university actions [20, 22, 23]. The authors agree that introducing the concept of sustainable development at the university requires an integrated approach, which includes both the active participation of the university leadership (inclusion of SD in the mission and strategy, the creation of special departments, budget allocation, etc.), and participation of all stakeholders (students, teachers, etc). This approach presupposes full involvement of the entire university community in ensuring the sustainable development of the university and is able to provide the best result.

Due to the fact that a broad experience of SD implementation in the activities of universities has been accumulated at the international level, Russian universities can be guided by successful models and adapt them to the national higher education system. The study of successful practices will help not only to determine the sequence of steps in the development of a sustainable university but can also provide information on the main problems that arise at various stages of the implementation of such a strategy.

4 Conclusion

Thus, today researchers recognize the high importance of universities in implementing the concept of sustainable development. Given the importance of the higher education system in society and the potential for mutual learning among different stakeholders, higher education has a unique potential to accelerate society's transition to sustainable development. However, research by Russian and foreign authors shows that this unique potential is not fully used. For the emergence and development of sustainable universities, additional research into the Russian education system is required, on the one hand, and more comprehensive, systematic and coordinated solutions at the top management levels, on the other.

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