

Stepan Trokhymchuk

Ukraine
Department of Country Studies and International Tourism
Faculty of International Relations
Ivan Franko National University of Lviv
Universytetska, 1,
79000, Lviv, Ukraine
tel.: (+380-322) 964-656
fax: (+380-322) 72-79-73
Ukraine

**Ethics of steady development in Volodymyr Vernadskiy's study
about biosphere and noosphere**

All programs of steady and development and their practical introduction into life must be based on a scientific foundation. There is no doubt that a theoretical heritage of a famous Ukrainian scientist and thinker Volodymyr Vernadskiy can be attributed to such a basement. This naturalists and encyclopedia compiler had outstripped his own time for a whole century, his name must be put on the same line with names of Newton, Darwin and Einstein, those great beneficent persons of mankind.

Ideology of steady development follows from his study about a living matter, biosphere and noosphere. This study opened up the essence and the functioning of the Earth complex covering. That had become a natural surrounding for human beings.

Vernadskiy gave us the study about the living matter as a total combination of living organisms (plants, mushrooms, animals and bacterias), that is pointed out by the highest energy and the highest speed of chemical reactions on the Earth, that changes and transforms everything around. It follows that a central concern of mankind is to preserve and increase the living matter and intensify their functions of stabilization the biosphere.

The living matter has created the unique complex covering during all the organic history of our planet. It's the biosphere, it means the sphere that consists of the living organisms and the products of their life. There were also created an earth crust with its natural minerals and resources, hydrosphere, atmosphere, that contains free oxygen, necessary for all living beings, and a sphere of groups – nedosphere. Between these spheres a balance and an interaction were built. But human civilization has interrupted this harmony, has disturbed interaction by building a new sphere – social sphere. Destructive actions of mankind have caused some harmful changes in the biosphere. There are first of all changes in a chemical composition of the atmosphere and weakening of its protecting and regulating functions, loosening of species number and their variety, soil cover and natural ecosystems degradation. Environmental pollution by harmful substances of natural and artificial origin, piling up of production wastes has reached a critical level.

Economical and industrial activity was directed at satisfaction of human needs without any concern about possible results. And it disagrees with human calling, morals and rights. According to Vernadskiy's mind, basement of humanism must be used in the relation between people and nature.

The doctrine of a famous academician V.Vernadskij concerning the living substance became a real break-through in relations between human beings and the environment. He gave not only fundamental definitions of an object for investigation, revealed its essence and its role in formation of the biosphere and human life, but for the first time he applied such parameters as weight and volume in his research. That means he weighed and measured out the living substance of the planet. His followers improved the methodology and defined those parameters with sufficient precision.

In modern encyclopedias the value of weight of the living substance makes up 1810.10⁹ tons. In comparison with the mass of the whole planet that forms only one thousandth per cent. But this living pellicle has new outlandish properties as compared with the osseous matter, i.e. its capability to assimilate, convert, accumulate and transmit solar energy. The volume and the velocity of transmission of solar energy by the living substance are amazing. For comparison, on our planet only thermonuclear reactions have higher velocity of energy transmission.

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Civilized society has made great changes in structure and functioning of the living substance, i.e. of living organisms. The weight of the living substance is decreasing in disastrous way, that means that its function to assimilate solar energy and to combine carbon dioxide is reducing as well. That leads to a greenhouse effect. The decrease in numbers of thousand living species or even their annihilation leads to the simplification of natural ecosystems and the reduction of their protective functions. To put an end to the degradation of the biocenologic covering of the planet the productivity of the living substance should be increased by means of introduction of the global "green revolution", reproduction of forest ecosystems on the barren, uncultivated lands or on the places of reclamation open pits etc. In agriculture and planting economy there is a need to apply crops with the high coefficient of photosynthesis, to set up seaweed-plantations etc. The living substance may work wonders and may help to eliminate human mistakes and crimes against the nature on the assumption of efficient management.

For solving this problem mankind must create a new global sphere, that was called "the noosphere" by Vernadskiy. It must be composed on the grounds of being expedient, intelligence and usage of the newest achievements of the sciences and technology. Our ideas about the noosphere are: improved and balanced technologies, mankind's creations are inserted into natural surrounding as its part with the smallest harm for the biosphere. Building of the noosphere is very long-lasting and complicated process, that is called "the noosphere process" as a head concern of mankind for its survival. The noosphere process is similar to a modern international integration of countries and nations, specifically European integration. Integration is also very complicated and contradictory process, that will give its positive results only in a distant future. European integration is a way in history, that lasted for 50 years, when the prospective European Union has arised from the devastated, destroyed Europe past war.

The transition to noosphere, that appears to be the best and the single opportunity for saving our civilization, is a noospherical process. The harmonization of relations between economic activity of people and the environment serves as a basis for a noospherical process. In this process the conflict between a cyclic, non-waste and linear character of biogenic processes in the biosphere should be solved. Another important constituent part of this conflict is the contradiction between the integrity of nature and resources consumption or nature management. In our country the use of natural resources cause ecological disasters and economic chaos.

According to works of academician V. Vernadskij, the transition of humankind to the social autotrophy should form the basis of the noospherical process, that means the transition to self-sufficiency in material resources, raw materials and energy on the basis of recurrence of social production and technologies. The pattern of the autotrophy is the life of a green photosynthetic plant, which with the help of self-regulating cyclic reaction of photosynthesis ensures the reproduction of organic substance, regulates the composition of air, supplies the soil with nutriments required by plants and in the end serves as the main regulator and guarantor of functioning of the biosphere. There is an urgent necessity to reach such a level of the social autotrophy when a full supply of material resources, which are constantly being used in social production, is ensured. Natural or synthetic materials should be constantly used for manufacturing various goods needed by people and only constrained losses should be replaced at the expense of the primary natural resources. Our real production is far from the ideal one.

Energetics plays the leading role in formation of the noosphere. Just energetics gives an additional heat to the biosphere. It becomes the first and the most important restriction for the growth of production. Burning organic fuel, the "solar tins" are being opened. For example, over a year mankind is burning out more than 3 milliard tons of coal. Nature would have spent 1 million years to produce such a quantity of it.

Organic or thermonuclear fuel is not a panacea for solving the energetic problem of mankind. Even energy of the nuclear fusion may lead to disastrous consequences, become the real thermal poison for the biosphere and destroy it by thermal contamination. There is only one way out – to use solar energy, energy of winds, rivers, flows, sea currents and sea waves. The sun is an inexhaustible, ecologically pure and everlasting source of "pure" energy. Unfortunately, solar energy and other kinds of ecologically pure energy have not taken a proper place in modern power engineering and in scientific research works.

The present-day agriculture is suffering from a deep crisis. Bolshevik system destroyed a century-old social and economic structure of the Ukrainian village, deprived ground landlords of their property. Inexpert usage of chemical weed and pest killers, unbalanced or untreated

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fertilizers and primitive agrotechnics throw our agriculture far back. Advanced farms of some countries proceeded to organic (biologic) agriculture that excluded the usage of fertilizers and chemical weed and pest killers. Presently the best organic fertilizer is a product, which is received in the process of decomposing of manure and other organic vestiges. Methane – pure organic fuel, is received besides the ecologically pure organic fertilizer.

Ethics of the stable development requires radical changes in our attitude towards living beings and their biological communities. The considerable majority of fauna and flora is under a serious danger of vanishing from the face of the earth. Modelling the process of vanishing of the insular flora and fauna showed that for saving at least 50% of the living species not less than 10% of the territory should be preserved. This part of the territory was recommended to name as a protected minimum in 1984. The optimal area for the reservation is 15-25% of the territory. In Ukraine wildlife areas occupy nearly 3% of the territory and only some of them are under required protection. Some Ukrainian scholars, including Prof. S. Hensiruk, have developed the theoretical principles and methodological recommendations for forming an ecological network of preserved territories. In this ecological network protected objects should be connected with each other by passages, that ensure interchange of organisms, i.e. genetic material. Industrial, agricultural and farmstead complexes are supposed to border them.

Ethical, humane relations between a human and the environment are possible only on condition that every citizen of our planet will be ecologically competent. For this purpose the ecological disciplines should be included into the curricula of primary, secondary and higher schools. Only then ecological upbringing and education will develop into ecological consciousness that influences all human behaviour and activity.