

## ENVIRONMENTAL EDUCATION AND CULTURE

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## **SOCIETY AND NATURE: BACK TO HARMONIOUS RELATIONS**

One of the most pressing tasks of high culture is establishing harmonious relations between nature and society. Not only Russia's southern areas but virtually the whole world is in full measure experiencing nature's response to treating it improperly.

The world is now at war with an invisible enemy, this invisible enemy being man himself. Humanity, through inconsiderately exploiting, subduing nature, its habitat, is waging a war against itself, since man and nature constitute one interdependent whole in our Universe.

Nature severely warns humankind that it is inadmissible to treat it like that any more! Such kind of behavior is nothing but terrorism towards nature. In many respects, this is why nature's collective intellect responds to unwise humans with growing disturbances: earthquakes, volcano eruptions, floods, fires, tornadoes, hurricanes, tsunamis, soil degradations, desertifications, epidemics, epizootics, and many other natural cataclysms that shake each and all continents.

Recognizing that the situation is catastrophic, we cannot already expect any "benefits from nature" (Ivan Michurin, Doctor of Biology, once said, "We cannot expect any benefits from nature – our task is to take them from it"). Our task is not to take but, rather, to give back, to repay by cognizing the objective laws nature lives and is reproduced by. It is necessary to rebuild legitimate moral relations between man and nature. Reasonable self-restraint of consumption is what we owe to nature. What is meant here is our sense of moderation, prudence, culture rather than asceticism.

If nothing is changed, it will be even worse tomorrow. Unfortunately, we do not learn much from life. We are directly presented with a live relationship between what happens on earth by people's wish and nature's response to this. Moreover, our science is already close, on the one hand, to the comprehension of the core relationship between the spiritual and moral state of nations and ever more destructive environmental cataclysms and, on the other hand, to the recognition of the fact that the spiritual potential of nations, when awakened, is capable of suspending, balancing, transforming almost any kind of negative manifestations of nature.

However, we are generally too stubborn and obtuse to notice this relationship and continue to treat nature in the way we like.

The time has come when sweeping changes are requisite. All nations, their elite, state leaders should recognize this. Indeed, life has become so complicated, with so difficult relations among people and within the contradictory integrity that is formed by nature and society, that politicians and diplomats alone will not be able to cope with the arising difficulties. On the other hand, we cannot trust them alone with tackling these issues. That is why it is necessary to actuate the whole cultural, scientific, and spiritual potential of the world. Building an ecological culture for all people on Earth is becoming one of the currently important and urgent tasks of contemporary time.

**Human vital activities should be directed at  
harmony with nature and be based on the  
moral principles of environmental culture.**

Humanity, surviving through one ecological catastrophe after another, has not yet apprehended the perils of industrial civilization.

With each stage of evolution, trusting in unrestricted capabilities of scientific and technological progress, people have progressively more neglected expanding their intrinsic forces, improving their awareness, and accordingly developing their ethics and morality. Satisfying social needs has become the overriding purpose of human society's development. The market-based economy has led to final burying in oblivion of the principles of common good. The disproportion in the progress of human technical thought and morality is the actual cause of existing ecological disturbance on Earth.

In recent decades, the world community has been looking for ways to prevent this terrible catastrophe, and these efforts have met with success: low-waste, resource-saving technologies have been created, economic and legal mechanisms for meeting environmental nature-management restrictions have been established, and standards for assigning resources for setting up various environmental funds, etc. However, it is generally agreed that we lack a "social will" for introducing them into our economic practices. In this connection, great hopes were pinned on the World Summit for Environmental Protection in Johannesburg (South African Republic, 2002). Yet, its outcome was found to be deeply disappointing throughout the world. It became apparent that economically advanced countries do not want to make their production environmentally sound while developing countries just cannot do that. All countries refer to financial difficulties whereas the world market's cash turnover is more than enough for remediation of the globe. We are essentially facing a deep spiritual and moral crisis of the economic community, which makes its transition to environmentally sustainable development infeasible.

Successes of technological progress have introduced improvements and comfort into our life but at the expense of thoughtless destruction of forests, depletion of soils, and pollution of water and air. Cupidity and the lack of the sense of proportion regarding consumption run counter to the evolutionary laws of life, because they entail more destruction than creation and lead humankind to degradation and nature to destruction.

Grasping the gravity of the situation, it is necessary to overcome the tendencies that endanger life and stop consumer aggression against the world of nature. Today, this is a critical task of our general culture and, therefore, it may be defined as ecological.

Environmental culture elevates the meaning of human activity to the awareness of the evolutionary requirements of the entire Universe that is developing in compliance with the laws of Unity. It is time to implement the principles of environmental culture practically, rather than orally, if we are really interested in the continuation of our own history.

This first of all means establishing environmental morality in all areas of our activity. Religion, science, and art should help do that. These spheres with the totality of their capacities may become the driving force for the retention of the creative role of man on Earth. This challenge is pressing for humanity in the whole history of its existence and may be met through combining the synergies of all nations of the planet on the basis of their cooperation.

United humankind has not yet faced a common spiritual and educational challenge of that extent and that complexity. However, the real state of affairs on the globe and the extremely limited timescale (taking into consideration the large scale and dynamism of destructive processes) available for correcting the situation make it incumbent upon us to set to work immediately, without delay. To this end, humankind has an essential scientific and technological, intellectual, and material potential, but to use this potential for these generally valid purposes, it is necessary to overcome the confrontation of nation, which is artificially inflamed by "developed countries" in their struggle for resources that are growing scanty, especially, energy carriers – oil and gas. National egoism and the unwillingness of developed countries to assume historic responsibility for the fate of the planet constitute a serious threat to humanity. We must oppose our way of civil cooperation to this threat. In doing this, we may make use of the cultural wealth of the peoples of the world bearing generally significant, life-saving meaning.

Each religious creed gives its own understanding of environmental morality, but they all speak about love for one's neighbor, the inadmissibility of a negligible attitude to Earth and life as such. Apostolic wisdom teaches us: "Depart from evil and do Good." Doing good in contrast to evil. Evil is destruction, this destruction being not one that implies building something new, more perfect, but one that leads to chaos, disorder. Good is creation of something new and general understanding of common benefit.

Every religion teaches that any man's morality begins with his intentions. Pure thoughts are the key condition of pure being. In support of this wisdom, science has already come to a substantiation of the fact that overcoming aggression at the mental level is an absolute condition determining the conservation of a livable habitat and the safety of behavior for any nation in any sphere of activity. Any

violation of this condition should be deemed as an outrage upon nature and humanity.

The collective will of the world community should be based on the principles of responsibility of each and all for their intentions. Every individual should since his/her childhood perceive his/her connection with the huge world. This will help the individual become firmly convinced in respect for nature, arouse the sense of the beautiful, and feel sincere compassion for all living beings.

Today, this is the only way for humankind to preserve its future. Our planet is an integral cosmic organism living by its own laws. Earth is now ill with us, because we have polluted the planet's mental space with the greed and aggression of our intentions.

It is time to classify the development and propaganda of life-threatening ideas as a moral outrage upon humanity. Scholars should bear responsibility for the nature of their mental creativity if it is contrary to the rules of environmental morality, which, in its turn, is incompatible with individualism and market-based psychology in economics.

It is possible to save the life of the planet and humankind only by opposing the principle of "common good" to personal greed. Natural resources are the common property of all people. Their economic use should comply with the laws of reproduction of life on earth. This demand should be laid down in economic laws, primarily, in the law on ownership of natural resources. Environment-conscious relations of natural resources ownership should become the basic institute of the world's economy. This involves using those principles that orient economic activity to a society–nature integration with a higher responsibility for the environmental wellbeing of all nations on the globe. Developed countries must not increase their wealth at the expense of available natural potentials of developing countries and countries with economies in transition.

Globalization processes should not violate the principle of "integrity with the conservation of diversity." There are aboriginal peoples whose way of life is incompatible with industrial production. We have no right to infringe upon their style of life support, which has been built for many centuries and which is conformable to their traditional ethics. We must combine our synergies to avert the threat of turning them into an ecological colony feeding a consumptive outrage of "developed countries." Such actions are considered as a crime against future generations.

Only a consolidated thought of culturally elevated people is capable of saving nature and

man, winning the shells of conquerors, the lust for benefits of businessmen, and the vanity of rulers. The supremacy of human knowledge is not in the power of possession but in the power of unity with the whole world. Knowing the law of Unity of the universe is complying with this law in action.

The law of Unity is manifested in the spiritual wisdom of all peoples. It may serve as the groundwork for our ecological culture that is the only acceptable way for further evolution of humankind. Science, religious knowledge, and art within the framework of ecological culture are capable of preserving life on our planet determining the content of environmental morality.

That is why human vital activities should be directed at harmony with nature and be based on the moral principles of environmental culture.

**I.D. Kobzon**

Chair of Committee for Culture, State Duma of Russian Federal Assembly

**Yu.A. Ageshin**

Pro-Rector of Russian School for Private Law

## ENVIRONMENTAL CULTURE SHOULD BECOME PART OF HUMAN CULTURE

The Center for Russian Environmental Policy initiated and conducted the Round Table and subsequently presented a report on this session at the Parliamentary Hearing. We believe the conclusions of the Round Table are important bearing in mind the absence of a government policy in building an environmental culture. It was emphasized that an environmental culture should become part of human culture. The development of an environmental culture implies a harmonization of relations between people and the outworld, it is built on an interethnic, interconfessional cooperation in addressing environmental issues, and it excludes such phenomena as terrorism. Environmental culture consolidates all societal sectors on the grounds of the community of interests of the state, society, and businesses in building capacity for a healthy environment.

To this end, the requisite priority measures were pointed out as follows:

- Providing legislative support to the increase of the value of natural resources and human life as the chief priority of societal progress;
- Building capacity for the environmentalization of the entire education system (introducing environmental concepts in all curricula and training aids, ensure implementing the psychological aspects of the promotion of environmental culture, ensure a system of editions, courses, and forms of work for building an environmental culture among all population groups);
- Providing a system of arrangements to raise the role of art and the media in building an environmental culture with a focus on television;
- Expanding the system of special protected areas as centers for promoting environmental culture;
- Making the development of environmental culture and the addressing of issues of environmental policy the priority in the operation of the Public Chamber and other structures of civil society;
- Establishing a permanently functioning round table on environmental culture under the Committee for Culture of the State Duma of the Russian Federation;
- Promoting initiatives on environmental and cultural interethnic trans-border partnerships.

Based on the decisions of the Round Table, the Center for Russian Environmental Policy came forward with an initiative to establish a round-the-clock Round Table on Environmental Culture under the Committee for Culture of the Russian State Duma. The initiative was backed by chair of the Committee for Culture of the Russian Duma I.D. Kobzon. The first organization meeting of the Round Table has been held. It discussed issues related to planning and searching for new approaches to building an environmental culture. The roster of the Round Table was formed. It included representatives of major nongovernmental environmental organizations dealing with issues of environmental culture building and workers of culture. The participants in the Round Table found it expedient to use the Social Forum (by the G-8 Summit in St. Petersburg) for discussing educational issues and the CREP's bulletin Towards a Sustainable Russia, for covering the Round Table's operation.

**V.M. Zakharov**

Head of Center for Russian Environmental Policy

**A Round Table session entitled  
“Environmental Culture as a Path to Peace”  
was held at the Committee for Culture of  
the State Duma within the framework of  
the preparation for a parliamentary hearing  
on the subject “Culture against Terrorism.”**

## **BUILDING AN ENVIRONMENTAL CULTURE IS NOT REDUCED TO ENVIRONMENTAL EDUCATION**

The word “culture” originally meant “cultivation, farming.” Another, presently most popular meaning of this word is associated with the sphere of spiritual life, that is, with human consciousness. Environmental culture is a capability of people to use environmental knowledge and skills in their practical activity. Without an adequate level of culture, people may have necessary knowledge but not apply it. An individual’s environmental culture includes his/her environmental consciousness and environmental behavior. Environmental consciousness is understood as a totality of environmental and environmental ideas, world-outlook positions and attitude to nature, and strategies of practical activity directed towards natural sites. Environmental behavior is a totality of concrete actions и acts of people directly or indirectly related to the impact on the natural environment or the use of natural resources. An individual’s environmental behavior is determined by the level of his/her environmental consciousness and mastered practical skills in the area of nature management.

The term “environmental culture” became widely popular in professional and social consciousness just five or six years ago. I recall a discussion at the Center for Russian Environmental Policy during the preparation for publication of the first text of the Priorities for Russian National Environmental Policy regarding how to name the “educational section.” We chose a compromise hybrid “Environmental Education (Environmental Culture),” although environmental education was discussed in text as just one of the institutes for building an environmental culture. Accordingly, the Russian State Duma first attempted to adopt a Law on Environmental Education and a few years later, already a Law on Environmental Culture. Let me remind you that the fate of the second bill was as sad as that of the first – neither was approved.

Indeed, traditional development of environmental culture is associated primarily with environmental education. However, promotion of environmental culture based on traditional environmental education alone appears to be insufficiently effective. The main result here is certain awareness of learners who are trained in the field of environmental problems. In this case, the teachers note that although the students assimilate environmental knowledge and are ready to perceive information about environmental disasters, they, as a rule, do not attempt to look into their causes. According to poll data, 80% of Russian schoolchildren are not prepared to show personal activity in practical deeds aimed to conserve nature.

Such situation is in many respects due to the fact that so far, the process of building an environmental culture has been in practice reduced to including certain environmental issues in biological, geographic, and like curricula. However, as evidenced by our special investigation, only 15% of school biology teachers regard building an environmental culture as their prime pedagogical task, while 66% are convinced that they should deal exclusively with giving biological knowledge to their students.

**Environmental culture implies such method of life support, when society, via a system of spiritual values, ethical principles, economic mechanisms, legal regulations, and social institutions develops wants and procedures to meet them such that they do not jeopardize life on Earth.**  
**(Moscow International Declaration on Environmental Culture, Moscow, 7 May 1998)**

Almost 100 years ago, Aldo Leopold, a prominent American naturalist, said that we normally recommend expanding environmental awareness "in every possible way," which is correct, but is it sufficient just to expand it or, maybe, it lacks something essential? Unfortunately, these critical words still hold.

Building an environmental culture necessitates a state policy, a special methodology, and a professional approach.

What we observe today is both an undervaluation of the importance and an insufficient scientific and methodological elaboration of philosophical, sociological, pedagogical, and psychological principles of the organization of activity to build an environmental culture in various groups of population.

However, one grave problem is that building an environmental culture is currently beyond the scope of interests and, importantly, responsibility of all government structures! The Ministry of Science and Education flatly refused to deal with issues related to environmental culture. The subject Ecology has been removed from school curricula recommended by the federal ministry. Officials from the Ministry of Natural Resources, too, have started to pursue general deecologization of population through obviating the function of environmental awareness building (and respective financing).

It is perfectly clear today that we urgently need both to have a state structure in charge of public environmental awareness building and a profound professional evaluation and analysis of the environmental awareness-building methodology.

Establishing a system of effective targeted environmental culture building for all population groups using all possible tools and institutes to this end necessitates addressing primarily the following tasks:

1. Building a system of ideas about the value of natural resources, about basic provisions of the strategy for sustainable development, about issues of environment health support, and so on;
2. Building a humane behavior in respect of nature to enable a psychological integration of animals and plants in the sphere of ethics;
3. Population's mastering of environmentally sound methods of nature management;
4. Teaching people to consciously use the unique potential of spiritual intercommunication with the world of nature for their own personality development;
5. Building people's need for active personal backing of the ideas of sustainable development and environment health support.

Building ideas about sustainable development, support of the health of the environment, and the value of natural resources implies building basic knowledge and understanding of what happens in nature and between man and nature and in how these things happen as well as how one should behave in the light of environmental expediency.

Building a humane, partnership behavior in relation to nature implies:

- Affecting human esthetic and moral spheres and arousing and strengthening people's desire to conserve nature;
- People's psychological integration of their relationship with animals and plants into the sphere of ethics.

Building a humane attitude to nature, to which considerably less attention – as compared to building scientific environmental knowledge – has been paid so far, should occupy an important place in the content of activity related to building an environmental culture among the population.

Mastering an environmentally sound nature management is based on building people's ability to carry out one or another activity associated with intrusion in nature in an environmentally competent mode. This involves:

- Sustainable nature management – should concern not only the sphere of social production but, in the main, that of individual nature use, for example, mushrooming, picking berries, mowing, using chemicals in the vegetable garden, disposing of household rubbish, and so on;
- Scientific research of the environment and its health;
- Activity aimed to support the health of the environment (technological, biotechnical, economic, legal, and other aspects).

Teaching people involves a conscious use of unique personality-developing values that are contained in psychological communication with the world of nature.

A high level of population's environmental culture implies an active use by every individual of both material and recreational values of nature for personal development and self-improvement. If purposeful educational activities allow people to discover a psychological potential for communication with nature as a special natural resource, this not only creates additional opportunities for their personality development but also moulds a conviction in a unique value of the world of nature. This in itself is a serious factor that affects the promotion of environmentally sound technologies of nature management.

Ensuring active participation of broad sections of population in promoting the ideas of sustainable

development and support of the health of the environment is an essential aspect of activities related to building an environmental culture. People's positive attitude to environmental structures is the strongest stimulus of public support for their activities. Building a positive public attitude to legal environmental requirements, to the function of environmental agencies represents the most interesting and, at the same time, the finest work with the population. Involving people in immediate practical activity aimed to support the health of the environment shapes a sensibility of immersiveness: it is human nature to take care of things, at which one's creative activity was aimed and into which one's energy has been put.

An effective solution of assigned tasks will allow one to build citizens' aspiration for a rational, environmentally safe use of natural resources and ensure competent nature management.

The first thing necessary for creating an effective system for building an environmental culture in all groups of population is training qualified specialists in the area of environmental awareness building and environmental education and providing relevant methodological support.

The choice of this priority is determined by the following circumstances:

- In actual practice, the overwhelming majority of programs related to building an environmental culture are implemented by individuals without proper professional and methodological background;
- The world and domestic experience unambiguously show that the professional activity of specialists in the field of environmental culture building has specific features that make it nonidentical to the traditional activities of school teachers, researchers from natural reserves, or other workers who most often deal with the implementation of programs to build an environmental culture in the population;
- Positive changes in the level of people's environmental culture are demonstrated especially vividly in the regions where this activity is carried out by experts with an appropriate background;
- Trained experts become people who introduce state-of-the-art methods for building an environmental culture in their regions and foster raising the general level of efficiency in this field nationwide.

To train such experts in the Russian regions, we have developed a program for additional professional education named The Principles of Building an Environmental Culture in the Population. The implementation of this program in Perm, Kaliningrad, Cheboksary, Voronezh, and the Moscow region has proved its effectiveness. In

these regions, professional specialists in building an environmental culture in various population groups have been trained.

For effective building an environmental culture in the Russian regions, it is necessary to analyze the organizational and intellectual potential of all relevant regional institutions (schools, universities, nature reserves and national parks, zoological and botanical gardens, museums, public environmental organizations, scientific institutes, and so on) and to identify priority lines of activity for each of them.

Obviously, the implementation of a modern national system for building an environmental culture implies active involvement of various groups of population into the sphere of environmental education via its pre-school, high- and higher-school, and post-diploma forms, on the one hand, and environmental awareness building, on the other hand, as well as building an environmental culture by artistic means, such as art and photo exhibitions, films, literary works, and others.

#### **V.A. Yasvin**

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## SPECIFIC FEATURES OF ENVIRONMENTAL EDUCATION: A FOREIGN LANGUAGE FACULTY'S EXPERIENCE

The Foreign Language Faculty of Tomsk State University has developed an integral system of environmental education and training. It is based on the Linguistic Education System program, which was made public in March 1995 at the Moscow International Conference organized by the Russian State Committee for Higher Education, the Russian Academy for Education, and the Russian Ministry for Education. Academician A.N. Leontiev, the originator of the program, considers that ecology is a constituent of culture. This is quite logical, because a typical feature of the present historical period for mother Earth is the enhancement of the anthropogenic action on the environment and the aggravation of existing environmental problems.

This leads to the degradation of the human environment and entails a growing disease rate and aggravation of psychological discomfort. Scientists and the progressive public have come to understanding that environmental arrangements alone would be insufficient in this situation but a fundamentally new approach is needed – building a new attitude to nature and a new world outlook, recognizing the fact that Man is part of nature and, therefore, he should be aware of the laws of its function and comply with them in his activity. The groundwork for this knowledge is laid down by ecology, which from biological science turned to social and philosophical and penetrates into all sectors of knowledge. The process of natural and technical science humanization is associated with ecology.

Environmental education should not be limited by special courses only but should foster building environmental friendliness, deep penetration into the beauty and harmony of the environment. According to Academician Dmitry Likhachev, Man is part of nature, and the lack of a spiritual Man representing a sort of “self-consciousness of the Universe” in nature makes irrational the existence of not only Man but “all outdoor, all macrocosm.” Likhachev emphasizes that it makes no sense to protect nature if it is headless.

We think it would be expedient to include the following principles in the concept for environmental education practiced at a linguistic faculty:

- Giving students basic knowledge on the Ecology subject;
- Fostering students' moral attitude to the phenomena of life on mother Earth in its diverse forms;
- Building a high-level spiritual culture.

Here, priority belongs to foreign languages. As soon as language is a tool for cognizing life realities, actuality, and data retrieval, it may be intensively used while working with authentic material to obtain information about the status of the problem in question in other countries. The knowledge of a foreign language allows one to get acquainted with foreign strategic materials and environmental solutions. In our opinion, it is possible to implement multifaceted objectives through close cooperation of specialists in the field of ecology and foreign language instructors. Such partnership could yield joint teaching aids, methodological guides, monographs, term and graduation paper guidance, thesis defenses, development of tutorials, international

**The system of high-school education should be personality-oriented and capable of training not just professional specialists but, first of all, cultural, educated, intelligent, and creative individuals. Foreign language knowledge is part of an individual's general culture and fosters the promotion of a creative personality. A foreign language should be studied in the context of culture in general and that of the country of the language studied in particular. From this standpoint, it is difficult to overestimate the role of ecology teaching at the Foreign Language Faculty. Ecology reveals the laws of the interaction of man and the environment, both natural and cultural.**

contacts with higher educational institutions and environmental centers, and participation in international environmental projects.

Simulating environmental situation makes practical training in ecology highly effective. This helps to develop students' skills in getting their bearings in environmental issues and in making decisions on environmental problems and environmental protection. Such pedagogical approach helps educate an active proprium orientable in these problems at the regional, state, and international levels.

Foreign language knowledge allows one not just to receive information but also to gain experience in radio and TV reporting procedures, appearing in the open press, addressing conferences, debating, etc. Mastering these skills involves laborious work. It should be noted that our university possesses varied linguistic facilities. In the scientific library, American, German, French, and English centers with extensive literature in foreign languages have been established. Students have access to the Internet. Journals *State of the World*, *Nature*, and the like enjoy great popularity. They provide environmental information and analyze the state of the environment all over the world. The more recent and interesting information, the faster it is assimilated by students.

Since ecology is not the major subject of a linguistic faculty, it is important to establish a dialog between the lecturers and the students to promote professional communicative competence. To this end, one may use conducting business games, conferences, or disputes or preparing minor essays or projects. To familiarize the students with the culture of the language studied, they are offered to write a paper like *Natural Symbols in English Culture* or *Nature Motives in the Poetry of Heine*. It is obligatory that students should write a paper on the resources and landscape culture of one or another county. This allows them to look at and conceive those scientific principles that may lead both domestic and foreign scholars to solutions of many common holistic problems. Moreover, solitary work enables the students to build up an environmental vocabulary. One highly effective approach applied by our teachers is offering their students a possibility to take part in compiling an environmental dictionary.

An essential aspect of education is visiting the university museums followed by writing a report including a student's analysis of data received and statement of his/her point of view.

There is a host of subjects for reflection, discussion, and analysis. The primary task of the teacher is to help the students conduct discussion, state their viewpoint, and propose individual approach to addressing the problem under consideration.

At the current stage, audiovisual aids are widely applied by our instructors. The students show great interest in environmental films. In our opinion, this

involves the teacher's diligent work with the film shown. First of all, the sound track should be dealt with in an efficient manner. Following the initial watching of the film, the students listen to parts of the sound track in the exploratory mode and then they work with the key words: the environment, environmental protection, pollution, waste, air pollution, and so on.

We continuously work to increase the students' vocabulary, drill lexical items, and use them in logically complete sentences. This work proceeds until the students learn to pronounce individual phrases mechanically. Finally, the students listen to the sound track and watch the film again, this time with full understanding.

The outcome of environmental education is student participation in annual international scientific conferences "Language and Culture." For many years, our workshop named "Nature Motives in the World Cultures" has been functioning within the framework of these conferences.

Our experience demonstrates that teaching ecology via the prism of linguistics and culture at liberal faculties is more efficient. This method makes it possible to expand the sizes of our understanding of new approaches to environmental education. Through widely using the humanitarian and linguistic palette of student knowledge, the instructors of the Foreign Language Department, Tomsk State University, achieve an interdisciplinary ecology-teaching effect.

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## PROTECTED NATURAL AREAS AS BREEDING GROUNDS OF ENVIRONMENTAL CULTURE IN THE RUSSIAN HINTERLAND

Since the Federal Law On Natural Areas of Preferential Protection was issued (1995), environmental education has been an integral part of the activities of natural reserves and national parks. An activity concept was developed for these organizations, and specialists were trained. The then federal target program of government support of state reserves and national parks (1994) encouraged the authorities of many Russian regions to help develop environmental education in federal natural areas of preferential protection (NAPPs).

From 1996 through 2002, when the Global Environmental Facility project "On Biological Diversity in the Russian Federation" was being implemented, substantial grants were allocated to develop public support for NAPPs. More than ten reserves and national parks successfully realized model school projects that made it possible to considerably improve material, organizational, and methodological resources of environmental education for school students. Visit centers and new nature museums appeared, and a network of environmental educational trails was developed. Today, all this is an integral part of environmental education.

International charitable programs and funds have largely contributed to the improvement of the NAPP educational potential. For example, financial support from the Institute for Sustainable Communities and the United States Agency for International Development made it possible to replicate NAPP successful activities among the population. The United States Fish and Wildlife Service's minor grants also favored the development of environmental education in reserves and national parks. A number of projects, supported by the Macarthur Foundation, Know How Fund, National Parks Fund, and other organizations, were also successful and contributed to the public awareness of the protected areas' key role in the conservation of biodiversity and natural heritage.

Numerous methods developed by NAPP specialists are widely used in regional educational systems. For example, according to the secondary school elective "The World of Reserved Nature" (Natural Reserves EcoCenter, 2001), students are to learn about Russian and world protected natural areas and their contribution to the conservation of biodiversity, as well as to take part in environmental projects. The Russian Academy of Education recommended this program for Russian secondary schools. Specialists in environmental education are implementing it in schools with which they cooperate.

The natural reserve system has generated a number of brilliant and talented specialists who are establishing a "school of conservation educators." Here are only a few names: Alla Gudym (Vodlozerskii National Park), Olga Khokhryakova (Lazovskii Natural Reserve), Aleksandr Egorov (Voroninskii Natural Reserve), Marina Zyuzina (Pleshcheevo Lake National Park), Aleksandr Gubernatorov (Samarskaya Luka National Park), Irina Tsvetkova (Sebezhszkii National Park), Natal'ya Mekh (Astrakhan' Natural Reserve), and others, whose experience is widely used today in the NAPP system.

**The network of state natural reserves and national parks, which includes the majority of the Russian regions, has turned into a network institute of environmental education, capable of playing a considerable role in forming the environmental culture of the Russian population.**

The child and youth movement "Friends of Reserve Islands," which emerged at the Natural Reserves EcoCenter's workshops, has been evolving since 2000. Today it brings together NAPP volunteer teams. Children from societies of young naturalists, folklore teams, youth environmental theaters, young ranger groups, and school forestries help conserve natural and cultural heritages in natural reserves and national parks.

The network of state natural reserves and national parks, which includes the majority of the Russian regions, has turned into a network institute of environmental education, capable of playing a considerable role in forming the environmental culture of the Russian population. Regional protected areas, especially natural parks and many reserves, also contribute to this process, for example, the republican reserves in Tatarstan and the Kamchatka natural parks. Secondary school and college students and even kindergarten children are involved in educational programs of these NAPPs. Reserves have acquired many partners and associates - students, teachers, journalists, representatives of regional authorities, and businesspeople among them - who render both moral and practical assistance. In our opinion, reserves and national parks are still alive due to the active educational policy of the federal NAPP system, although their life in the "epoch of changes" is not easy.

A number of state natural reserves and national parks have acquired new experience in cooperating with the population and implementing socially significant programs aimed at improving the life of local populations. Such programs help account for the interests of local populations when making environmental decisions, improve living standards, and struggle against poverty. This means that they safeguard the natural resources of protected areas and help them find new followers. The Wildlife Protection Center in cooperation with the Katunskii Natural Reserve and the Ugra and Smolenskoe Poozer'e (lake district) national parks have successfully implemented several projects. Microcredit funds have been established within these projects to develop nature-friendly businesses on protected areas and adjoining lands. For example, an Altai bee farm (the Katunskii Natural Reserve) and family hotels (in the Ugra National Park) gained support.

The Kenozerskii National Park has accumulated considerable experience in implementing cultural landscape conservation, historical and cultural artifact restoration, tourism and folk craft development, and social rehabilitation projects in cooperation with the local population. Thus, the system of Russian natural reserves and national parks

has gained new experience in the socioeconomic development of the Russian regions. The study of this experience, its popularization through training workshops, its further development, and the improvement of educational activities will promote not only a better understanding of the NAPP role but also a rational and solicitous attitude to nature and its resources.

Having overcome the economic crisis, the Russian NAPPs found themselves in a new crisis, a crisis of state control within the NAPP system. It broke out when new people came to the state control system, who are, unfortunately, unaware of conservation work and do not understand the role of NAPPs. The current situation may be due to different reasons. However, objectively, the system of priorities of the majority of Russian citizens still does not include unique areas that preserve natural and cultural heritage of their country. Why do government officials in many developed countries never "forget" about national parks, for example? Because society knows that the parks are necessary for people; they largely contribute to social development; and, hence, they require attention. We have to work hard to bring into the sphere of conservation ideas those who shape today and will shape in the near future the development of the country and its regions. This is a task for conservation educators and all those who work in the NAPP system. We need state-of-the-art training programs for the environmental education of people who determine the fate of Russian nature.

With the required state support, natural areas of preferential protection would be able to attain their educational potential and become the real breeding grounds of culture, primarily, environmental, in the Russian regions.

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## CULTURAL LANDSCAPE AS THE SEQUEL OF ENVIRONMENTAL CULTURE DEVELOPMENT

Today, environmental culture is not just a subject for scientific research – it is actively incorporated into the educational process, school and university curricula. Significant results have been achieved in the study of psychological aspects of building an environmental culture.

Various aspects of environmental culture are progressively more often discussed by the Culture Committee of the State Duma thus introducing this notion in the field of politics. This elevates its status, and it would be safe to expect an enhanced interest in environmental culture from the part of both the scientific community and the general public. At the same time, this necessitates considering more carefully the concept itself, clarifying its aspects, and, most importantly, looking for criteria for a reliable judgment regarding if a particular culture is environmental or profane.

Many people believe that for building an environmental culture it is essential to introduce broad-scale environmental education. However, it is well known that only 20% of people with environmental background are poised for acting in a really environment-friendly manner. This cannot be explained by the inadequacy of instructors or the imperfection of curricula alone. The fact is that knowledge not transformed to convictions is soon lost or becomes a burden or, even worse, an irritant.

Besides, teaching ecology at schools and especially at higher educational institutions generally sins by unnecessary overburdening with theory. Therefore, within the framework of environmental education it is necessary at least to give practical examples of actual environmentally friendly, cultural activities of man. Properly speaking, this is what the adopted definition of an environmental culture is aimed at by implying such "... method of life support, when society, via a system of spiritual values, ethical principles, economic mechanisms, legal regulations, and social institutions develops wants and procedures to meet them such that they do not jeopardize life on Earth."<sup>1</sup>

This definition of environmental culture clearly indicates that we deal with a synthetic, interdisciplinary concept, which closes out its expanding in terms of just culturology or ecology but demands the use of appropriate modern synthetic paradigms.

In this context, it is worth mentioning the intensively developing teaching about the noosphere, which organically integrates philosophical, natural-science, and culturological approaches. Discussing the problem of environmental culture in the light of noospheric theory is a job far beyond the scope of this article. Yet, the prospects of this approach may be in general outline demonstrated by the example of a topic common for the theory of environmental culture and, say, for that of cultural landscape. The noospheric

**“All nature is animated, all is alive, as a whole and in parts. All is interconnected by secret bonds, all breathes together with each other. Hostile and salutary influences and interactions of things-creatures-souls are based on a sort of telepathy, a sympathetic affinity acting from inside. The energy of things flows into other things, and each lives in all, and all in each.”**

**P.A. Florensky.**

<sup>1</sup> Citation from: Yascin, V.A., The History and Psychology of Building an Environmental Culture. Moscow: Nauka Publ., 1999, p.5.

doctrine provides good prospects for clarifying specific features of building an environmental landscape. The environmental landscape, in its turn, may be regarded as an indicator of environmental culture development in a given territory.

It is quite obvious that the impact on the environment is indicative of the level of environmental culture. There are landscapes where, as Gumilev correctly noted, man is at war with nature. Also, there are landscapes transformed by man but viewed as an embellishment of nature, a real oasis of culture. Of course, it is only in regard to the latter that we could say that this is a manifestation of the environmental culture of a particular ethnos and a social group. In other words, a cultural landscape, either created in the past or emerging nowadays, can be regarded as an objective sign of development of an environmental culture.

The theory of a cultural landscape has been intensively developing in recent decades. This is certainly quite logical and is related to the problem of environmental crisis and the necessity to study the man–nature relationship more ostensibly. The synthetic nature of the “cultural landscape” notion also implies an interdisciplinary approach. Yu.A. Vedenin emphasized the promise of such synthetic natural-science and culturological (noospheric) method when dealing with the problems of cultural landscape.<sup>2</sup>

Yu.G. Saushkin was among pioneers in Russian science to develop a cultural landscape theory. According to Saushkin, a cultural landscape is a positive result of nature-transforming human activity. It was, as a rule, opposed to an acultural, or “bad” landscape, with the attributes of a “good” one being comfort, rational planning, and esthetic value. Of course, one may build on these qualities in identifying a cultural landscape to a first approximation only. Not everything that we regard as comfortable and rational complies with the laws of nature.

A classical example in Russia is planning to divert northern rivers to the south and in China, river-channel straightening projects resulted in river dryouts and highly destructive floods. Yet, we appreciate emphasizing these aspects of cultural landscape as a positive step in science that paved the way for subsequent noosphere-based scholarly works of L.N. Gumilev, Russian philosophers, economic geographers, and culturologists who worked primarily within the bounds of the Eurasian field.

<sup>2</sup> Vedenin, Yu.A., *Essays on Art Geography*. Moscow: Russian Research Institute of Cultural and Natural Heritage, 1997.

Cultural landscape is presently investigated by many specialists. In our opinion, the field led by Vedenin is the most promising in the context of the problem under consideration. Vedenin regarded a cultural landscape as an integrate, territorially localized totality of natural, technical, and social and cultural phenomena resulted from a combined impact of natural processes and people’s artistic and creative, intellectual and constructive, and life-supporting activity.<sup>3</sup> This definition allows one to establish a logical link with environmental culture.

Via activity processes, flows of energy and information are established between nature and culture. Perhaps, it would be fare to add – and flows of matter meaning construction of buildings, installations, service lines, etc. Using a system approach for studying the concept for cultural landscape, Vedenin was one of the first to out into scholarly circulation such attributes of the concept as vertical and horizontal heterogeneity and capability to store a potential of intellectual and spiritual energy in two major strata – cultural and natural.<sup>4</sup> As the former accumulates, it acquires progressively more significance and, in the end, determines the special features of the cultural landscape. These two layers “may be differentiated into a series of smaller layers.”<sup>5</sup>

Other important attributes of a cultural landscape are associated with the availability and combination of such elements as heritage (generally recognized social, scientific, and artistic values, to which we would add intellectual ones), and traditional and innovation cultures. Vedenin justly states that a harmonious combination of these three elements in a cultural landscape “is the most effective from the point of view of meeting societal social and cultural needs and development.”<sup>6</sup>

Since the notions of cultural and anthropogenic landscapes are somewhat confused in the present-day literature, let us try to make at least a concise comparative analysis of these concepts. Obviously, the anthropogenic landscape is a broader concept. It includes a cultural landscape but does not coincide with it.

For a more precise definition of cultural landscape in the light of our study, let us first discuss the main types of landscape in general. Among them,

<sup>3</sup> Chalaya, I.P., and Vedenin, Yu.A. *The Cultural Landscape Zoning of Tver Oblast*. Russian Research Institute of Cultural and natural heritage, 1997, p.6.

<sup>4</sup> Vedenin, Yu.A., p.8.

<sup>5</sup> Chalaya, I.P., and Vedenin, Yu.A. *The Cultural Landscape Zoning of Tver Oblast*. Russian Research Institute of Cultural and natural heritage, 1997, p.8.

<sup>6</sup> Vedenin, Yu.A., p.8.

we may emphasize at least three types depending on the extent of anthropogenic impact. The first type covers reserved and little-developed areas, where humans appear episodically, their activity is predominantly of a research nature and does not destroy the landscape or break natural biospheric processes. Of course, these areas are progressively shrinking. Even such remote places as high-mountain Altai Nature Reserve are now exposed to technogenic pollution when spaceships are launched from Boikonur cosmodrome.

Nature reserves represent a powerful factor in building an environmental culture. They help children and adults get knowledge about nature and shape their esthetic sensibility. Here, the technobiospheric disbalance is in favor of the natural component. The opposite state in the total system of anthropogenic landscape is an urbanized technogenic landscape (in the extreme case – an environmental catastrophe zone, for example, the epicenter of a nuclear explosion or a chemical accident), where many or nearly all biospheric processes break. The intermediate position between these two states is taken by areas with an established or sufficiently long-maintained anthropobiospheric unity (technobiospheric balance). Let us discuss, along several lines, the difference between these types in terms of energy exchange.

Obviously, the first and second types of landscapes cannot be classified as cultural – the second due to the destructive anthropogenic impact and the first owing to the fact that the presence of people there is virtually zero and hence, there is no manifestation of culture in the lofty meaning of this word. Therefore, a cultural landscape is built only when “creating nature” and “created nature” are in harmony.

What factors foster this harmony? First of all, the manner of management in the area. Forest clearing, damming big rivers, and the like irreversibly degrade biological diversity. On the contrary, whenever developers staked on renewable resources and essentially retained a positive balance between the extracted and recoverable resources, the diversity of species was not just maintained but in some cases even increased.

For example, Russian monasteries were not only religious structures that embellished the scenery by their beautiful architectural designs, but they quite often represented centers of gardening, floriculture, and horticulture. Thus, Solovets Monastery, which is located virtually near the polar circle, used to grow watermelons and melons, and the monastery in Optina Pustyn is now viewed by visitors as a huge flower bed and rosary. In other words, man in this case considerably enriched the biological diversity of species and added an esthetic element, which

made the landscape really cultural. Another type of landscape is called acultural and implies those landscapes where changes bear a regressive, destructive character. Consequently, a conserved biodiversity is indicator number one to judge about an authentic harmony between “culture” and “nature.”

Environmental culture shows itself in human economic activity too. We will now try to look at this major issue from the “biospheric” point of view. In so doing, it is worth resorting to the heritage of S.A. Podolinsky, an outstanding scholar of the 19th century.

Podolinsky’s main scholarly work entitled *Human Labor and Its Relation to Energy Distribution*, to a large extent, revives the ideas of an interesting philosophic trend – physiocratism – that dates back to the 18th century. It was inspired by a French doctor and original philosopher Francois Quesnay who at the time of origination of modern type of economy was able to see its malignancy and suggested that economics should be based on the laws of nature, especially, those of the biosphere. His ideas were not heard by his contemporaries; in fact, they were mocked at by Adam Smith and then, as V.I. Vernadsky correctly noted in his diaries, they were not understood by Marx and Engels.<sup>7</sup> Podolinsky’s major book *Human Labor and Its Relation to Energy Distribution*<sup>8</sup> appeared in 1880 and has been unneeded since then. When humanity finds itself in a growing environmental crisis, it will have to come back to theories that treat human life and activity in inextricable connection with natural and cosmic factors. The key issue of any economic activity is, in the end, generating and consuming all kinds of energy.

Podolinsky is absolutely right when, after the physiocrats, makes us recognize the exclusive role of plants on the globe. They alone can store solar energy. According to Podolinsky, labor is distribution and utilization of accumulated solar energy. Many prominent scientists, including N.V. Timofeev–Ressovsky, investigated into the matter. He wrote that only 3 to 8% of incident solar energy is bound on earth by green plants. The efficiency of energy binding varies noticeably from plant to plant. If this efficiency is increased by just a few percent, the total biospheric productivity may rise several times.<sup>9</sup>

It has been noticed that traditional sustainable management, which gives us a lot of examples of

<sup>7</sup> Vernadsky, V.I., *Diaries (1917 - 1921)*. Kiev: Naukova Dumka Publ., 1994.

<sup>8</sup> Podolinsky, S.A., *Human Labor and Its Relation to Energy Distribution*. Moscow: Noosfera, 1991.

<sup>9</sup> Timofeev–Ressovsky, N.V., *The Biosphere and Humankind*. Moscow: 1996, p. 57.

high environmental culture, has always attached paramount importance to energy saving in all its types. Of course, this question needs a more profound investigation, but, nevertheless, establishing a balance between the energy generated and bound in all types by a given territory and that derived from the same territory may be to a first approximation considered the second basic criterion of a cultural landscape.

When reference is to the spiritual and esthetic aspect, we would like to remind that Yu.A. Vedenin considered it an essential criterion for a cultural landscape. This aspect is expanded via a combination of heritage and traditional and innovative cultures. In addition, one may regard the principle of similarity of the anthroposphere and the natural environment within a specific territory as a principal criterion of cultural landscape. On the whole, this criterion seems natural. As has been mentioned, we are amazed today at the accurateness, with which the architects of the past fit various buildings and structures, both churches and normal dwellings, in the environment. A. Chekalov is just to point out that "...art should not repress the natural element. Excessive "humanization" of the environment may kill it as a material for perception, and it must resist, as any artistic material, not only when processed but also when perceived. One should not forget about the effect of chance, which is necessary for imagination."<sup>10</sup>

In this connection, let us emphasize a number of additional principles to foster building a cultural landscape. Here, the greatest contribution belongs to the oriental thought embodied both theoretically in treatises and practically in Chinese and Japanese gardens. They represent vivid examples of a beneficial human impact on the natural environment. Similar examples may be found in Russian manors and convents and monasteries. But as soon as the oriental theoretical grounds for such combinations are more comprehensive, we would rather resort to them in our attempt to develop a concept for a cultural landscape.

The Japanese tradition worded the following principles to elucidate the system of man–nature relations: harmony, responsibility, purity, and unity. The principle of harmony implied the Universe's harmony, orderliness, and order and, most importantly, the establishment of natural harmonious relations between man and the visual environment. Some regularities that characterize this harmony have been known since long. For example, the law of golden section is presently shown in

<sup>10</sup> Chekalov, A., *Esthetic Development of the Body-Space Environment*. In: *Art and Industry*. Moscow: Iskusstvo Publ., 1967, p. 21.

the natural sites and masterpieces of the world culture – architectural monuments (Parphenon), music [Sonata for Piano No. 23 in F-Minor, op. 57 (Apassionata) by Beethoven], and so on. I.P. Shmelev, a prominent researcher of manifestations of the law of golden section in nature and architecture, wrote in this connection as follows: "... the rule of biorhythm should become dominating in architectural creativity. Only then, architectural activity will be able to take architecture out of the channel of burning environmental problems."<sup>11</sup>

Let us recall another regularity of architectural structures that make the core of an authentic cultural landscape. We have already mentioned that a human dwelling in a traditional culture represents a model of the Universe. While cognizing the visual environment far back in the past, man discovered elements of its structural organization and reproduced them in his dwelling, temple architecture, and, generally, in the organization of space humanized by him. According to G.K. Shchedrina, "Primordial nature – the microcosm of human existence – was developed in the microcosm of human habitation. This was most vividly manifested in the dwelling, because cosmos was viewed as a house and the house, as cosmos."<sup>12</sup>

The principle of harmony rests on an underlying principle – that of the unity of the world. We would emphasize just one essential element of this unity – the material unity of the manmade and the natural in a cultural landscape. This is strikingly reflected in the art of Far-Eastern gardens. Cultural history convincingly corroborates that in all cultural landscapes, local materials were normally used for construction, which, in turn, dictated the application of the most expedient compositional and constructive techniques and methods and resulted in an architectural style that was the most suitable for local climatic conditions, fit in the deep or enclosed landscape, and matched with the terrain lines. Thus, a yurt (nomad's tent) or an Old-Ritualist's house fully blends into the natural landscape of Mountainous Altai, whereas the standard apartment houses of bearing-wall construction, which were built in the 1960–1979s, look absolutely alien.

The principle of responsibility "... means the all-embracing unity of the world, the presence of harmony in it as a supreme substance that determine

<sup>11</sup> Shevelev, I.Sh., Marutaev, M.A., and Shmelev, I.P. *Golden Section: Three Views on the Harmony of Nature*. Moscow: Stroyizdat Publ., 1990, p. 237.

<sup>12</sup> Shchedrina, G.K., *Natural Factors in National Architectural Features*. In: *Man–Nature–Art*. Leningrad: Nauka Publ., 1986, p. 48.

<sup>13</sup> Sokolov–Remizov, S.N., *Man and Nature in the Classical Artistic Traditions of Japan and China*. In: *Man–Nature–Art*. Leningrad: Nauka Publ., 1986, p. 37.

the natural course of its evolution, and human responsibility, as an inseparable and the most active part of this world, for the conservation and development of its harmony".<sup>13</sup> In actual practice, this principle is embodied in rituals, ceremonies, and rules that regulated the man–nature relationship in the past. In a sense, present-day environmental legislation, too, is an attempt to establish legal responsibility of people before nature. Clearly, despite the positiveness of this approach, it is people's deep inner consciousness and not only legal comprehension of their responsibility before nature and the adoption of this principle as their living philosophy that will be able to stop the degradation of the natural environment.

In the context of Japanese culture, the principle of purity had a double meaning: on the one hand, sacral purification from worldly vanity and worldly filth and inner purification via a contact with and contemplation of the beautiful, for example, fine scenery. On the other hand, it had a strict sense – bodily purity that was highly revered in Buddhist and Russian monasteries. In the latter case, this principle acquires an absolutely modern environmental meaning. We would never call a cultural landscape one with disposal tips or domestic or industrial dumps.

At the same time, the principle of purity as a mandatory principle of building a cultural landscape may be viewed at in terms of color-light purity and unity. Thus, E.A. Mostaponenko came to the following conclusion: "The content and the social significance of color in nature and art are expressed in modeling certain emotions – positive and negative: the aversion of some color as unpleasant, somber, harsh, dirty, violent, dull... is its negative evaluation."<sup>14</sup> It is characteristic that in nature we, as a rule, find pure colors that are associated with vitality, health, and beauty. Accordingly, such should be the colors of cultural buildings and facilities erected, which, of course, demands an adequate training on the part of architects, planners, and designers.

In closing, we may conclude that in a cultural landscape its cultural component should:

(a) retain its basic natural features, primarily, the biodiversity and energy balance of a given area;

(b) have a structural and rhythmical and material-and-energy unity with the natural component;

(c) enhance the fine-energy harmonious effect of natural landscape. Moreover, man, being an inalienable part of cultural landscape, must make efforts to "fit" into it in accordance with his intellectual and moral spirit, without being destructive or discordant, and this is possible when and only when an environmental culture begins developing.

Therefore, we may regard a cultural landscape as the result of evolution of environmental culture, the result of a harmonious anthropogenic action on the environment; on the other hand, the existing man-made cultural landscape is a strong factor to influence human consciousness. It represents a real example of coevolutionary development of man and nature. We would like to conclude our reasoning with the words of P.A. Florensky, an outstanding thinker whose heritage can play an essential part in building an environmental culture: "... How can man live in a natural void – I do not understand; neither do I understand the urban life, which is devoid of landscape, rocks, water, greenery, soil. It is only natural that such artificial conditions give rise both to the illusiveness of ideology and the affectation of all human feelings. Some time later, people will think with horror about cities and urban life as a voluntary prison, the consequences being made-up life objectives, artificial passions, choking of souls with difficulties that disperse from contact with nature, and artificially maintained stuffiness of the atmosphere."<sup>15</sup>

<sup>14</sup> Mostaponenko, E.I., *Light in Nature as a Source for Artistic Creativity*. In: *Man–Nature–Art*. Leningrad: Nauka Publ., 1986, p. 101.

<sup>15</sup> Florensky, P.A., *Letters from Far East and the Solovki Islands*. In: *Collected Works in 4 Volumes*, V. 4. Moscow: Mysl Publ., 1998, p. 538.

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## **UN DECADE OF EDUCATION FOR SUSTAINABLE DEVELOPMENT (2005-2014) IN RUSSIA: BACKGROUND AND PROSPECTS**

In March 2005, member countries of the UN Economic Commission for Europe (UNECE) adopted the world's first Strategy for Education for Sustainable Development (ESD). This document represents an attempt to build capacity for long-term joint actions of 55 leading and developing countries aimed to promote ESD.

As direct participants in the development of the Strategy, we consider it important to explain new elements of international cooperation, the reasons and motives behind the appearance of this instrument, and possible approaches to its understanding and extension in the form of the Russian National Strategy as was foreseen when approving the general Strategy for ESD by UNECE.

Beginning with the Stockholm Conference held in 1972, a new political trend has been developed worldwide, namely, consideration for the state of the environment and environmental arrangements. The Environment for Europe process was initiated by the minister for Environmental Protection of the former Socialist Czechoslovakia Josef Vavrushek and then extended by 55 countries from Europe, Central Asia, the Caucasus, and North America.

For the Russian educational system, it is essential to maintain the identity and value of social, scientific, and methodological experience gained in the past by Eastern European countries as well as to back the efficient application of these practices.

Indeed, why did Russia become co-chair of the UNECE group for Strategy development jointly with Swedish colleagues? Why do representatives of transient-economy countries play an important part in the European EcoForum coalition of environmental NGOs of the UNECE region? Why was the EcoForum's initiative to establish a Working Group for Education for Sustainable Development nearly the first on the continent? It is important to answer these questions correctly. In our opinion, the civil and professional life in the Eastern European countries and the former Soviet Union generated experience that could be realized for ESD as civil global education.

Proceeding from the Strategy's value, solidarity, and global orientation, it is essential to critically assess own experience and identify potential risks related to the interpretation of the adopted Strategy for ESD. Panhuman values are insufficient for the development of own ESD strategy, so it is important to supplement them with clear, generally understandable examples and standards of daily relations in the conditions when Russian statehood is being established.

In a multiconfessional country like Russia, it is necessary to couple credenda and scientific recommendations, state and public interests. The many difficulties that occur in this process are quite obvious, one of them being overcoming the rule of procedure over the rule of content. Modern methods of design and management of supercomplex systems may be used for reducing organizational, economic, and social risks in the interests of millions of citizens.

Let us discuss the framework document and its background.

**In January 2005, the UN Decade of Education for Sustainable Development was launched. This decision, which was adopted at the top level, emphasized again that the transition to sustainable development involves targeted joint efforts of entire humanity, all countries, sectors, and social groups. In 1992, the UN Conference on the Environment and Development in Rio de Janeiro approved the Agenda'21. In 2002, the World Summit on Sustainable Development in Johannesburg summarized ten-year work undertaken and adopted the Action Plan, the implementation of which would enable humankind to implement soonest possible transition to sustainable development. However, the results indicated that the modern world finds it difficult to find common a common denominator for joint, consistent, complimentary, sustainable, self-perpetuating development. We, contemporaries of and participants in this searching, have a chance to help find an informed, reasonable decision of this problem using the means of civil and professional education and awareness-building.**

In December 2002, the UN General Assembly approved Resolution 57/254 thus declaring the years from 2005 to 2014 the UN Decade for Education for Sustainable Development. UNESCO was committed to the coordination of activities within the framework of the ESD Decade (DESD). In 2003–2004, the International DESD Implementation Scheme was prepared and agreed upon.

This instrument lays down 5 major UN DESD challenges:

- Emphasizing and reinforcing the central role of education in the recognition and comprehension of sustainable development.
- Working to establish interaction and cooperation among all ESD-concerned groups.
- Promoting transition to sustainable development.
- Encouraging better quality of ESD teaching and training.
- Developing strategies for the creation and expansion of the ESD potential at all levels.

Successful DESD function depends on the participation, responsibility, and partnership of all stakeholders at different levels.

The International DESD Implementation Scheme provides for a general coordination of the process. It foresees to set up highly professional national ESD centers and national cross-sectoral consulting groups to operate domestically. As regards the regional and international levels, it is projected to organize a topical ESD group and an Interagency DESD Steering Committee. UNESCO is also setting up a small group of highly professional experts, ESD Champions, for DESD scientific and theoretical support.

### **UNECE ESD Strategy: The first example of regional ESD agreement**

Even before the formal announcement of UN DESD, the process of preparation of the regional ESD strategy started in the region of the UN Economic Commission for Europe (UNECE) comprising 55 countries from Europe, Central Asia, and North America. This instrument was initiated by public environmental organizations. It was put forward by the European Eco-Forum – an open coalition of environmental civil groups functioning in the region. The issue was placed on the agenda of the 5th Ministerial Conference “Environment for Europe” that was held in Kiev in May 2003. At the same time, a decision of developing the Strategy was made. Sweden and Russia undertook to co-manage (coordination and co-chairmanship) the process of preparation of this instrument. The process of development of this important framework document was open for the general public. Nongovernmental organizations as well as representatives of science and education had a chance to take part in the meetings,

make comments, and discuss draft documents. On the recommendation of UNESCO, the draft Strategy was presented at the Asia-Pacific regional meeting and served as the groundwork for preparation of their regional document. The UNECE Strategy for Education for Sustainable Development had been elaborated by October 2004 and presented at a session of the UNECE Committee on Environmental Policy. The Committee resolved to hold a High-Level Meeting of UNECE Environment and Education Ministries in the spring of 2005 and put the issue of formal approval of the Strategy on the agenda.

### **High-Level Meeting in Vilnius**

On 17–18 March 2005, a High-Level Meeting of Environment and Education Ministries of the UN Economic Commission for Europe (UNECE) region was held in the Lithuanian capital, Vilnius. The meeting formally launched the UN ESD Decade (2005–2014) in the UNECE region.

Delegates from more than 40 countries of the UNECE region attended the meeting, among them representatives of international organizations – UNESCO, UNDP (United Nations Development Program), OCSE (Organization for Security and Cooperation in Europe), and nongovernmental organizations. Swedish minister of environment Lena Sommestad and Russian minister of education V.N. Fridlyanov co-chaired the meeting.

The meeting adopted two strategically important for ESD documents:

- UNECE Strategy for Education for Sustainable Development (<http://www.unece.org/env/documents/2005/cep/ac.13/cep.ac.13.2005.3.rev.1.r.pdf>).
- Vilnius Framework for Implementation (<http://www.unece.org/env/documents/2005/cep/ac.13/cep.ac.13.2005.4.rev.1.r.pdf>).

The goal of the Strategy for UNECE ESD is to encourage UNECE member states to promote and integrate ESD into their systems of formal education within the framework of all relevant educational disciplines as well as into nonformal education and awareness building.

The strategy is addressed to the governments. It contains supporting rationale and recommendations relating to the development of policies and the preparation of arrangements to build capacity for integrating the issues of sustainable development into education and training with participation of teachers and other stakeholders.

Following the formal opening of the Vilnius meeting, the member countries gave brief presentations that reflected their ESD-related experience as well as opportunities and sharp problems faced by each country and the region in general.

Many countries in the UNECE region either already have or are developing national ESD strategies, plans, programs, or projects; national and local Agendas'21; and so on. This may become the groundwork for successful implementation of a regional ESD Strategy. However, all those initiatives as a whole are essentially aimed to further development of environmental education rather than ESD. Quite often, delegates just equated environmental education with ESD in their presentations. This fact was another indication that directing the region's synergies to the promotion of ESD in all countries at all levels was a timely, important issue.

The participants in the meeting emphasized the necessity to improve the systems of education in the countries of the former Soviet Union and Southeastern Europe, ensure an interdisciplinary nature of ESD, involve civil society, and provide adequate institutional and material and technical support. More than once delegates put forward proposals regarding the establishment of mechanisms for improving political, regulatory, and organizational ESD frameworks. Also, it was pointed out that one should ensure accessibility to relevant teaching and methodological aids, provide assistance to scientific research, and promote cooperation with NGOs and other institutions.

In line with the Vilnius Framework for Implementation, the process of implementation of the Strategy includes three basic stages<sup>1</sup>:

- Stage I (till 2007): The member countries will ascertain what ESD work is in progress and identify priorities for further activities needed to implement the Strategy. The countries will have to adopt national action plans for implementing the Strategy. It is necessary to develop ESD assessment methods and indicators. Results will be presented at the 6th Ministerial Conference "Environment for Europe" that will take place in Belgrade in September–October 2007.
- Stage II (till 2010): By that time, the Strategy will have to be progressing. The countries will have to review the progress of their national/state strategies and revise them if necessary.
- Stage III (till 2015): The countries will have to achieve substantial progress in the implementation of education for sustainable development.

The texts of the UNECE Strategy for Education for Sustainable Development and the Vilnius Framework for Implementation adopted at the High-Level Meeting are available in Russian, English, and French at the official Internet site of UNECE ESD: <http://www.unece.org/env/ESD>.

<sup>1</sup> Vilnius framework for the implementation of the UNECE Strategy for Education for Sustainable Development, 2005) <http://www.unece.org/env/documents/2005/cep/ac.13/cep.ac.13.2005.4.rev.1.r.pdf>

The meeting made a decision to set up an open ESD Steering Committee, in which any interested country or organization of the UNECE region may take part. Whenever possible, its meetings will be timed to other meetings or sessions of the same level, in particular, to the sessions of the UNECE Committee for Environmental Policy. Representatives of UNECE ministries of education and environment, international and nongovernmental organizations, science, and education will take part in the activities of the Committee. UNECE member countries were supposed to nominate their representatives to the Steering Committee for the implementation of the ESD Strategy by June 2005.

Special emphasis will be paid to the development of indicators to measure the implementation of the ESD Strategy. To this end, it was decided to establish a small group of experts to deal with ESD indicators. The Netherlands assumed the chairmanship of the group.

Also, the meeting debated issues of further funding of the ESD Strategy. The implementation of the Strategy is within the area of state responsibility, in particular, education and environment ministries. The countries should provide a financial support for the implementation of the Strategy. International organizations and donor countries foresee supporting transient-economy countries to ensure successful realization of the Strategy. Nevertheless, financial mechanisms and sources need to be further elaborated.

The high-level ESD meeting in Vilnius also formally launched the United Nations Decade of Education for Sustainable Development in the UNECE region. Karl Lindenberg – one of the four official UNESCO DESD advisors – made a welcoming speech.

#### **NGO participation in and contribution to the high-level Vilnius meeting**

Prior to the Meeting, on March 16–17, 2005, a preparatory meeting of NGOs of the UNECE region took place. The meeting was organized by the ECO-Accord Center (Russia) in association with the local coordinator – Center for Lithuanian Environmental Policy based on the European Eco-Forum and was financially supported by the ministries of environment of the Great Britain, Sweden Italy, and the Netherlands and the Organization for Cooperation and Security in Europe.

Representatives of 28 nongovernmental organizations worked out their proposals aimed at successful promotion and implementation of the ESD Strategy in the UNECE region. In particular, NGOs urged the governments to build capacity for implementing the Strategy at the top national level; consistently promote reforms in the sphere of education; improve coordination among intergovernmental and

international organizations, including NGOs; develop effective financial mechanisms; provide for necessary resources; and so on.

Nongovernmental organizations, on their part, expressed willingness to contribute to the implementation of the Strategy at all levels, take part in working groups and meetings, work to promote the process of education for sustainable development; further establishing a dialog between all stakeholders; and participate in the development of indicators for evaluating the progress of the Strategy.

Based on the outcome of the NGO meeting, an NGO Statement on the ESD Strategy and a document targeted at developing indicators for implementation evaluation were prepared. They were adopted at the NGO meeting and then presented at the high-level meeting by Victoria Elias (ECO-Accord, Russia) and Paul Vare (Learning South West, Great Britain) on behalf of the Eco-Forum. The texts of NGO documents are available at <http://accord.cis.lead.org/edu/2005/intro.htm>.

### **Further ESD expansion in the region**

Russia has great experience and a huge potential for the expansion of ESD in all spheres of education and awareness building as well as for a successful leadership in the political process of implementation of the UNECE ESD Strategy. Along with the abundant experience in the environmental education, Russia presently has a series of interesting, successful ESD development both in formal and nonformal education and awareness-building systems at all levels. A lot has been done and is being done by Russian nongovernmental organizations as well. It is critically important to ensure the recognition and support of Russian ESD initiatives and developments at the state level and incorporate ESD promotion objectives in educational practices, plans, and curricula.

Many things have already been accomplished for ESD development in Russian higher education. However, it would hardly be possible to achieve success in Russia without a comprehensive involvement of high school or a harmonious integration of ESD principles and tasks in general and special secondary education, Russia should pay attention to the expansion of ESD domestically. We need a National ESD Strategy and Action Plan. These documents should be prepared based on a broad consulting process. It is necessary to engage in this process not only the Ministry of Education and Sciences the coordinator but also other ministries and departments (the Ministry for Natural Resources, the Ministry for Culture, the Ministry of health and Social Development, and others.), scientific and educational establishments, nongovernmental organizations, business groups, and other stakeholders.

### **The general public and ESD**

In many countries, the practical role of the general public and, especially, nongovernmental organizations in the development and implementation of ESD is really great. This is particularly typical of advanced European countries that have long complied with the democratic, open process of preparing and implementing various plans, strategies, and programs. However, Russian NGOs, too, have accumulated sufficient experience, knowledge, and expert potential for competent participation in political and practical ESD processes in our country.

In addition to taking part in the development of policies, strategies, and programs, NGOs are carrying out extensive public awareness activities, preparing and publishing informational and methodological materials, organizing trainings and camps, and are actively engaged in additional and nonformal education processes. Also, NGOs may play an essential role in the further expansion of cooperation with the media, including via journalist associations, informal press clubs, and electronic communications media. A number of innovation projects in the ESD area aimed to promote school education are currently in Russia.

Another critical role of NGOs is associated with their ability to attract joint resources for expanding ESD through noncommercial projects that may be implemented jointly educational establishments.

Finally, both now and in the future, NGOs may help and work to expand and make more active the involvement of Russian educational institutions in building international ESD partnerships.

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## THE TASKS OF ENVIRONMENTAL EDUCATION FOR SUSTAINABLE DEVELOPMENT

The development of a concept for sustainable development, which was initiated 20 years ago, signified a transfer at a top international level from a "slapdash" activity aimed to reduce the adverse effects of mistakes made to preventive arrangements aimed to avoid possible cataclysms and timely elimination of contradictions up to paramount issues of global sustainability of the biosphere.

The resolution of the UN Economic Commission for Europe to concentrate efforts on the improvement of education for sustainable development marked the beginning of a serious reform to cover all types of education and training from preschool to vocational and post-university. The core of the reform is to pass from simply devolving knowledge, habits, and skills necessary for existence in modern society to a readiness to act and live in a fast-growing world, take part in planning social development, and learn to foresee the implications of actions taken, including possible impacts in the sphere of sustainability of natural ecosystems.

The intention of Strategy designers was to restructure the system of education to foster developing people's habits of critical and creative mentality combined with instilling mutual respect to dissentients, comprehending the democratic forms of concerted decision making, and fulfilling evolved plans.

To this end, it is projected to introduce a number of nontraditional topics in the education process and to enhance the interdisciplinarity of instruction to enable students to learn posing and addressing integrated social and environmental problems.

The Strategy envisages that the phase of action plan preparation will take several years. In this interval of time, it is necessary to clear up at least five questions:

1. What problems may humanity and specific countries face with as a result of accelerated progress, globalization, and anthropogenic action on the biosphere?
2. What particular things should be instructed to enable people to promote sustainable development?
3. What forms and topic of education should be chosen for learners of different age and social and intellectual abilities?
4. What techniques should be used for promoting creative skills, analytical thinking, and concurrence of team efforts?
5. How to implement a critical review of the content of existing curricula and programs to adjust their load?

As regards the first question about possible implications of globalization and acceleration of scientific and technological progress, there are abundant data and generalizations that allow one to make a general list of major components of the environmental and social crisis. These include (1) a disproportion between the growing population in the world and the limited nature of natural resources; (2) extremely high waste generation (environmental problem); (3) danger of

**On December 20, 2002, the UN General Assembly declared launching from January 1, 2005 a Decade for Education for Sustainable Development. The next year, the 5th Ministerial Conference "Environment for Europe" (Kiev, 2003) approved a Declaration on Education for Sustainable Development and suggested that all countries should include the concept for sustainable development in their education programs at all levels. Then, the UNECE Committee on Environmental Policy (Vilnius, 2005) adopted a UNECE Strategy for Education for Sustainable Development, which inaugurated the Decade declared.**

anthropogenically provoked global climate change on the planet; (4) danger of other environmental disturbances, including that of Earth's protective shell; (5) unpredictable danger of biodiversity shrinking; and, at the same time, (6) an increasing disproportion between rich and poor countries, educated and non-educated communities, and democratic and totalitarian methods of management; (7) contradictions among the cultural traditions of different nations, religions, and economic groupings; (8) increasing risk of uncontrolled use of various achievements of scientific and technological progress – the increasing power of an individual who gets access to destructive technologies.

A partial answer to the second question may be found in documents on sustainable development. The Agenda'21 adopted at an international conference in Rio de Janeiro in 1992 provided a list of 40 major areas that have to be elaborated to attain sustainable development. Although today this list has to be longer, it, no doubt, remains a guiding document to determine the content of education for sustainable development (ESD).

That is why the Strategy (i.15) contains a brief answer to the question about the content of ESD. It lists 18 topics, among which only directly refer to environmental education: (1) environmental protection, (2) natural resources management, and (3) biological and landscape diversity. However, more than half of the remaining fifteen topics are largely related to sustainable nature management methods and environmental safety assurance.

In education, environmental subjects not only have an independent life-asserting meaning but appear to be the best material for demonstrating a concrete interrelationship of social, natural, and technological components of sustainable development.

We may consider that the phase of development of the content of universal environmental schooling has completed by now. This education must begin with discussing issues related to the sustainability of the biosphere and characteristics of the increasing anthropogenic impact on the environment. It will then continue with the answers to the questions: "How long will natural resources last?" and "How to reduce the negative effect of that strong economic impact on the biosphere?" The finishing stage should deal in detail with methods to attain sustainability that have been devised over the last two to three decades. These methods need a special training of professionals and, at the same time, they should be known to every citizen.

Following this logic of analyzing environmental problems in the context of a more general problem of sustainable development, we may point out five sections as follows:

1. Conditions for sustainability of life on Earth.

2. Environmental implications of the growth of humankind and consumption of natural resources.
3. Environmental implications of the growing variety and amount of waste (environmental pollution).
4. Organizational, legal, and economic methods to prevent an environmental crisis.
5. Conditions of sustainable development of humankind.

The above-mentioned general structure of a program for universal environmental education may be further detailed to a considerable degree.

While recognizing the obvious progress in the development of the content of environmental education over the last decade, we should not forget about the shortcomings in what has been done. One of them is inadequate elaboration of the natural-science component of the interdisciplinary program of environmental education.

When attempting to create an education system to meet modern requirements aimed to re-orient society towards building an ability to analyze possible implications of ever accelerating human progress, we, in fact, pose two important challenges – to teach people to gain an understanding of

(a) natural processes that underlie the existence of the biosphere and

(6) social processes, on which societal wellbeing and sustainability depend.

Whereas the development of environmental socioeconomic issues has been in the focus of scientists and practical experts over recent decade, the progress in comprehending the laws of biospheric sustainability has been insufficient.

Unfortunately, in the Strategy itself, the role of the natural-science element is not defined well enough. Meanwhile, discussing socioeconomic issues without taking into consideration conditions for maintaining the stability of the biosphere is fraught with grave mistakes.

As regards methodological objectives of environmental education, they are, by the highest standards, reduced to five major aspects as follows:

1. Further development and improvement of interdisciplinary subjects.
2. Detailed elaboration of topics to be included in traditional disciplines.
3. Identification of a clear logical order for the content of the main stages of continuous education for sustainable development.
4. Restructuring of education from simple assimilation of knowledge to developing students' ability for independent analysis, definition of problems, and search for their solution.
5. Selection of effective means to develop skills of concerted actions and mutual respect in learners.

Russia's experience in building environmental education over the last twenty years allows us to give a general answer to the third question as well – phased differentiated education with topics and forms meeting the requirements of different age groups of the population. According to the Strategy of Environmental Education in the Russian Federation, which was developed by request of the State Committee for Environmental Protection in 1999, the system of environmental education is divided into several steps: preschool institutions, secondary school, higher school, vocational retraining, and public environmental awareness building. Practically at all these stages, it is possible to combine formal and informal forms of education except the last stage – public environmental awareness building, where everything is based exclusively on informal education named additional environmental education.

Within the framework of formal pre- and secondary-school environmental education, a mixed model of environmental education enjoys the greatest popularity among teachers. This implies that learners, along with studying ecology as an independent subject, get additional environmental knowledge with account taken for traditional subjects provided for in the syllabus for each stage of education including specialized. Today, pedagogical objectives for each stage of education have been specified. We believe, however, that there still remain many issues that could be debated and need further elaboration.

Thus, the most important objectives at the level of preschool environmental education are considered as follows:

- Fostering love for nature and careful attitude to the environment;
- Developing understanding of natural phenomena and interrelations between them;
- Building a basic system of values (perception of the beauty and developing a kind attitude to all representatives of the alive, a sympathy for the defenseless, an urge to help those who need help, and so on);
- Promote personal hygiene skills.

Although the importance of biological component is apparent, it would be wrong to bring the environmental education at the time of preschool personality mould to just simplified narration of the basics of ecology. It is much more important and timely to shape children's fundamental qualities like

- Thrift and economy, understanding a limited nature of resources;
- Ideas about the dangerous power of technology;
- Critical self-perception, ability to understand other people's motivation;
- Self-control skills manifested in simple ways (not to spoil, not to touch, not to break, not to be rude, etc.).

All these components of a developing character bear direct relation to bringing up a child to be a responsible person able to live and act in community and to respect other people. Unfortunately, there are still not enough practical developments on these critical sections of preschool education.

To meet these objectives, we would recommend discussing and studying such topics as the concepts of elementary ecosystem and their functioning, urban ecosystems and human place in them, the flora and fauna of the native land, and habitation environmental problems.

At the level of secondary school, environmental education is divided into three stages: elementary, basic, and complete secondary school. With each subsequent stage, the goals and content of subjects studied become more complicated.

At the elementary general education, new goals are added to mould a responsible behavior in respect of nature:

- Building basic concepts regarding man–nature relationship;
- Developing ethical values in respect of nature;
- Gaining initial experience in environmental protection.

It is foreseen to achieve these goals in two ways: via the Natural History or Visual Environment subjects and via additional environmental education. The integration of both allows one to attain an excellent effect. Here, the topics to study could be Living Environments; Living Organisms Relationship; Natural and Artificial Ecosystems; and Man as Part of the Ecosystem.

Laying basic elements of responsible attitude towards nature manifested in looking after plants and animals is an essential task of environmental education at the primary school stage. For some reason, this important practical device for shaping responsibility remains optional in the system of school education.

At the level of basic secondary school, the frameworks of Biology, Geography, Physics, and Chemistry may offer a good chance to develop an environmental culture as a culture of reasonable consumption, a healthy way of life, and real environmental activity based on the awareness of danger to lose the natural environment. Here, it is already practicable to study such topics as general ideas about the biosphere, anthropogenic activity and its effect on various ecosystems, conducting environmental monitoring, and so on.

At the level of complete secondary school, the focus is transferred to:

1. Development of personal environmental responsibility;
2. Knowledge and use of civil rights;

3. Assimilation of system knowledge about environmental interactions at global, regional, and local levels;
4. Understanding the core of current environmental problems and the necessity of sustainable development for modern civilization.

The critical aspects at this stage of instruction are an inter-subject curriculum coordination and a study of each concrete topic with taking into consideration biological, chemical, physical, and general-geographic knowledge, in the first turn, as well as history, social science, and economic fundamentals. The main topics for this education stage may be practically all of the above-mentioned 14 subjects, it is only necessary to allow for the age and intellectual levels of students.

At higher school, environmental education is promoted along two lines:

(a) as a general-education paradigm of sustainable development, according to which every professional, irrespective of the specificity of chosen trade, should in full have such qualities as social responsibility, initiative, ability to forecast further development of a situation, ability to formulate problems and search ways to tackle them, and tolerance of alternative judgments combined with eagerness to explain own position; and

(b) as a professional sphere of knowledge and skills in compliance with the chosen field of specialization.

Post-graduate education or a retraining and upgrading system should also address both above-mentioned tasks. Considering the objective features of a personality's late social maturation, we must admit a high effectiveness of higher and post-graduate education in achieving the goals set by the Strategy for Education for Sustainable Development. If fundamental character traits are laid down at an early age, social responsibility is normally shown, in its reasonable form, later.

Additional education plays a special role in environmental education and training, because it is highly adaptable to societal changes, can quickly respond to needs of any age groups, and, most importantly, implies a freedom of choice of programs and areas of instruction.

In Russia, environmental education in the system of additional education is most successfully implemented along two lines: environmental and biological and tourist and local-lore that determine the choice of clubs, societies, expeditions, and other forms of work.

Education for sustainable development is actually targeted at general elevation of people's intellectual level though assimilation of progressively more difficult varieties of knowledge, forms of thinking, and considered actions.

Looking at the ESD Strategy, we see that it foresees arrangements to foster a stage-by-stage achievement of the supreme level of intellectual development, relevant educational programs for various population groups.

The Strategy is addressed to governments; it contains substantiations and recommendations pertaining to the development of policies and arrangements to include sustainability issues in education with participation of teachers and other stakeholders.

It should be emphasized that the designers of the Strategy warn that a sustainable society' development itself should be understood as a continuous process of education, research into problems and dilemmas, where correct answers may change with gaining experience. In an unknown area like future society designing, it is important to keep the adherence to common values solidarity, equality, and mutual respect between people, countries, and generations. Without these skills, it would be difficult to resist opposition and intestine wars that might destroy a valuable undertaking. One should test social reforms with special care, and this is quite applicable to the system of education, which needs time.

Before our eyes, environmental education has evolved impressively. For a present-day education, it is important to accept in a worthy manner the challenge of the time that demands deep consolidation of natural and humanitarian knowledge to educate humans who will be able to take care of the future of humanity based a firm footing of reliable knowledge of the objective laws of nature and society existence.

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## PROBLEMS OF CONTINUOUS NOOSPHERIC EDUCATION

Education problems have always concerned Russian progressive people. So do they now. This is quite logical. The rates of development of civilization are continuously increasing. The volume of knowledge necessary for active functioning in the varying world is growing proportionally. All this does not fit within the bounds of traditional curricula.

There is no doubt that curricula cannot remain invariable in a fast-paced world. However, what should be changed and how it should be done? Let us try to answer these questions in the light of the noospheric concept.

**Noospheric approach.** The 20th century, which marked a previously unknown alliance of science and technology, generated a specific technical mentality that permeated not only science and production but also the humanitarian areas of social life and even common mentality. Its first steps were so impressive that they quite soon generated public illusions regarding the omnipotence of science and technology. The successful technological implementations of new scientific discoveries consolidated the “nature subdual” slogan that promptly spread over all strata of social mentality: “We should not expect benefits from nature!”

It was only towards the end of the 20th century that some sobering up of social mentality and searching for ways out of extreme situations began. It was time when various environmental projects started to be intensively developed. With all their diversity, they were all characterized by one common feature – a common algorithm built on the utopia of the previous century and based on a broadly rooted illusion regarding the omnipotence of scientific and technological progress. However, it is precisely this dogma that has generated the environmental problems that civilization is facing. This is discussed in an article entitled “What Technological Progress Is Blamed for”<sup>1</sup>.

A cardinal solution was outlined in Vladimir Vernadsky’s teaching about the biosphere and its transition to the sphere of reason – noosphere, but it is only today that people all over the world are beginning to realize the “practical meaning of his ideas.” His fundamental work *The Biosphere* was first published in 1926<sup>2</sup>. It was fully translated into English as late as in 1998 and had substantial comments of prominent scientists<sup>3</sup>. In 2000, a French journal not just published his work *The Biosphere and the Noosphere* but also named him “the father of global ecology”<sup>4</sup>. In 2001, American economist and politician, a mathematician by training, Lindon LaRouche issued a book *The Economics of the Noosphere*<sup>5</sup>.

The concept for the noosphere embraces, in the end, all sides of human activity. A quite important place is given to close cooperation of natural and liberal sciences. According to Vernadsky, “It is becoming inevitably clear that biogeochemistry must be profoundly related to sciences about

<sup>1</sup> Naumov, G.B. What Technological Progress Is Blamed for. *Engineer*, 2004, No 5.

<sup>2</sup> Vernadsky, V.I. *The Biosphere*. Leningrad: NKhTI, 1926, 146 p.

<sup>3</sup> Vernadsky Vladimir. *The Biosphere*. New York: Copernicus, 1998, 192 pp.

<sup>4</sup> Grenier E. Vladimir Vernadsky, De la biosphère a la noosphère. *Fusion* № 89, 2000.

<sup>5</sup> Lindon H. LaRouche. *The Economics of the Noosphere*. EIR News Service, Inc, Washington, D.C., 2001.

**We learn for life, not for school!**  
(Latin dictum)

not life alone but about man, to humanities." But not only this. Society evolves via its culture in the broadest meaning of this word.

"Art in its very essence is an abstraction and always deals with general concepts rather than with specific cases. Even in portraits: not any minute of the face but the character of this face, and so on and so forth. Therefore, the absolute is so embodied in art and is eternal". "It is my strong conviction – and it is becoming even stronger – that the only possibility to make culture sound is to elevate the masses, to make culture inherent in them," wrote Vladimir Ivanovich to his wife Nataliya Egorovna<sup>6</sup>.

For a period from 1901 to 1917, Vernadsky wrote more than 30 articles on issues of popular awareness and, especially, higher education. These questions were especially vividly embodied in his paper "The Objectives of Modern Higher Education" dated 1913.

There, he gave the readers an exciting picture of the future – establishing an "organization of learning people" that should become "the groundwork for extensive, peaceful development of humankind". "The picture of the future is gradually beginning to be outlined better and better. ...a different form of future human life – an organization of learning people – is beginning to advance. We see here a productive form of organization that not just provides protection of culture and national existence but creates this culture that forges national strength. Learning people form the basis for extensive and peaceful progress of mankind"<sup>7</sup>.

**Education and training.** When reference is made to the problems of education, we sometimes fail to distinguish them from the objectives of education. Providing education and teaching are different things. A niche specialism is dangerous. For teaching a trade – perhaps. But not for education and awareness. Here, the Teacher must always have a considerably more extensive store of knowledge than is stipulated in the program. And the student should always sense that.

The way out of the situation we mentioned in the beginning is not in increasing the academic hours and years of training but rather in improving a teacher's personal culture. The teacher will try without fail to communicate what he/she knows well and senses quite fully to the students.

In recent years, there has been much discussion regarding the introduction in curricula of such disciplines as Basic Safety, Ecology, and Study of Local Lore. No doubt, students should receive information about how to survive in difficult conditions, about technogenic pollution, and the specific features of homeland. However, this does not necessitate

introduction of special subjects. This information should be organically integrated into traditional disciplines ranging from literature to physical training. Common teachers should learn to do that. Even pre-school teachers must communicate some elements of such knowledge to their learners. At least, love for nature, the feeling of their relationship with nature cannot be taught within the bounds of a special subject, for which certain number of academic hours are allocated. This won't work. One cannot mould patriotism through introducing a special subject.

In other words, the solution is not to increase the number of academic hours and years but to elevate the teacher's culture and mind. The things that the teacher knows will be surely imparted to the students.

Unfortunately, the notion of culture has been recently narrowed to art and literature. But the linguistic concept of culture as a historical level of societal development is considerably broader. Technical culture, farming culture, the culture of daily life and communication, and, finally, personal culture. This in total creates a societal culture. Both art and literature serve to promote this culture. Only an extensive education system, rather than a mechanical transfer of knowledge, may convey all this to generations.

An instructor who brings knowledge to the young generation must have not only an additional toolkit of knowledge but also a world outlook wider than the frameworks of a narrowly focused subject. The ancient Greeks used to say that "a student is not a vessel to fill but a torch to inflame." And here, the methodology is of primary importance. Human culture has been created from ancient myths via religion, art, and science. It has taken millenniums of human civilization evolution, tens of centuries of human thought searching before we have come to a modern understanding of the place of Man in the system of Nature.

Problems faced by the contemporary generation are closely related to the noospheric concept. The principles of interaction between the inert (lifeless), live, and social basics of everything existing on the globe create the groundwork, on which it is possible to further build the theory of "sustainable development of civilization." Let us, however, have a historical look at this.

**Educational process evolution.** The educational process, as everything on Earth, is undergoing a complicated evolutionary development. It is closely related to the variations of the leading social idea and its practical implementation. From individual education to schooling and then to continuous education and awareness. This is concisely reflected in the table.

In this general sequence, the modern stage acquires fundamentally new features associated with a rapid, deep penetration of novel information technologies into all spheres of life. In the conditions of intensive expansion of scientific knowledge and engineering capabilities, the knowledge one got yesterday will be insufficient tomorrow. Any person who has received

<sup>6</sup> Vernadsky, V.I. Letters to N.E. Vernadskaya. Moscow: Nauka Publ., 1991, 1993.

<sup>7</sup> Vernadsky, V.I. The Objectives of Modern Higher Education. *Vedstnik vospitaniya* (Education Herald), 1913, No 6.

Table

Period	Leading idea	Its practical embodiment	Leading types of education
17th century	Stability of the world	Using the gifts of nature	Individual education
18th–19th centuries	Development idea	Cognition of nature and beginning of its intensive development	Growing school education
Late 19th – early 20th centuries	Nature subdual	Transformation of nature, landscapes, and biotic communities	Massive training of engineering staff
Present	Global information communications	Man–nature harmony, sustainable nature management	Continuous education and awareness

secondary or higher education should keep up with scientific and technological novelties in order to have a correct understanding of and a conscientious attitude to current events. A continuous system of education is needed.

**Three steps of education.** So, in compliance with the noospheric concept, education and awareness cannot be reduced to the improvement of school curricula only. This should be a continuous process, in which learning people should be involved. This process may be conventionally divided into three main steps: upbringing, education, and awareness.

1. Upbringing. This is the foundation for the whole further behavior and way of life. It begins from infancy. In the family, in crèches, in the kindergarten. At this age, an individual copies the behavior of other people rather than performs deliberate actions. But it is precisely at this time that the unconscious memory of a child creates stable stereotypes that determine many things in his/her future conduct and modes of thought. During this period, moral principles are laid down and brought up to be subsequently used at the subconscious level.

2. Education. In this phase, from primary to higher school inclusive, the groundwork for scholarly knowledge that has been accumulated by humanity in the course of its history is laid down. In terms of the volume of knowledge provided, the contemporary secondary school in many respects exceeds the old university of the first half of the 19th century. The rapid growth of scholarly knowledge leads to the fact that the secondary school is unable to play the role it used to play several generations back while keeping old curricula. At the same time, the link between high and higher schools is getting more important from generation to generation. In the old days, people quite logically considered that “it is necessary to know a little about everything and everything about a little.” That is why it is exactly fundamental education, rather than training, should be the corner stone at all stages of the educational process.

<sup>8</sup> Moiseev, N.N. *Universum. Information. Society.* Moscow: Ustoichiviyi Mir Publ., 2001, p. 183.

3. Awareness. Now, even within the span of one generation, scientific and technological development is progressing so rapidly and science and technology are changing so abruptly that it is infeasible to get higher-school knowledge enough for a graduate’s whole life. From time to time, the knowledge should be updated. This constitutes one of the specific features of both the present day and the future. The reference is not just to technical skills. This was noted by Vernadsky, who back in 1893 wrote to his wife that he wanted “to get a magic lantern and arrange winter readings for the whole of neighborhood by moving the lantern from school to another. The life of the peasants is terribly mean; it is hard, economically unbearable, and, in addition, it is terrible spiritually. Indeed, one should not work for satiety alone, and such activity does not satisfy me, at least. The magic lantern with pictures should be placed in the hamlet – then, no permission will be needed to get from anybody.” Today, we can say the same about new computer technologies as a means for continuous awareness building of learning people. The Internet allows us to use interactive educational programs.

**Education and the noosphere.** Coming back to the noospheric concept, we should remind again that it differs from the technosphere precisely by broad education of masses, “learning people.” Academician N.N. Moiseev, one of the most profound followers of Vernadsky’s teaching, said that “man may have the future only if he assumes responsibility not just for the development of society but for the development of the biosphere as a whole”. “No individual state, even as mighty as the United States, cannot ensure its own stability”<sup>8</sup>.

In the end, everything depends on people’s general culture and education, on the ability of the socium to open up the creative capabilities of its citizens. Here, personal culture as the main element of civilization is brought to the forefront.

**G.B. Naumov**  
Vernadsky State Geology Museum

## SOCIAL ECOLOGY AS AN INTEGRATIVE ENVIRONMENTAL COURSE: EXPERIENCE IN DEVELOPMENT AND TEACHING

At each stage of societal development, it seems to us that our knowledge is sufficient to be implemented in practical activity, but following the implementation, it turns out that there have been gaps that we have failed to take into account. Thus we find out that our knowledge is mosaic (fragmentary) in nature. At this stage, the mosaicism of our knowledge is determined by the analyticity of the classical science's methodology<sup>2</sup>. In some fields of scientific knowledge, the analytical approach allowed us to penetrate into the material composition so deeply that using technical devices based on this knowledge, we got a chance to have substantial impacts on nature. The implications of these impacts related to gaps in our knowledge are manifested as modern environmental problems. There have appeared quite a lot of environmental disciplines, in which the subjects of investigation are beyond the scope of classical ecology. This testifies to the ecologization of various basic and applied sciences. As a result, a specialist say in political ecology cannot always be able to find a common language with a specialist who deals with industrial ecology or environmental ethics. Just like a physicist cannot always understand a sociologist or an economist.

I.E. Moskalev<sup>3</sup> suggests representing the link among the processes of knowledge differentiation, societal professionalization, and science financing as a feedback cycle. The cycle ensures, on the one hand, development of science at university and, on the other hand, its differentiation. Disciplinary science within the framework of university trains narrowly focused specialists – professionals in their field and thus contributes to societal professionalization. However, the university is financially dependent and needs social support, so it is financed based on this society's idea of the necessity to promote one or another scientific spheres of activity.

In Tomsk alone, 7 higher educational establishments, 16 faculties (more than 20 departments), train ecologists in various fields who sometimes have difficulty to understand each other when communicating. This is essentially explained by the fact that while focusing on teaching highly specialized disciplines that are compulsory for one or another basic specialty, the faculties and departments are overly cautious to include integrative general-education courses in the curricula. No doubt, specialization has positive sides as well. One cannot but agree with the point of view of N.A. Yasmanov<sup>4</sup> about the necessity of collision of different professional opinions and value systems entailing discussions that encourage a comprehensive study of the subject in question. However, searching for ways to overcome the approaching environmental crisis necessitates promoting environmental training not just for ecologists but

**The consequence of the differentiation of scientific knowledge has been a loss of an integral perception of the surrounding reality (scientific picture of the world). According to Daniel Bell, a well-known American sociologist, the world is a world seen through the eyes of theoreticians. They can see only subject-organized world – physical, biological, or geological. Now, nobody grasps the integral picture of the world, and this is the essential cause of the environmental crisis.**<sup>1</sup>

<sup>1</sup> Ershov, V., and Epishin, E. Second Program of Universal Environmental Education, Man and Nature, No 6, Znanie Publishing House, 1988.

<sup>2</sup> Environmental Education and Sustainable Development. Eds. A.N. Moldavin and A.D. Ursula. Moscow: RAGS Publ., 1996, p. 214.

<sup>3</sup> Moskalev, I.E., Network Structures of Disciplinary Knowledge. Electronic resource: <http://iph.ras.ru/~imosk/Seminar/moskalev/Moskalev.htm>.

<sup>4</sup> Yasmanov, N.A., Environmental Education and Nature, Man and Nature, No 6, Znanie Publishing House, 1988.

also for representatives of other professions involved in the process of social production.

Differentiation makes one apply methods and techniques of interdisciplinary sciences and leads to their integration and formation of new scientific disciplines. For integrative science, which should explain and forecast basic development trends and the structure and principles of society–nature interaction, various names were proposed, but the term “social ecology” has become the most generally recognized. This concept was first used by representatives of the Chicago School of Urbanistics Robert Park and Ernest Burgess in the mid-1920s for the name of a theory studying internal mechanisms of development of a major industrial city.

The basics of social ecology as a science in its contemporary meaning were developed by well-known American ecologist Murray Bookchin who stated that mind and technologies should be balanced with spirituality, aspiration for a maximum diversity of the world<sup>5</sup>. Since the 1960s, social ecology has been developing as a discipline formed at the interfaces of natural, technical, and humanitarian sciences and directed at identifying general principles of man–biosphere relations.

With the advent of social ecology, a process of integration of environmental knowledge began, but it is not anywhere near completed. The subject of social ecology is studying socionatural systems, that is, such systems, where man, society, technology, and nature interact. N.M. Mamedov<sup>6</sup> emphasizes three levels of consideration of the issue of man – society – nature relationship: philosophical, general-scientific, and special-scientific. Social ecology chiefly uses the philosophical and general-scientific ones.

The objective of social ecology is to identify the laws of societal nature-transformation activity, which makes it possible to define the best nature development perspective. The laws of social ecology should reflect the degree of coordination, synchronism of matter-and-energy and information flows resulted from human transformation activity and natural cycle of matter, the flows of energy and information.

According to Mamedov<sup>6</sup>, the integrative environmental course should include the following areas:

- Development of Ecology. Basic Concepts and Methods;
- Biosphere – a Global Ecosystem (Global Ecology);
- Biospheric Ecosystems; Population and Organism in the Ecosystem (Biological Ecology);

<sup>5</sup> Girusov, E.V., Basics of Social Ecology: Teaching Aid, Moscow: RUDN Publ., 1998, p. 172.

<sup>6</sup> Mamedov, N.M., Culture, Ecology, Education, Moscow: REFIA Publ., 1996, p. 52.

<sup>7</sup> Konyashkin, V.A., Social Ecology / Ecology, Environmental Protection, Rational Use of Natural Resources, Environmental Management: Collection of Curricula / , Eds. R.A. Karnachuk, T.K. Blinova, and N.A. Shinkina, Tomsk: Tomsk State University, 2003, p. 67-79.

- Man in the Ecosystem: Anthropecosystems (Human Ecology);
- Humankind in the Biosphere: Socioecosystems (Social Ecology).

The objective of the course implies building an environment-conscious approach to be applied to different levels of organization of matter including social. The course developed by this author based on the above-mentioned methodology<sup>7</sup> has been given, with some abridgments, to students at the Department of Environmental Management of the International Faculty of Agriculture, Nature Management, and Environmental Protection, Tomsk State University, since 1998. The course covers 34 lecture hours and 16 hours of practical studies. While developing the course, it was taken into consideration that students receiving detailed training in biology and ecology study biological ecology and a considerable part human ecology within the framework of other disciplines. Therefore, the focus was made on students’ study of issues related to technical and scientific and technological development of nature in historical and modern aspects and the reasons and prerequisites for shaping societal anthropocentrism, ecophobic value paradigms, and consumer attitude to nature. Also, students’ attention is drawn to the demographic situation, the problem of urbanization of population, and the outlook for the development of civilization depending on the value paradigms regarding nature built in society.

Similarly, the course may be adapted to other specialties. The essential conditions for adaptation is a system approach, a necessity to keep the integrity of the problem of interrelations in the society – nature system, and the indissolubility of the processes of societal nature-transformation activity and the impact on society of the modified environment (nature in its global understanding).

Such integrative environmental course essentially encourages the students to build new approaches to nature use and the ecophilic organization of human activity based on environment-conscious world outlook. Practice shows that students assimilate lecture materials with interest, hold lively discussions, and raise nonordinary questions during practical studies. It is my persuasion that this course is useful and even necessary for students who receive training in “non-environmental” specialties, both technical and humanitarian.

#### **V.A. Konyashkin**

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## ENVIRONMENTAL AWARENESS BUILDING IN THE STRATEGY OF GREEN CROSS RUSSIA

Following the World Summit in Rio de Janeiro (1992), the ideas of sustainable development have been progressively more disseminated all over the world. Sustainability problems have been more broadly discussed, and public awareness about the state of the environment and pollution-related effects on human health has essentially improved.

The activities of major population groups, especially, nongovernmental organizations, local authorities, and aboriginal peoples in the area of sustainable development have expanded. Their role in policy-building in various spheres, such as law making, education, information, awareness building, and implementation of various projects has increased.

The idea of sustainable development implying that we need a fundamental change emerged in advanced countries. The world community backed this idea. However, the world's countries are different, with some of them still living in the Middle Ages and some in the 21st century. Apparently, the starting conditions, in which the countries embark on the path of sustainable development, also differ. Hence the unpreparedness of "poor" countries to follow sustainability principles involving, primarily, the renunciation of an excessive use of resources, at the expense of which developing countries try to improve their economic situation.

It has not yet been defined what is economic, environmental, and social sustainability, but it is perfectly clear that no long-term economic and social development is possible on a depleted planet. In this connection, extensive environmental awareness building is the key to sustainable development and the conservation of the natural environment and the harmony of Man and Nature.

The task of sustainability awareness building is to orient society to the building of a "civil society" capable of preventing the arising of conflicts rather than to the "resolution of conflicts."

Awareness building may be effective only provided people understand the information received and this information alarms profoundly every individual. Awareness building should open up possibilities for making people's own decisions, for example, regarding changing their consumption patterns.

With new realities taken into consideration, it is quite apparent that the available environmental education in Russia should gradually depart from traditional "green" questions and alter the general balance in favor of economic and social spheres. Environmental education should be related to sustainable development, because the latter implies a shift in the civilization development paradigm.

Economics should deal with the establishment of motivating relations between environmental, economic, and social issues.

**Green Cross Russia has a unique experience in the sphere of environmental awareness building. A variety of approaches and methods for work with target groups have been developed, and a host of methodological guides, learning aids, topical brochures, and other printing products have been created.**

However, as soon as we trench upon economics and the sphere of social issues, we unavoidably trench upon politics.

Here, one vital circumstance emerges. Today, the general education school as an essential element of the system of formal education qualified to bring up a young generation with a fundamentally new insight into societal evolution is not accommodated to politics, so a need to involve public groups outside the schooling system is generated. This, however, does not mean that formal education keeps out of this important process. There is no doubt that the ideas and principles of sustainable development should be incorporated in the content of secondary, special, and higher education. Yet, practice shows that it is exactly the general public that demonstrates the highest activity in many important processes that occur in the country and can weigh with political decisions.

We should not forget that the environmental public made an essential contribution to the creation of the Russian Environmental Doctrine. Thus, the Environmental Education section was completely written by Green Cross experts.

The education strategy for sustainable development may be implemented "top-down" (by government regulation) or "bottom-up" (via a system of formal and nonformal education and awareness building). However, it is difficult to do something in Russia without a front-office authorization; therefore, the organization of wide-scale awareness building for all population groups seems to be the only reasonable approach today to enable fastest possible introduction of citizens to the range of sustainability problems.

Very unfortunately, the Civil Forum, which took place in Russian in 2002, failed to touch upon any issues pertaining to sustainable development as well as to the most active sector of civil society – environmental, including public councils under the Russian Ministry for Natural Resources, the Russian Ministry for Atomic Energy, and other councils, in which environmentalists play a key role; political initiatives, such as collection of signatures for a referendum on banning nuclear waste import into the Russian Federation, a campaign against antienvironmental combustion of solid-fuel-driven rocket engines, establishment of "green parties", and so on.

Thus, we have a civil society potential, only it should be efficiently realized in the interests of sustainable development.

In this context, it is extremely important to establish models of best practices and effective structures for implementing this line of activity. The best models should actually become a sort of

precedent in society and be able to affect such categories as knowledge and understanding, values and behavior, preferences and lifestyle.

It is possible to extend positive experience through the use of available networks and the establishment of socio-political movement based on them. This would enable one to expand the success gained and give hope that a top-down response follows. We may assert that the best models represent a kind of societal driving force on the path of transformations.

Nongovernmental organizations, especially, environmental NGOs possessing a well-developed network for furnishing information to various population groups and rendering effective assistance to extended and formal education facilities (information centers, environmental camps, expeditions, trainings, seminars, publishing, etc.) can make an invaluable contribution in this process.

Nongovernmental organizations reflect the public opinion and pose questions that generate interest and alarm among various groups of population.

In those situations when politicians are concerned with popular votes rather than expert advice, of great importance is the public attitude to information obtained in the process of education and awareness building.

To change the situation drastically, it is necessary to conduct targeted work on disseminating sustainability ideas in society, expand the system of education and awareness-building in the interests of sustainable development, and focus on the training of specialists who master the principles of conflict-free development of the Society – Nature-Man system.

A critical element of sustainability awareness building is the participation of nongovernmental organizations in the development of Local Agendas'21. In this connection, establishment of a national program for increasing the role of the general public in addressing sustainability issues is necessitated. Such program should place emphasis on the Education and Awareness-Building Strategy and Action Plan to embrace people of all ages and societal sectors.

Consequently, an environmental education and awareness-building policy should include as follows:

- Capacity building for mass-scale education of all social groups to foster best nature-management practices and humane attitude to nature;
- Dissemination of reliable environmental information via the media and the publishing of

popular environmental literature (environmental awareness-building and reference literature, diverse experimental training materials, computer games, video films, and so on);

- Promotion of public environmental movements of children, youth, and adult people and building of a civil society;
- Elucidation of the economic aspects of nature–man relations: destroying nature is not only immoral but also economically unsound;
- Expansion of sustainability awareness building in the mass media;
- Popularization and integration of the ideas of sustainable development, human health and the health of the environment, and the risk and value of resources into the education system at all levels;
- Promotion of environmental awareness-building programs in national parks, nature reserves, museums, libraries, zoological parks, botanical gardens, houses of nature, etc.;
- Environmental awareness-building activity of government environmental services, the media, social institutions, and so on;
- Environmental artistic activity of creative unions and individual artists (aimed at building an ethical and aesthetic attitude towards nature);
- Creation of a network of public information centers for the population to deal with various aspects of sustainable development.

Green Cross Russia is already doing many of the things projected for the future. This especially refers to the regions with the cold-war legacy. Awareness-building efforts are carried out via analytical information centers established by Green Cross Russia for work with the population.

Today, there are 11 functioning centers of this kind. One essential aspect of their function is aimed to generate a positive public view regarding issues of the storage and destruction of chemical weapons and to inform the population about radiation safety. The target group includes rank-and-file citizens, young activists, representatives of local administrations, schoolchildren and teachers, and medical staff.

Along with the above-mentioned centers, there are more than 20 divisions of Green Cross Russia, which generally operate based on the Environmental Education and Awareness Building program. Along with problems of environmental safety, great attention is played to broad environmental awareness building for all social and professional groups and, in the first place, for children.

Awareness building is exercised all the year round and is considerably increased during the summer camp campaign.

Green Cross Russia has a unique experience in the sphere of environmental awareness building. A variety of approaches and methods for work with target groups have been developed, and a host of methodological guides, learning aids, topical brochures, and other printing products have been created.

**S.I. Baranovsky**

President of Green Cross Russia

## REGIONAL ENVIRONMENTAL EDUCATION: EDUCATION FOR SUSTAINABLE DEVELOPMENT

The Regional Environmental Education Association was registered in 2003 as an autonomous noncommercial organization.

The association is primarily aimed at:

- Developing regional systems of environmental education all over the Russian Federation;
- Establishing a uniform regulatory and scientific and methodological framework for the function of regional systems of environmental education;
- Coordinating and integrating the function of regional systems to set up a uniform environmental educational space in the Russian Federation.

To meet its challenges, the Association sets tasks as follow:

- Carrying out a selection, expert analysis, and systematization of data on environmental education resources available in the Russian regions – products of long-term intellectual creative activity of scholars and teachers recognized in Russia and well-known in other countries.
- Initiating development of new teaching aids, state-of-the-art educational technologies, and diagnostic tools aimed to build an environmental culture in the sphere of formal and informal education and comprehensive environmental awareness.
- Creating a database of the above-mentioned environmental education resources and make it accessible throughout Russia.
- Organizing consulting support for all participants in the environmental education process using modern information technologies (computer forum, distant consulting, and network projects).
- Conducting regular scientific and practical conferences on problems of regional environmental education.
- Preparing and publishing popular, instructional, and scientific literature on ecology, environmental protection, and environmental culture.

The Association is managed by a coordinating scientific and methodological council consisting of Russia's leading teachers in ecology: N.F. Vinokurova, G.S. Kamerilova, and V.V. Nikolina (Nizhni Novgorod); L.A. Korobeinikova (Vologda); S.V. Komov and L.V. Moiseeva (Yekaterinburg); T.Ya. Ashikhmina (Kirov); M.L. Zvezdina (Tver); O.N. Ponomareva (Penza); Z.I. Tyumaseva (Chelyabinsk); E.N. Dzyatkovskaya (Irkutsk); V.A. Ignatova (Tyumen); N.D. Andreeva and N.V. Gruzdeva (Saint Petersburg); and others. The council is chaired by Professor S.V. Alekseev (Saint Petersburg).

The Association unites leading educational institutions and individual teachers representing 41 region of the Russian Federation.

Among the most significant events arranged by the Association was the All-Russian conference "Promotion of Regional Systems of Environmental Education" (Perm, September 2004).

The Association's experts are now finalizing preparatory work on creating an Internet portal named Education for Sustainable Development.

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**The Association's experts are now finalizing preparatory work on creating an Internet portal named Education for Sustainable Development.**

The portal is aimed to integrate scientific, methodological, and instructional information materials on Education for Sustainable Development into a single informational and educational medium ensuring access to the most comprehensive Russian-language resource in these areas. To this end, it is planned to design and put into life the operating version of the interactive information system, which represents selected, structured data presented in the Education for Sustainable Development Internet portal.

It is well-known that education plays a unique, decisive role in the assurance of understanding the core of sustainable development and societal perception of this concept.

Education for Sustainable Development is becoming a priority line for educational systems of many countries of the world.

In recent years, the expansion of Education for Sustainable Development has been discussed worldwide at the summit level, within the framework of various international and intergovernmental organizations and working groups, nongovernmental organizations, awareness-building associations, and other institutions. In various countries and regions of the world, educational courses are introduced, interactive seminars are held, practical work is carried out, extensive public-awareness arrangements are implemented, and public actions are conducted.

At the same time, the content, the subject sphere, the methods of integration into the curricula, and other attributes of education for sustainable development in Russia have not been defined yet. Today, only individual initiatives are available to deal with the development of curricula and the holding of scientific and practical conferences (which generally pertain to higher education). The considerable scientific and methodological potential of foreign pedagogic research and educational projects as well as the results of research of domestic teachers are little known to the general public. These materials are fragmentary, scattered over a great number of Internet sites, and frequently difficult to access. Consequently, the lack and poor structuredness of information and the inconvenience of access and navigation hinder the development of this new promising area of education and public awareness building.

The Association's experts have now elaborated the structure of the portal. Among its sections, the catalogue, which contains meta descriptions (cards) of available Internet resources, performs a critical function.

The portal's basic section is a library, in which systematized and structured scientific methodological, regulatory, reference, and other materials on the theory and practices of sustainable

development and the theory and methodology of education for sustainable development and public awareness building will be published.

Within the structure of the portal, the following search items for Internet resources will be provided:

- Educational sites;
- Full-text electronic libraries;
- Electronic periodicals on educational subjects.

Interactive services will enable the users to establish effective interaction. These include:

- Forums for discussing diverse problems with pre- and postmoderation opportunities;
- Queries to poll on urgent issues;
- Consultations;
- Personal pages – a service for forming a portal page where the user (author) may define the set and layout of information units.

The resources compiled in the Internet portal will be accessible to the general public for familiarization and use. This will create favorable conditions for expanding a new promising field in educational and awareness-building activities.

**V.V. Misenzhnikov**

Director of Ecology oblast educational center, Perm

## TOWARDS A SUSTAINABLE DEVELOPMENT: THE PUBLIC OPINION AND ENVIRONMENTAL CULTURE

The 1st International Conference “Sustainable Development in the Chelyabinsk Region: From a Dialog to Partnership,” which was initiated by public associations from Chelyabinsk Oblast, marked the beginning of an open dialog between authorities, society, and business on issues of regional sustainability, conservation of natural resources, and improvement of the state of the environment and public health.

Participants in the conference emphasized as follows:

- The economic development of the region cannot be stopped, but it should take another path and stop the intensive destruction of the environment.
- Reducing the social policy to its narrow sectoral understanding leaves out not only the social consequences of reforms but also everything that is at the interface of departmental interests.

Now, what is yet left out in case of a sectoral or departmental approach?

1. Life assurance, i.e., the degree of optimization of environmental and economic development, beyond which a life-threatening avalanche-like destruction of the ecosystem starts.
2. Lifestyle pattern – the framework for conserving ethnic diversity, which is especially important for determining a strategy in a polyethnic area and serves as the guarantor of social stability and public and personal safety.
3. Expansion of the subject area of environmental policy and environmental expert review beyond departmental barriers at the regional and local levels.

The only way to secure a safe future is to address the issues of environmental protection and economic development in package. A good state of health depends on the socioeconomic development and a healthy environment including safe food and water. The driving forces for changes in the environment are the population, consumption, and technologies as well as creative forces, ideals, courage, and knowledge. The public organizations of Chelyabinsk Oblast – the initiators of the movement for sustainable development – have always channeled and continue to channel their activity to promoting an active civil position among socium members.

Environmental problems cannot be dealt with by governments, organizations, or establishments alone, without active participation of the population. Any regulatory acts and any programs will be just ignored if people fail to understand the meaning and essence of a thrifty attitude to the environment and the importance of citizens' personal involvement in environmental arrangements. People need practical experience to be able to understand the potential

**A competent education and awareness-building strategy would make it possible to integrate into the mass consciousness and people's everyday life an idea about the interlinkage between their wellbeing and the conservation and improvement of residential areas and about the need to perfect interpersonal relations, strengthen solidarity, take care of one's own health and the health of others, and actively demonstrate one's civil position.**

and limited capability of the environment. To this end, active work with the population is requisite. However, engaging citizens in tackling environmental issues runs into certain difficulties:

- Disunity of official bodies and the population. As a rule, people and authorities “don’t speak the same language” and quite often do not understand each other. This is indicative of the unavailability of a common conceptual approach for analyzing problems and their solutions, which makes communication practically impossible.
- Quite frequently, citizens themselves fail to recognize the necessity of taking part in environmental arrangements. They are not cognizant of themselves as the doers, cannot identify and formulate the subject of their interest or their position regarding one or another issue, and they are not prepared to input their energy, time, and strength into the development of their locality.
- Public activity (despite our great respect for people who are involved in it) often lacks elementary managerial and organizational skills as well as practical knowledge about the environment.

Without reasonable engagement of and recourse to the general public, it will be impracticable to meet objectives pertaining to the recovery and protection of the environment from pollution and depletion.

Our public organization proposed a new strategy for working with the population. The key aspect should be introducing a frame of a territory, a territory as a source of resources, a territory as a source of problems, and a territory as a place where these problems should be solved and are dealt with by the population itself.

The adoption of a territorial “frame” will allow one to increase the number of participants in the process through the involvement of various structures, professional groups (deputative corps, specialists, economic executives, and workers of culture, health care, and education), and social groups (children, young people, parents) living and working in this territory. The transfer to the territorial principle will ensure further development of the local community and independent initiatives will perform the function of social and environmental innovation for the territory as a whole.

How and at what expense a socioeconomic development may be implemented is the key question of the present-day policy that makes one resort to the issue of development resources.

In our opinion, the strategic level of a resource policy should be backed on the human resource. It is to be emphasized that the spheres of education, design, and science appear to be determining at this strategic level.

Such policy could be conceived as building capacity for converting material and finance resources to intellectual via the sphere of education and back via the spheres of design, science, and technology. With this kind of policy, the system of education turns out to be an essential resource-producing system.

A competent education and awareness-building strategy would make it possible to integrate into the mass consciousness and people’s everyday life an idea about the interlinkage between their wellbeing and the conservation and improvement of residential areas and about the need to perfect interpersonal relations, strengthen solidarity, take care of one’s own health and the health of others, and actively demonstrate one’s civil position.

Massive awareness-building and educational work plays a fundamental role in people’s knowledge of issues related to sustainable development. The need in awareness-building and educational activity is dictated by the very logic of development of social institutions.

With expanding their work, public organizations begin to advance in the field of professional organizational activity. To improve their efficiency, nongovernmental organizations themselves have to learn and acquire necessary skills to deal with different social groups: business, power structures, and science.

One would hardly encounter a public organization without an intensive educational and training activity within it. In the course of trainings, NGO members perfect their skills in convincing people and working with documents as well as their capability to do their own business in a professional mode, which, no doubt, elevates the level and the social status of social institutions and enables them to make the grade.

It is the scholarship of NGO members and their awareness about issues discussed that opens the doors of the offices of key strategic decision makers or executives who influence respective decision making.

This tendency should be extended, the more so since the question of the participation of public experts in taking strategic decisions is becoming progressively more important. The issue of building a public expert review should become a guiding line in activities of noncommercial organizations.

At the same time, business organizations, when planning and implementing their operations, already cannot just fob the public opinion off. Their social actions may be actually quite punishable – the public opinion will turn away from them. We all are consumers, and social institutions that build their activity on sustainable development may exert real influence on the views and preferences of consumers thus building people’s consumption culture. This capacity is another proof of the fact that public organizations represent a real social force.

A system public educational activity along this line is absolutely necessary already now. It is possible to build the region’s intellectual potential, reproduce human resources, and ensure an individual’s adaptation to changing social conditions only within the framework of educational activity. It is only through new educational practices that one would be able to change people’s mentality, consciousness, and behavior. The dialog on a broad spectrum of regional problems between authorities, business, science, and the public, which was commenced by public organizations, needs a solid foundation in the form of systematized and specialized educational services to the population and the NGO sector.

It is perfectly clear that further steps to promote the idea of Sustainable Development are related to:

- Creation of specialized education programs to accumulate educational techniques rather than technologies and to ensure a differentiated approach in respect of various social and professional groups of population.
- Mandatory orientation to real educational (and, in general, intellectual) needs that the inhabitants of particular municipal territories have; these wants, again, should be differentiated depending on social and professional characteristics.

Nongovernmental organizations view their task as drawing the attention of the oblast population to the improvement of the environment, environmental activity, and care for health as the main value. It is necessary, through building a public opinion, to initiate the participation of people in environmental enhancement, the conservation of natural resources, and the assurance of transfer to sustainable forms of development and mode of life.

The United Nations General Assembly declared 2005–2015 a Decade of Education for Sustainable Development. Special emphasis is placed on Environmental Education and Awareness.

The proposed here form of work with a territory and population quite complies with the recommendations of the United Nations General Assembly and may be presented as part of national or regional policies in the field of sustainable development.

**M.Ya. Sobol,  
S.A. Stadnikov,  
S.M. Meshkov**  
Chelyabinsk Green Cross

## CAPACITY FOR CONSOLIDATING RUSSIAN AND WESTERN VOCATIONAL HIGHER SCHOOL PROGRAMS FOR SUSTAINABLE DEVELOPMENT IN THE REGION

Many countries of the world recognized the necessity of environmental education as a capacity-building tool for sociopolitical and environmental stability of their states long ago – starting with the Stockholm Conference held in 1972. A new impetus for expanding environmental education worldwide was given by the UN Conference for Environment and Development, which was convened in Rio de Janeiro in 1992. It was precisely at this conference that the concept for sustainable development gained acceptance and it was resolved to integrate issues of sustainable development into education systems at all levels via environmental education. The Johannesburg world summit on sustainable development in 2002 endorsed the important role of environmental education in attaining sustainability goals approved at the international level. In March 2005, the Committee for Environmental Policy of the United Nations Economic Commission for Europe (UNECE) adopted at a meeting in Vilnius the UNECE Strategy for Education for Sustainable Development. In compliance with the Strategy, education should become a prerequisite for achieving sustainable development and an essential tool for effective management and democracy promotion. The Strategy assigns a significant part to environmental education.

Over the last decade, many countries have established national systems of environmental education and gained abundant theoretical and methodological experience in this area. Let us discuss some specific features of training environmentalist in the Russia higher school (by the examples of International Independent Environmental and Politological University and Russian Peoples Friendship University) and compare the training of a Russian professional environmentalist with that of a German geocologist (Karlsruhe Technical University) and a Serbian certified environmentalist (the University of Novi Sad).

The current State Education Standards have been effective in the Russian Federation since 2000. They strictly regulate the training of specialists and emphasize disciplines that are obligatory for all and the number of requisite academic hours to study them. The Geocology curricula for Russian higher educational institutions developed in compliance with these requirements have much in common with those for similar specialties in Germany.

Thus, in the first two curriculum cycles: – (1) liberal and socioeconomic disciplines and (2) mathematical and natural-science disciplines – the number of disciplines that are rigidly regulated by the state higher school management systems of Russia and Germany is virtually the same. The time of study – 5 years – coincides too. However, as regards special disciplines, the Russian and German training programs differ greatly. The German universities allocate major time for courses (not more than 3) directly related to the future qualifications and nothing more. Russia tends to train more general specialists and, therefore, the specialization covers at least 17 various disciplines. Also, it should be pointed out that both in Russia and in

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Germany, when training environmental specialists, great attention is paid to laboratory and field experimental work.

Comparing Russian curricula for bachelors in the Ecology and Nature Management field and certified environmentalists in Serbia (the time of study is the same – 4 years) shows that in terms of the number of disciplines studied, the University of Novi Sad is closer to German universities rather than Russian. Thus, at the International Independent Environmental and Politological University, students have to study at least 46 disciplines while at the University of Novi Sad, just 27. This is explained by the fact that the cycle of humanities and socioeconomic disciplines at the University of Novi Sad is represented by two disciplines (English and sociology) only. Besides, the students of this institution study less natural-science disciplines. However, the general vocational and special disciplines of the Russian and Serbian curricula are virtually the same.

The comparison of higher-school expert training is now generating particular interest, because Russia has confirmed its participation in the Bologna process and it is necessary to solve a series of problems related to the integration of Russian higher school into the pan-European higher educational space. Therefore, just as a number of other countries, Russia has to consider meeting the following challenges:

- 1) Adoption of a system of clear and comparable degrees;
- 2) Adoption of a system based on two cycles (bachelor and master);
- 3) Establishment of a system of credits/units;
- 4) Promotion of student, instructor, and researcher mobility;
- 5) Promotion of European cooperation regarding education process quality assurance;
- 6) Promotion of the European approach to higher education (expanding job opportunities for graduates).

The introduction of a credit/unit system largely facilitates the problem of comparability of education programs in terms of academic hours. The Russian Ministry for Education suggests assessing one credit as 36 hours of general labor input, while Sofia University "St. Clement of Orhid" now assesses one credit as 15 academic hours for a successfully completed discipline, which is practically the same. The most important thing is the same number of credits gained by students upon completion of the education program. For bachelors in Europe this is 224 credits.

Another important aspect is follows: the number of strictly fixed disciplines and the extent of related academic activity must not exceed 50% of the whole curriculum, the rest being a university component and a mandatory, quite considerable liberty of choice of a student up to an individual curriculum. It is expected that these requirements will be soon met in Russia when developing new State Education Standards for higher vocational training. What could that mean for environmentalists training? Most likely, a clear identification of the core of compulsory general professional and natural-science disciplines possibly followed by a review of the liberal and socioeconomic bloc of disciplines. The latter must affect the entire higher vocational training in Russia. Here, a possible solution could be a fundamental revision and a transfer of some currently compulsory disciplines in this bloc at the gymnasium and high-school levels (history, cultural studies, law, economics, and others) as has already been done in many European countries.

Over two generations of State Education Standards, the Russian higher environmental education has worked out its own clear structure of general vocational training and, therefore, is quite ready for a reorganization of academic activity to comply with the uniform European system. Implementing this system into life will contribute to the promotion of integration in the countries of the European region and, as a consequence, the consolidation of its position in the world.

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## PRIORITY AREAS OF ENVIRONMENTAL EDUCATION IN THE REPUBLIC OF KAZAKHSTAN

**In the Republic of Kazakhstan, environmental education is becoming the core of modern education representing the key to the transformation of education systems and society in general. The environmentalization of the education system and society is an indispensable condition for sustainable development of Kazakhstan. The environmentalization of the education system is one of the fundamental principles and necessary conditions for overcoming and stabilizing the global environmental catastrophe, the danger of which is generally recognized, and ruling it out in the future.**

**For Kazakhstan, which is classified as an environmentally vulnerable country by the UN Rio'92 Declaration, environmental safety is currently one of the top priorities. Failure to build capacity for environmental safety would jeopardize the health of the nation and the very survival of generations to come.**

Environmental education in Kazakhstan is gaining a priority status in the function of various types of educational institutions as a sphere of continuous education. It is aimed at building a personality's environmental culture and responsibility for addressing environmental problems and issues related to sustainable coevolutionary development of the biosphere and society.

The prime goal of environmental education in Kazakhstan is shaping a new world outlook, modern mentality, directed to the organization of a scientifically substantiated system of actions to harmonize the society–environment relationship and thus ensure long-term sustainable development.

Environmental education is regarded in the republic as a “backbone component of the entire educational process that determines its strategic goals and leading fields and lays down the intellectual, moral, and spiritual groundwork for the school of the future.”

The major fields of the Kazakh system of environmental education are as follows:

1. Development of a relevant infrastructure for the system of environmental education to execute the social and governmental order for training specialists in the environmental and environmental sphere in compliance with the nomenclature of specialties and the real need on a competitive basis.
2. Improvement of the content, forms, and methods of education through coordinating the quality of educational standards, curricula and programs with taking into consideration a compulsory minimum of requirements to the volume, level, and specific features of the main qualifications and the region.
3. Creation of textbooks and teaching and methodological complexes complying with the aims, objectives, and principles laid down in the republican concept for environmental education as well as the qualifying standards of graduates from educational institutions of various levels and profiles.
4. Optimization of the structure of management of the system of environmental education through establishing scientific and methodological regional centers under leading national universities and institutes for the synthesis of science, education, and practice. This fosters the openness of the systems for a creative search of the scientific and teaching communities and the general public as well as for a selection of efficient innovative approaches. Organizing several regional centers to establish a competitive environment for creativity promotes intensive development of the system of environmental education. Decentralization complies with the modern principles of democratization of all spheres of societal life. Thanks to state-of-the-art communications facilities and innovation instruction methods, regional centers efficiently interact to address both common issues of environmental education and their own staff training objectives aimed at meeting the region's requirements with allowance for the local environmental situation.

5. Establishment of a small-grant foundation under the Kazakh Ministry of Education and Science and the Kazakh Ministry for Environmental Protection to encourage creative search and identify authorings on a competitive basis via regional centers of environmental education.
6. Development of a mechanism for material and technical support and self-sufficiency of the educational process.
7. Interaction with legislative and executive power aimed to improve the legal framework of the system of environmental education.

In Kazakhstan, it has been defined that the system of environmental education should develop along several lines represented in the following model scenarios:

- From environmental education to education for sustainable development (socioeconomic aspect);
- To environmental culture via environmental public awareness building (environmental and cultural aspect);
- Environmental competence – a compulsory component of any specialist's professional activity.

In the content of environmental education, one could emphasize such aspects as scientific, value, regulatory, and activity-related.

The methodology of modern environmental education – education for sustainable development – is based on the key ideas as follows: system approach and synergism; humanitarian and axiological orientation; sustainable development; safety; and environmental responsibility and activity in the field of environmental protection.

In the system of teachers' training for the implementation of environmental education, one could point out a few notional fields that should be regarded as its main stages: biological, biogeographical, natural-science, sociohumanitarian, and integrative.

The legal framework for promoting environmental education in Kazakhstan includes the following regulatory documents: the Kazakh Constitution (Article 31); the Kazakh Law on Environmental Protection (Articles 63–74); the Kazakh Law on Education; the Kazakh Law on Higher Education (Article 3); the Concept for Sustainable (Self-Sustaining) Development of Civilization (the UN Conference on the Environment and Development in Rio de Janeiro, 1992); the Concept for Training Environmental Experts in Kazakhstan (1995); the National Strategy for Environmental Education and Training in the Republic of Kazakhstan (1998); the Environmental Education Program (1999); the Concept for Environmental Education in the Republic of Kazakhstan (Order of the Kazakh Ministry of Education and Science No 697 of September 25, 2002); and the Concept for Environmental Safety in the Republic of Kazakhstan for 2004–2015 (Decree of the Kazakh President No 241 of December 3, 2003).

Regarding the training of professionals for industry and other economic spheres, Kazakhstan demonstrates a rapid growth in the number of environmental specialties. In 1996, the specialties of Ecology and Applied Ecology were included in the State Classifier of the Fields of Training Higher Professional Education Specialties in the Republic of Kazakhstan.

As of the beginning of the 2004–2005 academic year, there were 3319 students and 131 magistrands who studied Ecology and Nature Management (Specialty 010900) and Ecology (Specialty 510900) at 22 state and 11 non-state Kazakh higher educational establishments. In 2004, 409 ecologists and 76 environmental magistrands graduated from Kazakh universities.

However, the republic lacks world-standard higher environmental educational institutions and specialized training of professional environmentalists: economists, auditors, managers of nature use and environmental protection monitoring. In addition, no environmental design and environmental assessment of projects are conducted. The only institutions that comply with the international requirements for training environmentalist ecologists are al-Farabi Kazakh National University; the Leading Kazakh Architectural and Building Academy; Abai National Kazakh Pedagogical University; Buketov State University, Karaganda; and Semipalatinsk State Pedagogical Institute. At the same time, the training of environmentally oriented pedagogical specialists fails to have a pronounced tendency for growth, although their share in the overall environmental training system in the republic is insignificant, whereas the training of professionals for various economic spheres must be predetermined by the training of environmental specialists who will subsequently instruct environmentally competent specialists for all economic spheres in the republic.

Today, the environmental education for future teachers is implemented based on the natural and geographical, chemical and biological, and environmental faculties of higher educational establishments and is oriented to profile environmental education determined by the specific features of some specialties, such as Geography and Ecology, Biology and Ecology, and Chemistry and Ecology. The sphere of activity of these graduates covers the primary and secondary links of the education system.

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