



## ECO-EDUCATION in SUSTAINABLE DEVELOPMENT of SPORT

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### Abstract

*Introduction.* Harmonious development of humanity is to transfer health care and improve the moral and psychological climate of people. Reaching these targets is not possible without a daisy-chaining to nature, rational use of natural resources. One of the most important aspects of the eco-friendly activity of sports organizations is an environmental education. Implementation of various environmental programs by international and national sports organizations throughout the world is clearly showed its importance.

*Aim* is to find out the core structure and components of environmental education, as a fundamental of sustainability of sports.

*Material and methods:* analysis of literary sources, documents in the Internet, monitoring of ecological content in the mass media, system-functional analysis.

*Results.* In the context of our research, special attention has been given to the creation of eco-friendly mindset as a special form of perception, the characteristic signs of such a perception, the system of principles, views, ecological knowledge, values, assessments, activities in the system “Nature – Person – Society”. Eco-friendly mindset has been stated to be viewed from three sides: training, education, and enlightenment. As a result of research it was found that the further development of the Olympic movement involves the formation of appropriate environmental infrastructure of sports, environmentally oriented worldview of specialists in physical culture and sports, study and adaptation of the principles of sustainable development for Olympic sports in Ukraine.

*Conclusions.* International and national experience is provided to indicate the high efficiency of the creation of eco-friendly mindset of young people while participating in sports events. In its turn, it changes mind for high creative self-realization, physical growth, social efficiency, psychological health of the personality.

**Keywords:** sustainability, eco-friendly mindset, ecological education, eco-sport.



**Introduction.** In the XXI century sports society plays a significant role in solving environmental issues. Most scientists [3, 9, 17, 20, 27] agree with the fact that sport is tightly connected with nature. For sportsmen clean environment is crucial. Furthermore, some sports are directly related to the environment being not only the source of inspiration but also determining the level of world records.

Obviously, harmonious development of humanity is to protect the health and support ethical and psychological climate among people. Solving these issues is impossible without careful handling for the environment and sustainable water and resource consumption. That is why environmental education is one of the most important areas of many sports organizations' environmental management as well as the ones of the National Olympic Committees (NOCs further) directly. The importance of this area is shown in different environmental programs actively implemented by international and national sports organizations in recent years.

The most significant contribution into international experience of solving environmental issues in sports was made by the following authors: S. Poliiievskiy [9], S. Anastasiadis [19], L. Dacosta [20], J. Karamichas [24], B. McCullough, T. Kellison [27] and others.

The authors Y. Imas, S. Futorny, O. Tsyhanenko and O. Yarmoliuk [3] guess that the ecology of sports can be simultaneously considered in two aspects: as one of the new area parts in ecology of sports, and as a new environmental science. As O. Tsyhanenko and N. Skliarova see it [17], the main objective of ecology of

sports as a science and aspect of practical activity consists in environmentalization of activity within the sphere of sports that is the process of environmental protection development in the area of physical education and sports, and implementation of the principles and regulations of general ecology into practical activity of physical education and sports organizations.

The United Nations Educational Scientific and Cultural Organization (UNESCO) claims that environmental education is crucial for broadcasting respect towards nature among citizens and increasing social environmental awareness. UNESCO emphasizes the role of environmental education in providing further development and quality of life via environmental protection, poverty reduction, minimization of inequality and providing sustainable development [29].

Environmental education is shown in the works of I. Bondar [1], A. Sadovenko, L. Maslovska, V. Sereda, T. Tymochko [13], A. Lewin-Benham [25]. It is worth noting that system approach to the analysis of environmental education as part of sustainable development at a national level was not realized in the researches. Studying the content and components of environmental education in physical education and sports organizations as a phenomenon caused by not only internal needs of Olympic movement but principally by the needs of nowadays society requires detailed scientific analysis.

**Connection of the work with important scientific programs or practical objectives.** The research was held as part of the topic «Olympic



Education in the System of Educational Process of the Rising Generation» in accordance with the Plan of scientific and research activity of National University of Ukraine on Physical Education and Sport for the years 2016-2020 being completed in the laboratory of Olympic education in National University of Ukraine on Physical Education and Sport. The author's role consists in substantiating the relevance of environmental education implementation into the system of Olympic education in Ukraine.

**The aim of the research** was to determine the content and components of environmental education as part of sustainable development of sport.

**Material and methods of the research:** analysis of literary sources,

documents from the Internet, monitoring environmental content in the mass media, system and functional analysis.

**Results of the research and discussion.** According to the World Health Organization, healthy lifestyle consists of three components: physical education and sports, rational nutrition, and every single one's responsibility for preserving their health [30].

In the works of many scientists, particularly, the ones of V. Latkina, T. Rudieieva, and A. Skibitska [4] various components of a person's healthy lifestyle are displayed, which includes not only favourable financial and household aspects and habits of a personality but also their outlook formation, as we consider (fig. 1).

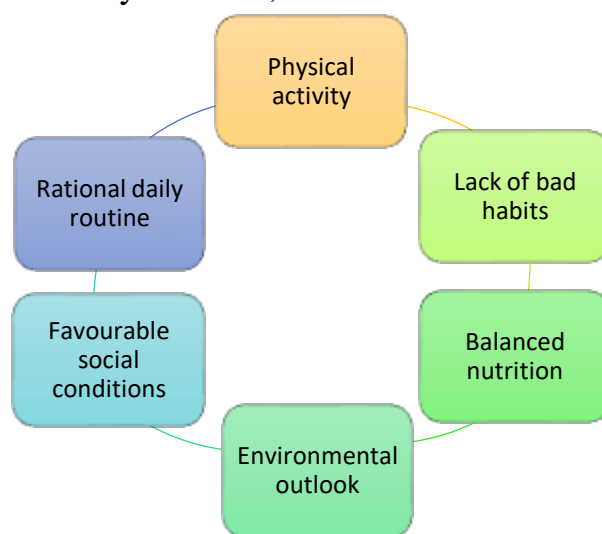


Figure 1. The main components of a person's healthy lifestyle

Outlook stands as a system of views at the objective world and a place of a person in it, at a person's attitude to the environment and themselves as well as people's main life positions caused by these views, their beliefs, ideals, principles of cognition and activities, and

value orientations (fig. 2). Thus, I. Nadolnyi [5], and I. Khairullina [16] analyze the outlook as a system of views determining general focus of a person's activities and behavior and is the highest synthesis of knowledge, practical experience and emotional assessments.

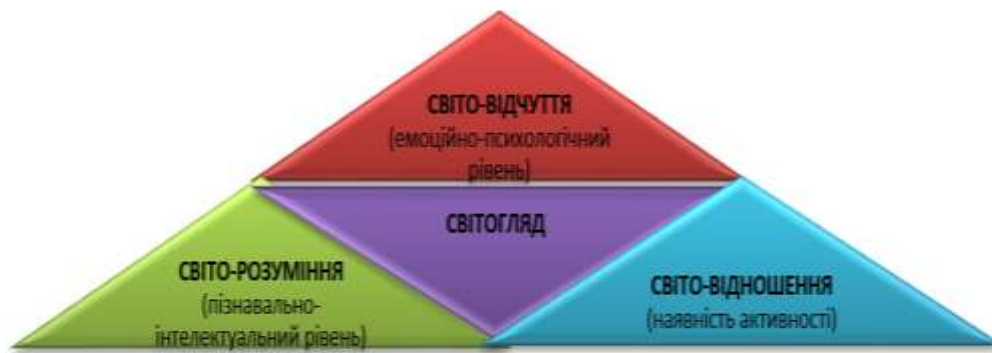


Figure 2. A personality's outlook (by V. Shynkaruk [15])

As part of our research, the issue of forming environmental outlook as a particular form of world view having a system of principles, views, environmental knowledge, values, assessments, beliefs and practical guidelines determining the place of a human in the world, their life position, lifestyle and action program within the system «nature–human–society» as special characteristics gets significant importance (fig. 3). If a person understands what exactly a kind of

development depends on (from environmental to spiritual level), their interrelation and system development having got the name of sustainable development, a kind of outlook is formed.

As some prominent scientists see it [2, 13], the main priority during sustainable development formation is creation of an idea of nature as aesthetic and ethical value as part of social awareness, and forming an adequate environmental behavior.

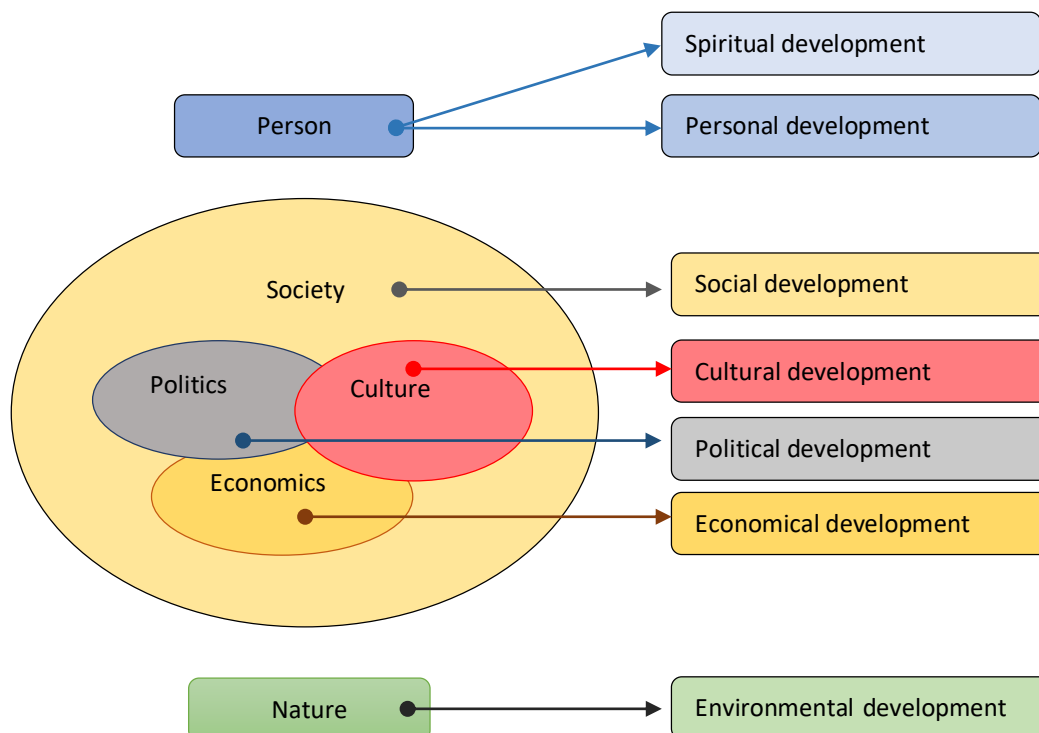


Figure 3. Environmental outlook of a person in the system «Nature–Society–Person»



The approach based on exact results towards welfare increase and environmental stability includes creation of environmental culture as means of spreading environmental education and raising, giving more information on environmental issues to citizens

As it was noted in the Olympic Charter [6], in the system of international Olympic movement also care of environmental protection, following environmental principles of sports development, and holding the Olympic Games in accordance with environmental standards are determined. In the social context, sustainable development has its impact on:

- forming environmental culture among citizens via involving them into physical education and recreational as well as sports activities;
- increasing the level of environmental awareness among the citizens of the country via holding massive sporting events as the Olympic Games, European or world championships;
- forming environmentally-oriented outlook among youth involving them into to education programs lead by IOC, NOC, international community and environmental organizations;
- development of sports infrastructure, implementation of environmental norms and standards of sports venues;
- creating new image for physical education and sports organizations which would be related to care of the environment and use of innovative technologies of

environmental protection;

The process of developing a personality's environmental outlook is advisable to consider at three sides: education, raising and teaching. *Environmental education* is a sustained process of mastering values and notions aimed to develop skills and relations important for understanding and assessment of interrelations with the environment. It is worth noting that environmental education is a set of components such as environmental knowledge, environmental outlook, environmental ethics, and environmental culture [1]. But the knowledge is not the only one leading to environmentally relevant behavior.

It is notable that one of the important vectors of implementation of sustainable development of the physical education and sports area is forming environmental culture among citizens via:

- careful attitude towards using environmental resources while doing physical activities;
- personal responsibility to the society for creating and preserving favorable environment while organizing and holding physical education and recreational lessons, sporting and training activities, and massive sporting events as well as in the course of producing and selling sports industry products;
- conscious following of environmental rules and requirements.

The main objective of environmental education, as the scientists see it [13, 13], is developing environmental culture among individuals and the society as a whole, developing the skills, fundamental



environmental knowledge, environmental thinking and awareness based on treating the nature as a universal and unique value. Environmental education, on one hand, should be an independent element of the general education system, but on the other hand, it should complete an integrative role in the whole education system.

The main components of developing environmental culture of citizens include:

- environmental teaching;
- preschool, school and extracurricular environmental education;
- special education based on educational institutions;
- vocational retraining and advanced training of the principals and specialists of physical education and sports organizations;
- conducting scientific researches and spreading environmental knowledge.

Today, one of the issues causing the most concerns among society nowadays is environment and its pollution related to holding massive sporting events. Overproduction and constant growth of consumption in sports industry is one more issue causing concerns in many countries as industrial production causes environmental pollution and excess energy expenditure.

Almost all sporting enterprises implement innovative decisions towards increasing the efficiency and decreasing energy expenditure at the same time. Implementing innovative subjects about increasing the efficiency and decreasing the expenditures has active support at the country level as part of

environmental programs. Thus, as far back as 2005, the Swedish government initiated tax discounts for energy-intensive industries in return for their development of measures towards decreasing their energy consumption. The aim of the government consisted in creating projects, notably in sports industry thanks to which in the year 2020 energy consumption was made 20% more efficient compared to the year 2008 [18].

More than 99% of waste in Sweden is recycled and reused by one means or another. This phenomenon has already been called «the Swedish recycling revolution» [18]. No other country in the world has managed to make the dream of non-waste production as close or ensure clean surface waters and ozone layer. It has a positive impact on giving lessons open air and creating conditions for eco-sports.

If we take into consideration that each average inhabitant of the planet produces a few tons of household waste a year, this observation will give an opportunity to predict what our planet can turn to in a few years if we do not take special measures. Sweden belongs to those countries having managed to succeed in the area of waste management and recycling. Only 0.7% of household waste in Sweden is managed via burying at specialized landfill sites; at the same time, in the European Union this indicator accounts for 34% [18].

Environmental education obtains one of the highest rates in the world from this perspective. Thus, in most European families there are a few containers for different types of waste. On the territories of sports venues and



during sporting events a few containers for waste are installed compulsorily. The importance of waste sorting has settled in the Europeans' minds so profoundly that most citizens do that unconsciously. Municipal authorities are responsible for organization of collecting and managing waste. Their responsibilities include also informing the inhabitants of the rules and ways of managing household waste.

One more means which Sweden uses to solve environmental issues is implementing innovative environmental decisions. The state government has already invested more than 400 million kronas in research and development in the area of the environment and its protection. Among the most well-known developments there are bio-fuel, intellectual power grids, and carbon collection and storage. In 2019, the expenses on scientific researches and developments accounted for 3.3% of GDP being the fourth indicator in the Organization for Economic Co-operation and Development [18].

Care of air purity made the Swedish search for the ways of replacing fuel and petrol. Bio-fuel being obtained from food and organic waste, electricity and ethanol are alternative fuel sources having widely spread in Sweden. A lot of Sweden plants as well as all state institutions are changing their transport park, namely rejecting the cars using fossil fuels and learning to use electromobility which are environmentally friendly. In fact, almost all city buses and coaches are using bio-fuel and ethanol. These are only a few measures by means of which Sweden is striving to eliminate fossil fuels and promote air purity from harmful emissions. The tasks to reduce

greenhouse gas emissions by 40% until the year 2020 compared to 1990, and get totally rid of harmful types of fuel until 2030 refer to priority aims of Sweden's environmental policy [18].

A range of the environmental programs mentioned above determine the level of culture, consciousness and awareness of citizens in matters of importance of environmental protection as for implementing such projects the citizens have to be mentally ready.

The process of environmental education among citizens is no less important. Today, the world community does not have plenty of time left to implement and realize environmental protection projects. Nowadays society is distinguished by the rate of production and consumption having technological progress in all spheres of activity as a reason. That is exactly why environmental education has to be distinguished by rapidity and universal accessibility.

Determining the role of natural factors in educational, recreational and sports processes you can also notice that the relation between sports, physical education and the environment was developing in the course of time. In the middle XX century, in the International Manifest for Physical Education (1973) the International Federation of Physical Education noted it as «the component of education systematically using physical workload and the impact of environmental components: the air, sun and water as special means used in physical education to diversify the means of physical workload» [22].

Thirty years after, adapting to the new social, sporting and environmental realia the same organization expanded the sphere of influence of physical



education in their new Manifest (2000) having added the relationships between physical education and tourism: «Tourism can become the way to sustainable development and not to ruin natural areas» [22], namely between physical education and the environment, according to the Agenda for the XXI Century UN Conference on the Environment and Development having taken place in Rio de Janeiro in 1992.

The UN Program on Environmental Protection determines that: «all individuals responsible for any manifestations of physical education must efficiently contribute into the development of healthy coexistence with the environment with no negative consequences including spending costs aimed for this objective and equipment mostly exposed to recycling without polluting materials» [12]. As part of physical education the term «natural zones of usage» spread to care of «natural areas» due to their environmental value and necessity of their protection [11].

The results of the conducted monitoring of environmental content in mass media provide the reasons to claim that reporting on the relationship between the nature and a human must be reviewed. In the educational environment in the course of changing global perception of the relationships with the nature a new pedagogical vision of environmental issue must be proposed, the transfer from «learning using the environment» to «learning for the environment» forming adequate behavior towards the environment.

Nepal has been implementing the projects for controlling accumulation of waste on the Mount Everest since 2011. The government has consolidated all

their efforts with mountaineering associations, the army and local environmental organizations to manage a specialized expedition to Everest for cleaning the polluted areas of the highest mountain in the world. The expedition was aimed to gather 10 tons of rubbish in 45 days. As late as during the first two weeks the group gathered 3 tons of rubbish [28]. The aviation as military helicopters was engaged in this environmental campaign.

The next stage of the program of cleaning the Everest was rendering a «deposit» for alpinists in 2014. The Nepal government, namely the Ministry of tourism has made a decision to clean the Everest by efforts of tourists. Every tourist had to bring not less than 8 kg of rubbish to base camp disregarding their own. Before beginning to cover tourist routes on the Everest every alpinist had to make a deposit of \$4000 being given it back after arriving at the base camp where the tourists demonstrated the rubbish gathered on the route as evidence [28]. China for their part has forbidden amateur alpinists to climb the Mount Everest to reduce the negative impact on the environment.

Since 1970s, the International sports and Olympic Movement has drawn particular attention to the impact of sports on the environment developing environmental thinking in the sports industry. In 2001, at the World Summit for sustainable development having taken place in Johannesburg (the South African republic) the benefit and deficiencies of the Olympic Games as part of environmental friendliness and issues of sustainable development were discussed. The motto «the sports chance of peace» was considered at the summit commemorating final approval of



environmental friendliness as the main concept of «green» Olympics.

Sports competitions began to be used for drawing attention to global environmental issues, conducting researches and creating harmonious relationships between the society, sport and environment. This has led to emergence of the new term «ecology of sports» aimed to build interrelation between physical, cultural and natural environment as well as harmonization and development of sports society revealing environmental friendliness of the sports movement in the nature [3]. For its part, it influences human health and reflects the care for the environment and society, namely for the values and culture of Olympism.

Researching environmental issues in sports gives an opportunity to distinguish environmental sports – a range of sports including direct interaction with the environment, where the philosophy of sports and environmental thinking are revealed forming sports ecosystem. For its part, sports ecosystem is going to reveal all the aspects of interrelation between sports and the environment. The definition of environmental sports gives an opportunity to give environmental education availability for the citizens and provides firmness in the conscious of the society.

Forming environmental outlook among people takes place due to the impact of the environment and principally in the course of practical activity. It is relevant to realize environmental education by means of programs for teaching children beginning from preschool age via implementing adequate training aids. Apart from educational projects, as A.

Lewin-Benham recommends [25], it is worth creating and producing brain boardgames for children, and active games reflecting the idea of care for the environment. It is relevant to form the habit of managing waste using games as late as in childhood as an important factor of massive environmental projects realized at the country level.

The following stage is to create physical education and recreational environment at the stage of school development. It has to include practical extracurricular lessons of physical education and environmental activities by their form and content orienting students on:

- interrelation of human activities and ecosystems' condition;
- responsible treatment towards the environment;
- creating environmental grounds for physical education and recreational lessons;
- raising environmental ethics and its firmness towards sports.

The aspects mentioned above can be realized by creating a training course in environmental sports, namely tourism, trekking, canoeing, etc. The training course in ecosport can become one of the main channels of distributing environmental information for the youth, learning about treating natural resources, convey the importance of the environmental sports' philosophy, promoting the process of deeper consciousness among citizens and sustainable development of sports. Thus, in many countries the youth is engaged in environmental campaigns aimed to care of the environment, preservation and recovering of environmental balance on a particular territory.



One of the examples of forming environmental outlook can serve the UNEP activity having created the «Dream» camp for nature and sports enthusiasts where the children living in one of the poor districts in Nairobi (Kenia) are given training. In the camp, there study more than 300 children who get not only physical education lessons and competitions in sports but also get acquainted with the forms of environmental preservation, take part in environmental protection campaigns and even in the relay of managing household waste [26].

By the results of the researches, the efficiency of engaging the youth in physical education and sports events aimed to develop environmentally-oriented outlook was established. Thus, the Organization Committee of Youth Summer Olympic Games having taken place in Buenos Aires (Argentina), in 2018, developed a massive educational program in environmental education for schoolchildren and student youth while holding the Olympic competitions (fig. 4). The children took part in sporting events in the «Green» Olympic park, as well as in biology and science educational projects.



Figure 4. **Educational eco-programs for the youth at the Youth Summer Olympic Games in 2018 (Buenos Aires, Argentina)**

Taking part in All-Ukrainian massive sporting event among children «the Olympic child stork» held annually by NOC in Ukraine since 2011 also plays an important role in developing environmental outlook among youth. The event is aimed to realize one of the most important aspect of the International Olympic Committee activity – to encourage the children and youth all over the world to engage in sport, perceive its philosophy, and live in accordance with the Olympic values – friendship, accomplishment and mutual respect as well as engaging the children and youth in active physical activities and sports adopting them to

healthy lifestyle. Thus, in 2019, more than 70 thousand of 12-14-year-old students from more than five thousand schools all over the country joined the event [7].

One more prominent national level example implemented by the Sporting student community of Ukraine together with the Ministry of Education and Science of Ukraine and the «Sports and the Environment» Committee of the NOC in Ukraine is All-Ukrainian race among student youth «Green Mile». At 11 o'clock, in all the regions of Ukraine at the central streets of the cities, villages or park areas and stadiums the race of the students from



higher education institutions covering the distance of one mile takes place at the same time. In 2020, 30 thousand students from almost 300 educational institutions of Ukraine took part. Namely, in Kyiv 1000 students from different higher education institutions of the capital city ran [10].

To develop theoretical basis of sustainable development of the sphere of physical education and sports in the National University of Ukraine on Physical Education and Sport scientific researches are conducted. In 2018, at the sports medicine department the master's degree program «The ecology of sports» was established. In the course of studies the students will gain fundamental knowledge in the basic regulations of ecology as a science, system of environmental protection, methodology of environmental management and marketing in sports, environmental health and functioning of internal systems of the body based on the specificity of physical education and sports area. Also the students at the bachelor's degree gain knowledge in the peculiarities of environmental protection activity in sports within the following courses: «History of the Olympic movement», «Relevant issues of modern physical education and sports», and «Management of sporting venues».

Developing the new concept of eco-sports and increasing the environmental level of sports education it is relevant to:

- consolidate the terms «human», «sport», and «environment» harmonically;
- research and build the system of sports courses in ecology, and accomplish modernization of the

studying content;

- adopt the methods and means of teaching physical education to an environmental course;
- develop new products of teaching in the sphere of ecology.

In general, school has to guide students for the way of healthy lifestyle and careful treatment of the environment, revive active interest to sports tourism and physical activity according to physical and mental characteristics of students, and try to reduce the harmful impact caused by sports, some sports technologies and products of sports industry.

The stage of development of environmental education via implementing it in the higher education institutions' programs includes increasing the previously acquired practical skills and abilities. Such approach requires practical learning to interact with the environment as well as with other means of physical education, recreation, and tourism.

Solving common tasks students help each other which allows improving mutual understanding and reveals the following qualities: empathy and mutual support. Environmental education promotes spreading ideological and ethical improvement of the youth and develops diligence as well as the sense of responsibility. Environmental education is revealed by means of physical education via organizing such events as setting up the camps for collecting rubbish, hiking, getting the sports grounds ready and clean for their further usage, holding competitions in environmental sports or those being directly related to the environment, for example, water sports.



Taking part in such events the students can get and improve their knowledge in ecology, increase environmental responsibility, develop the corresponding moral qualities apart from getting modern education.

This gives an opportunity to manifest care of the environment and preserve natural resources.

### **Conclusions.**

Establishing the NOC of Ukraine has a significant historical meaning for Ukrainian sport. Creating such organization caused the opportunity for self-holding management of the Olympic movement development within the country and establishing direct contacts with IOC, international sports federations and taking part in the Olympic Games with independent teams. Ukraine has gained the right to manage the funds according to the «Olympic solidarity» program, conclude the contracts with sponsors, and refer the received funds to the realization of environmental projects, its protection and implementation of the sustainable development concept in sport.

As a result of the conducted researches, it was established that further development of the Olympic movement required developing of corresponding nature-oriented sports

infrastructure, environmentally-oriented outlook among the specialists in the sphere of physical education and sports, studying and adaptation of the principles of sustainable development for the sphere of Olympic sports in Ukraine.

The international and national experience shows high efficiency of developing environmentally-oriented outlook among the youth during holding mass sporting events letting arrange conditions for high creative self-realization, physical capability, learning, work and social activities, psychological comfort; a personality's psychophysiological abilities are disclosed the most fully, the process of their self-improvement becomes more intense.

### **Prospects for further research.**

The monitoring of the «Sport and the environment» NOC Committee of Ukraine and the Olympic Academy of Ukraine towards implementing environmental and teaching projects will make it possible to improve theoretical knowledge of implementation of the concept of sustainable development in Ukraine and establishing the system of environmental education in sports of Ukraine.

### **References:**

1. Ecological education for sustainable development in questions and answers: scientific and methodical manual for teachers / ed. OI Bondar. Kherson: Grin' D.S., 2015. 228 p. Ukrainian
2. Imas Ye, Shinkaruk O. Sustainable development and heritage in a global environment: ecology and sports. *Theory and methods of physical education and sports*. 2018;3:110-9. Ukrainian
3. Imas EV, Tsyganenko OI, Futorny SM, Yarmolyuk OV. Ecology of sport: monograph. K.: National University of Physical Education and Sport of Ukraine, publishing house Olympic literature, 2018. 256 p. Ukrainian



4. Latkin VV, Rudeeva TV, Skibitskaya AV. Basic principles of a healthy lifestyle of students: textbook. Krasnodar, 2004. 113 p. Ukrainian
5. Nadolnyi IF. Worldview is a key problem of human cognition and activity. Bulletin of NAPA under the President of Ukraine, 2015;4:50-4. Ukrainian
6. Olympic Charter. August 2, 2016. International Olympic Committee. Lausanne, Switzerland. Available from: [http://noc-ukr.org/about/official\\_documents/olympic-charter/](http://noc-ukr.org/about/official_documents/olympic-charter/) Ukrainian
7. Official page "Olympic Stork: NOC of Ukraine", 2019. Available from: <http://lelechenya-noc.org/archives/3793>. Ukrainian
8. Environmental protection is everyone's concern. Olympic Academy of Ukraine, 2020. Available from: <http://oau-ukr.com/diialnist-oau/olimpiyskyi-sport/okhoronadovkillia.html>. Ukrainian
9. Polievsky SA. Sports ecology: Textbook. M.: Infra-M, 2017. 256 p. Russian
10. Regulations on the activities of the Commission "Sport and Environment" of the NOC of Ukraine, 2020. Available from: <http://noc-ukr.org/about/structures/commissions/environment/regulation>. Ukrainian
11. Agenda for Action for the 21st Century: Adopted by the United Nations Conference on Environment and Development in Rio de Janeiro (Planet Earth Summit, 1992). K.: Intelsfera, 2000. 360 p. Ukrainian
12. United Nations Environment Program. Available from: <https://www.unenvironment.org/ru/explore-topics/obzor-sostoania-okruzausei-sredy>
13. Sadovenko A, Maslovskaya L, Sereda V, Tymochko T. Sustainable development of society.. K.; 2011. 392 p. Ukrainian
14. Strategic measures of the UN Environment Program aimed at solving emerging environmental problems. Available from: <http://www.unep.org/gc/gc22/Document/K0360199-r.doc> (accessed: 5.08.2020)
15. Philosophical Dictionary / Edited by V.I. Shinkaruk. Kyiv: Main edition of the Ukrainian-Soviet encyclopedia, 1986. 798 p. Ukrainian
16. Khairullina YuO. Worldview culture of personality: structural and functional analysis: monograph. K.: Published by NPU named after M.P. Drahomanov, 2011. 235 p. Ukrainian
17. Tsyganenko OI, Sklyarova NA. Ecology of physical culture and sports as a science and prospects of its teaching in universities of physical education and sports. Physical education of students. 2012:109-114. Russian
18. A Swedish Strategy for Sustainable Development – Economic, Social and Environmental. Swedish Ministry of the Environment, 2004. 24 p.
19. Anastasiadis S. Olympics and Sustainability. Oxford Brookes University, 2012. Available from: <https://radar.brookes.ac.uk/radar/items/72dffd8-e3b8-9cce-a37b-c3d01349a4ad/1/>
20. Dacosta L. Environment and Sport. An International overview. 1997. Porto, Portugal. 294 p.
21. Duffy A. The Olympic Agenda 2020: A Global Reset for Sport, Sustainability and Legacies. 2015. Available from: <http://tsss.ca/2015/03/the-olympic-agenda-2020-a-global-reset-for-sport-sustainability-and-legacies/>
22. International Federation of Physical Education, Fitness and Sports Science Association, Reg. No.594. Available from: <http://www.ifpefssa.org/>
23. IOC Sustainability strategy: Executive summary. IOC, 2016. Available from: <http://touchline.digipage.net/1-1>.



24. Karamichas J. Olympic Games and the Environment: Sport Canada. Queen's University, Belfast, UK. 2013. 224 p.
25. Lewin-Benham A. Eco-Education for Young Children: Revolutionary Ways to Teach and Learn Environmental Sciences. Routledge, 2019. 340 p.
26. Long-term strategy for sport and the environment of the United Nations Environment Programme. Twenty-second session of the Governing Council. Global ministerial environment forum: UNEP. Nairobi, 2003. Available from: [http://www.unep.org/spanish/sport\\_env/documents/michezo\\_strategy.pdf](http://www.unep.org/spanish/sport_env/documents/michezo_strategy.pdf)
27. McCullough BP, Kellison TB. Routledge Handbook of Sport and the Environment. Routledge, 2017. 468 p.
28. Saving Mount Everest – Waste Management Project. Available from: <http://www.savingmouteverest.org/index.php?id=67&L=1>
29. United Nations Educational, Scientific and Cultural Organization. 2014a. Ecological Sciences for Sustainable Development. Available from: <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/capacity-building-and-partnerships/educational-materials>
30. World Health Organization. Regional Office for Europe. Healthy living: what is a healthy lifestyle? Copenhagen: WHO Regional Office for Europe. 1999. 19 p.

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