

## **BIO-BUSINESS FOR THE SAKE OF PROSPERITY CO-OPERATION ALONG THE DANUBE**

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With the end of the second millennium, the world community has begun to realise, more and more, that life on our planet is in danger. The great Ukrainian scientist Vladimir Vernadsky was the first to predict that humankind, taken as a whole, becomes not only a mighty creative, but also a mighty destructive force. Humankind induces new evolutionary changes in the biosphere, which, as a related system, is being exposed to such violence that bios is under the threat of extinction or unavoidable alterations on the genetic level. Vernadsky's works laid out the foundations of the movement for bio-environmental preservation.

In the pursuit of survival, humankind is increasingly involved in a unique race, with disastrous effects for the environment. And this problem, being of global character, can be settled only by human beings themselves. Back in the 1980s Dr. Mustafa Tolba, the UNEP Director, stated that: "Nations have two options: to go on with barbaric actions toward the environment and come to an ecological catastrophe by the end of the millennium, or to start a fair co-operation in justified usage of world resources and in their preservation."

At the time when these words were uttered, the market share of industrially developed countries constituted 80% of the world's natural resources consumption, 80% of income received, 50% of foodproducts, 90% of the total volume of goods produced and 95% of research performed. Simultaneously, billions of people in developing countries suffered from the lack of elementary means of survival, drinking water, communications and infrastructure.

As humankind is approaching the end of the 20th century, we are witnessing a change in the environmental protection situation. During the last two decades, thanks to the joint actions of the global community and the "green revolution," a number of economic and legislative reforms have been introduced. Nevertheless, this does not mean that the threat of an environmental disaster has been eliminated. It is worth mentioning the effort of the European countries to join forces in the field of environmental management. According to the declaration of the leaders of the European Union, the Europe of the third millennium would prefer to be "environmentally clean," and there is a plethora of directives, adopted by the European Union, to this effect. Wastewater is one of the primary concerns in Europe. Incidentally, this problem is not indifferent to Ukraine, where there is practically not a single river where water contamination does not exceed the critical level. Environmental factors are extremely important for the future development of the agricultural potential of Ukraine.

The Danube is the main source of water supply to the fields of southern Ukraine, currently suffering from water deficiency. Concurrently, the European Commission envisages that, by 2005, the EEC member-countries will have implemented a directive calling for all types of settlements, where the population exceeds 20,000 inhabitants, to have water purification systems. Thus, the construction of wastewater treatment facilities, on the territory of the EEC, is now booming. The scope of these works is impressive and investments in this sphere of activity are unprecedented.

Using only the above example and not touching upon other aspects of environmental protection in Europe, we may conclude that, at present, we are dealing with the direct entry of the environment in the process of market relations. Indeed, effluent dehydration results in the production of a great mass of dry substance which can be either incinerated, dumped in landfills or used in farming.

The first two solutions have no future; therefore, European environmentalists focused on agriculture. Millions of tonnes of dry solids (sludge) can be taken into the fields to substitute, to a certain extent, for some of the fertilisers used. Naturally, this process is being regulated in Europe, by issuing strict limitations to prevent the application of toxic substances into the soil, together with the fertilisers. The main restriction refers to the concentration level of heavy metals. At the same time, farmers interested in acquiring wastewater treatment products put their demands before lawmakers.

To satisfy their demands, such products must perform like conventional fertilisers. Farmers also demand guarantees that, in case of any deviation, they will be released from all responsibility before their customers. Besides, they also expect to achieve a pronounced agronomic effect from the application of fertiliser substitutes. The above example shows that, at present, activities in environmental protection strive to be as economically efficient as possible, and on the whole, humankind will benefit from the implementation of such initiatives.

### **Economic development and the environmental situation in Ukraine**

During the last century, the Ukrainian economy was traditionally oriented toward the development of energy-intensive and raw material-

intensive technologies. This was due to the originally introduced industrial infrastructure, which was based on the development of the mining industry, metallurgy, and the chemical and heavy machine building industry. The attempt to take from nature as much as possible, as quickly as possible, and without any care for the state of the environment, on the part of the previous regime, resulted in a great imbalance in the "society-ecology" system. Soil, air and water pollution in Ukraine often resulted in the deterioration of the landscape. Mountains of landfills spread over the country, crammed with garbage, industrial waste, and mine and mineral waste. The situation was aggravated by the radionuclide contamination of two thirds of the territory of Ukraine. Eventually, all this had a negative effect on the health of the population of Ukraine, increased the death rate and resulted in a decrease in life expectancy. This way of managing the economy resulted in great environmental and economic damage, equal to the loss suffered by Ukraine during the last two world wars.

The distinctive features of the Ukrainian economy, at the outset of its independent development in the 1990's, were: (a) overestimated role of metallurgy, and the chemical and heavy machine building industry; (b) obsolete technologies; (c) injured landscape, and poor state of productive assets and housing funds; (d) inefficient management of State, industrial, agricultural and trade organisations, established in the period of centrally-planned economy; (e) low labour productivity and irrational use of the labour force; (f) poor work ethic and lack of labour discipline; (g) the environment in critical condition.

Examples from developed countries show that the implementation of bio-policy meets serious difficulties, even in economically safe States. Without doubt, it is much more difficult to realise such a policy in Ukraine, which was immersed from the very start of its independent development, in an abysmal economic crisis. However, delays in taking urgent measures to prevent an environmental catastrophe may mean the destruction of society and the State. Today, the quality of the environment is as important a component for the assessment of a country's potential, as the level of supply of indispensable resources, products and services to the population.

To safeguard the environmental security of Ukraine, it is necessary to balance the socio-economic requirements of the Ukrainian society, on the one hand, and the natural environment on the other. In this regard, priority is given to the idea of incorporating environmental security in the foundations of Ukrainian policy, because without environmental security, national security is out of the question. This concern is formulated in The Main Trends of the State Ecological Policy of Ukraine in the Sphere of Environmental Protection, Natural Resources Usage and Safeguarding of the Ecological Security, developed and adopted in 1994.

Within the framework of this document, a financial mechanism for environmental protection has been developed. Restitution for natural resources usage is one of the elements of this mechanism, allowing to raise enough funds to further the financing of specific nature protection programmes. The other constituent part of this mechanism concerns penalties for environmental damages. However, the implementation of these mechanisms will not be effective before Ukraine acquires a modern environmental quality monitoring system, appropriately equipped and integrated in the international monitoring system. It should be mentioned, however, that even a super-modern monitoring system will not be able to tackle the problem of environmental security, until a national waste treatment programme is developed, as Ukraine annually generates 2 billion tonnes of waste. In reference to radioactive and toxic waste, with an annual accumulation volume exceeding one hundred million tonnes, the treatment mechanism should become an integral part of this programme.

One need not go far to comprehend the seriousness of environmental problems in Ukraine. A fair number of international organisations associated with the United Nations, the European Commission, as well as the "Big Seven" countries regularly include in the agendas of their meetings discussions on the problems of the state of the environment in Ukraine, primarily in connection to the Chernobyl disaster. The world cannot forget that, 11 years after the explosion in Chernobyl, there is still a damaged reactor at the plant, containing a very large amount of nuclear fuel residue. The world is troubled by the probability of the renewal of the fission chain reaction in the damaged reactor, which can lead to consequences more grave than those of April 1986. Solving these problems requires expenses that are unfeasible, at present, for Ukraine. Our country hopes for large-scale international projects for the elimination of the after-effects of the Chernobyl disaster, in view of the global character of these problems.

### **Exiting the economic and environmental crises**

It is not an easy task for Ukraine, as a young State, to find a way out of the large number of crises that have struck the country. Nevertheless, of paramount importance is the problem of overcoming the environmental and economic crises. It is crucial to solve these problems, because Ukraine is notorious for the global environmental catastrophe, under the name of Chernobyl. The United Nations World Conference on Environment and Development held in Rio de Janeiro in 1992, laid for the first time in world practice the foundations for considerable improvement of the effectiveness of international co-operation in this field. Joint appeals and an assented plan of activities for the 20th century, signed at the conference, became instrumental in co-ordinating bio-policy for the sake of humankind. A number of steps in this direction have been taken in Ukraine. The law "On Environmental Protection," effectuated June 25 1991, formulates the following points:

- state-guaranteed clean environment, safe for life and health
- application of the appropriate ecological expertise on land, in the air and in water, by the organisations under the Ministry of Natural Environment Protection and Nuclear Safety or by other social organisations
- closing of enterprises violating environmental quality standards, ecological rules and limits

- functioning of the legal mechanism and application of different sanctions to violators of environmental management rules
- environmental rules for physical persons and legal entities

Nevertheless, the legislation in force has a great number of defects, due to which it is virtually never applied to the benefit of society. Major defects in the legislation include the lack of a precise legal mechanism and judicial protection of the legal rights of victims, as well as the impossibility of physical persons and legal entities to promptly exercise their rights.

### **Education and culture in environmental protection**

It is widely acknowledged that the present aggravation of the environmental situation is primarily connected to the shortage of financial means and the lack of the right economic strategy, aimed at solving the problem. The predominant belief that environmental problems and the elimination of pollution can be tackled only through economic measures and mainly through the allocation of considerably greater funds, in reality, has poor prospects.

The manifestations of economic and environmental problems, though different in form, as a rule, have a global character. They include climatic changes, sea and ocean pollution, soil deterioration, natural resource over-exploitation, epidemics and poor supply of foodstuffs, demographic problems, desertification, and even an anti-smoking campaign. The solution to these problems, which are both of an environmental and economic nature, is possible only through joint efforts of the world community. It is impossible for these issues to be resolved by using old approaches of national isolation, obsolete convictions and priorities based on private ambitions and emotions. On the threshold of the new millennium, there has appeared a situation that demands, from all members of the world community, the development of a new perception of the global situation. In other words, this is the time of "new responsibilities" for all countries; responsibilities to secure the safety of human civilisation on Earth. Old approaches, such as living for one's own sake, for the benefit of one's own territory only, or one's own nation, thereby infringing upon the interests of other people and nations, are completely outdated.

In 1987, as a member of the Ukrainian delegation at the 42nd Session of the United Nations General Assembly, I participated in the preparation of the proposals on global environmental security. As a result, based on the initiative of the delegations of Ukraine and the former Czechoslovakia, the concept of establishing world environmental security was put on the agenda and was further discussed during the session's deliberations.

For the past ten years, even though there have been some positive developments in reference to military and political problems, negative tendencies toward the environment are threatening to destabilise the planet. Regretfully, environmental problems in many countries are aggravated by a difficult economic situation. Lately, Ukraine, however hard it is to admit, has become one such country.

It is obvious that information, education, and bio-culture will play a key role in raising environmental awareness among the population. It is a pleasure to note that bio-environmental education is assuming an increasingly important role in Ukraine. The International Symposium on Ecology, held at the end of 1996 in Dnepropetrovsk, environmental fora in Donetsk and Rivne, as well as Ecological Days held in many Ukrainian cities, help to realise that only a truly civilised society, with developed civic and spiritual social preferences, will be able to overcome the impending crisis and be in a position to implement the strategy of stable development.

### **Biocentric business activities**

Present society is still guided by a value system that considers "volume of money" to be the primary measure of success in the world. A harmonious society should be guided by a system of values, where quality of life is the number one criterion.

While past efforts to achieve economic progress were oriented at the maximisation of profits, today many people already understand that such a practice would lead to an environmental catastrophe. To minimise the negative consequences of industrial activity and to secure life on Earth, there should be concrete political and economic measures, of a global character, aimed at preventing these negative consequences.

At the end of the 20th century, modern bio-policy is promoting co-operation among social movements and the business community. In addition, earlier systems of environmental control are being replaced by new ones, based on the strategy of pollution prevention, cleaner production and usage of renewable energy resources, and co-operation between environmental protection initiatives and the economy. This is what the concept of bio-business is all about, on the threshold of the third millennium.

A new type of environmental business is rapidly developing in Ukraine, based on the high research potential of the country and on the technological potential of the military and industry. New local technological products and services enter the market, often surpassing imported analogues, in both technical characteristics and quality. These include medical equipment, consumer electronics, air and water purifiers, construction materials and other goods. "Green Village" tourism is also making its first steps in Ukraine.

Conversion and the environment

The concept of conversion came into our lives in the period of transition from the "cold war" to the time of world-wide co-operation for the sake of the preservation of human civilisation. In the 1980s, the prevalent strategy of human activity, one of confrontation of two opposite camps, manifested its inconsistency by engendering serious contradictions in the world community and brought grave economic disturbances and catastrophes, thus creating deadly threats to the environment. The idea of conversion was developed within the UN framework, with the participation of other international organisations, in order to transform military activities to such a degree that would favour the transition of the world economy to a new model of, so-called, "stable development."

At the time, this concept became popular with the majority of industrially developed countries. However, concordant, scientifically grounded methods for the implementation of conversion have not yet been developed by the world community. Each country has carried out conversion according to its own pace and specific needs. In particular, within the republics of the former Soviet Union, conversion was developed on a large-scale basis, extremely quickly, considerably quicker than in Germany or the U.S.A. Due to such a chaotic and ungrounded implementation of conversion, most of the defence industry took the road of primitive transformation from ammunition products to products of a non-military orientation, mainly household appliances.

Lack of experience and poor knowledge of the requirements of the world market of civilian consumer goods caused previously profitable enterprises with modern manufacturing equipment to suffer huge losses. These enterprises lost most of their key personnel and the advanced technologies, earlier introduced for military equipment production. Unfortunately, at the first stage of conversion, the power and facilities of the military industry were not used for the production of environmental protection equipment. And that was a serious mistake.

The potential of the defence industry, their advanced developments and inventions show that the implementation of these ideas and technologies can be successfully used in tackling urgent environmental problems. For example, the defence industry can use former military facilities for the manufacturing of medical and laboratory equipment, as well as equipment for space research. Aviation and space travel equipment is being successfully used for geological and geophysical research, and in the preparation of meteorological forecasts and climatological studies. A number of military facilities is involved in the production of equipment for the elimination of radioactive contamination from the surface of the Earth, and in the production of sorbents - materials having the absorbing capacity to transform liquid into solid wastes. This shows that if the conversion process is properly applied, the defence industry can not only preserve its available research and technological potential, but can successfully solve complicated and extremely urgent social and environmental problems.

#### Profits from ... wastes

If attention is not paid to the problem of waste management, as has been the case in the past for Ukraine, entire areas can turn into huge landfills. Ukraine generates 2 billion tonnes of waste annually. According to the Ministry of the Ecological Security of Ukraine, 25 billion tonnes of waste have already accumulated in Ukraine, covering an area of more than 160,000 hectares. Most industrial waste is toxic and its storage in inappropriate places causes land, water and air pollution. Based on data collected by the above-mentioned Ministry, 42% of all industrial enterprises, located on the territory of Ukraine, are potentially hazardous to the natural environment. Nevertheless, more than one third of the labour force of Ukraine is employed by these enterprises. The local industry, municipal property, roads and highways, and public services are also in the same dilapidated state. Unfortunately, the statistics do not mention hazards from toxic material stored in military establishments, or left behind at the former Soviet Army bases. Because of such disorder and absence of national legislation in the field of waste handling and treatment, foreign companies specialising in the waste management business are trying to use Ukraine as a storage area for hazardous waste, originating in other countries.

New processing technologies, aimed at resource recovery, should be brought to Ukraine, or be developed in our country, so that different waste components can be further used in the production processes. Ukraine also has to master waste recycling processes, but the automatic implementation of foreign prototypes is hardly possible. For example, where plastic is concerned, prices for home produced polymeric materials closely approaches foreign prices and often exceeds them. The cost of collecting and processing plastic waste can definitely be several times lower in Ukraine than abroad, due to a big difference in the level of wages. Despite the fact that practically no plastic packaging is produced in Ukraine, it is widely used and therefore needs to be imported from neighbouring countries. If more attention were given to the state of the environment by the legislative basis, plastics recycling could become a very profitable business for Ukrainian entrepreneurs.

#### Greeting the next millennium with a clean environment

Today, Ukraine ranks close to last in the world as to the state of its environmental security. Despite the industrial recession, the severe heritage of the past is not yet overcome. Environmental pollution goes on, but funding for the prevention and elimination of environmental disturbances constantly decreases. Still worse is the situation with toxic waste and harmful substances emissions. The share of expenses for the prevention and elimination of the consequences of extraordinary situations in the structure of the Ukrainian budget is extremely low and constitutes 1% of the gross domestic product. This has created a vicious circle: the State has no money to rectify the damages caused by environmental pollution, nor do the enterprises, though they are the major culprits (sources) of environmental disasters.

A way out of this extremely difficult situation can be found, and should be found, in channelling monetary resources from commercial institutions into environmental activities in Ukraine. Financial resources can be applied to many different environmental projects through the development of tax and credit policy, the establishment of an environmental protection bonds market, an environmentally sound privatisation

process, and the establishment of a system of environmental insurance.

Each of the points mentioned above is worth a separate detailed analysis. However, it is appropriate to ask whether it is practicable, under the existing conditions, to invest in diminishing nature pollution and eliminating environmental damages. The answer to this question can be found in the following objectives. The first objective is based on developing civil values in society - mutual understanding, internal culture, consumption culture, etc. The next important issue is to formulate a clear definition of the rights of ownership of natural resources. This objective is especially timely in the course of the developments of the privatisation process. Currently, in Ukraine, millions of new business owners have appeared, who have acquired possession of production units that either already pollute the environment or are liable to pollute it. And at this stage of nature preservation, the negotiating process between those who suffer from pollution and those who pollute, acquires a special significance.

The negotiating process often helps to decrease or to prevent environmental pollution. In more critical cases, when considerable damage has already been done to the environment, or an environmental catastrophe has already taken place, court decisions or penalties are the only applicable means able to solve the conflict situation. The most effective lever to bring environmental pollution down is a legislative process, capable of introducing changes to the existing standards of behaviour and to compel business people to introduce the necessary reforms to their production processes. It is mainly the legislative process and the establishment of new behavioural standards that can accelerate the effective solution to the problem of environmental pollution. In the near future, current environmental legislation has to be supplemented with regulations on environmentally-friendly business activity.

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