

## ЧАСТИНА 2

### НАУКОВІ ПОВІДОМЛЕННЯ

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#### **Approaches to decision-making process in Environmental Economics (the results got during ISCS'2006)**

*Several approaches to solving the ecological-economic problems on the way to sustainable development are given in the article. The next problems are examined: Positive and negative motivation for sustainable development, Ecological Economics - appearing of new science, Economic mechanisms of ecological management, Problem of resource scarcity and its solving, Development of ecological and green tourism in Ukraine, Methodology of water quality estimation, Problems of waste management, Economic-ecological interconnection in education, Experience of agro-environmental policy in EU countries, Creation of 'Forest code' in Ukraine – its positive and negative aspects, Alternative sources of energy : problems of implementation of wind power stations in Ukraine, Cultural differences in the international management, Institutional basics of sustainable development. The article is published on the results of XII-th International student (youth) conference in Sumy (ISCS'2006).*

The XII-th international student (youth) conference in Sumy (ISCS'2006) was held on the support of Sumy State University and brought together young researches that care about environment from more than 10 countries. The goals of the conference were to discuss the most important and urgent environmental problems with students and young researches, to share experience with student environmental organizations and to try to find solutions for environmental problems with the help of Economics.

Conference directions were different starting from state environmental policy and educational problems to greening economy and institutional mechanism for sustainable development.

The main idea coming through the ISCS'2006 was the necessity to reach sustainability in the development of countries. During the debates some points describing positive and negative motivation for sustainable development were found. Some of the ideas you may see below.

#### ***Positive and negative motivation for sustainable development***

Sustainable development as one of the modern directions of "life style" has already proved its efficiency and solvency. Economic development without environmental protection can lead the planet to desert. And environmental protection without economic development means poverty and no possibility to solve the problems of rational usage of resources.

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Sustainable development is something ideal for the world. Such a development will improve quality of life and harmonize all the spheres of human activities. At the same time it will give a chance for new generations and will make it possible to have ecologically safe production. But the process is attainable only in long-run period of time and it's rather expensive. That's why first of all mankind has to change the way of thinking, its values and interests.

Sustainable development lies on the ground of environmental problems and social-economic problems and includes several main purposes:

- national security;
- national health;
- quality of life and increasing living standards;
- social justice;
- economic cooperation;
- supporting disadvantaged regions;
- conserving and regeneration of regional ecosystems;
- control of population growth;
- control of consumption.

All these needs actions on different levels: regional, national and global level.

Motivation on the regional level:

1. Positive: <ul style="list-style-type: none"> <li>- common goals;</li> <li>- regional stability;</li> <li>- possibility for regional recreation.</li> </ul>	2. Negative: <ul style="list-style-type: none"> <li>- isolation awareness;</li> <li>- regional conflicts;</li> <li>- regional ecological crisis.</li> </ul>
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Motivation on the national level:

1. Positive: <ul style="list-style-type: none"> <li>- national identification;</li> <li>- personal well-being.</li> </ul>	2. Negative: <ul style="list-style-type: none"> <li>- terrorism;</li> <li>- degradation of nation.</li> </ul>
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Motivation on the global level:

1. Positive: <ul style="list-style-type: none"> <li>- voluntary restrictions;</li> <li>- humanitarian aid;</li> <li>- international organizations.</li> </ul>	2. Negative: <ul style="list-style-type: none"> <li>- global wars;</li> <li>- protectionism;</li> <li>- disasters.</li> </ul>
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Principles of sustainable development lead us to necessity of global thinking and local acting, protection of surroundings, people's health and opportunities of full self-realization without excesses.

#### ***Ecological Economics - appearing of new science***

Economics and ecology are often presented as opposed disciplines. Both fields have strengths and weaknesses. A new trans-disciplinary field, ecological economics, attempts to bring together the strengths of both disciplines with a vision for a sustainable future. Economics and ecology often receive two different responses from natural resources professionals. Economics, which deals with the allocation of scarce human-made and natural resources is viewed unfavorably by many who are concerned about effects of society on the environment and natural resources. Ecology, which deals with nature's allocation of scarce resources, is more often viewed in a favorable light. Ecological economics has more interest in

a vision of the future, methods for analyzing problems in new ways, and institutions and instruments that are needed to implement this vision.

The relationship between economic activity and the ecosystem is particularly clear in the management of renewable resources. Ecologists must realize that it is impossible to stop economic development, and economists must realize that environmental changes are not just irritating externalities. Environment is not an externality. It is the system within which we operate.

Efficiency of ecologic-economic activity in many aspects is defined by the state internal policy. Its function consists in an establishment of optimum parameters within the limits of which the system of public relations will function. Thus, the optimality provides the environment, which will promote full-fledged functioning of each field of activity and their structures excepting an opportunity of drawing damage within the limits of social system.

#### ***Economic mechanisms of ecological management***

The main trends of economic mechanisms of ecological management are current regulators modernization, which is realized with simultaneous development and implementation of new market instruments into practice. World experience shows that ecological management system depends on economic mechanism of environmental management effectiveness, which is based on a balanced combination of force-limited regulators, which, in its turn, can provide more favorable conditions for ecologically safety technologies implementation.

The major trends of society ecologization can be the next ones:

1. Products need decreasing (it means input of material per unit of production of consumer demand decreasing; withdrawal from ecologically unfavorable goods or shifting them into more pure ones, which will decrease input of material per unit of production and energy intensity of products; consumption structure improvement; refusal from goods, which are not vitally necessary for humanity).
2. Products changing (ecologization of production, which provides recourses perversity decreasing).
3. Products usage changing (ecologization of consumption is connected with any kind of changing concerning production usage or waste utilization, which decreases influence of ecodestructive processes and implements ecologically safety ways of products usage; limitation of unsafe products usage in the spheres, where it can course especially unsafe ecological consequences).

#### ***Problem of resource scarcity and its solving***

Natural resources exhaustion is one of the most important global problems of economic development. It is known that in the nearest fifty years almost all natural resources will be used to produce energy. Then further economic development will be impossible. Though the resources of fossil fuel are quite limited, there is still a way for producing energy from the so-called renewable sources such as wind or sun power. Another way to produce energy without fossil fuel is energy efficiency. Thus, development of more efficient technologies will help to preserve the environment and at the same time it will create more working places and thus lead to economic growth.

#### ***Development of ecological and green tourism in Ukraine***

Ecological tourism in Ukraine has developed within the territory of the natural reserve, in the boundaries of which people can take long-term or short-term vacations, acquaint with the

flora and fauna. To the categories of the national reserve fund of Ukraine, where ecological tourism can be developed, belong: national natural parks (Carpathian, Shatsky, Sinevirsky, Azov-Sivashsky and others), regional landscape parks (Dnister Canyon, Kinburn Split, Dikansky and others), and biosphere reserves (Carpathian, Askaniya Nova, Black Sea, Danube).

The primary focus for ecological tourism in Ukraine is on recreational activity. However it is limited by the need to meet environmental protection demands.

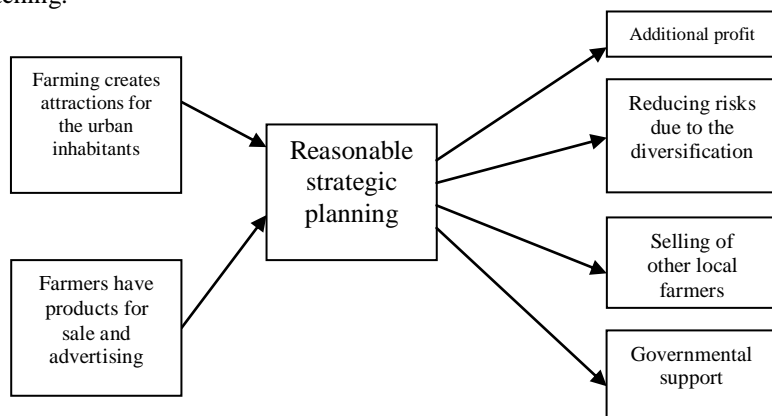
The main tasks, which are necessary for the development of an ecotourism industry, are:

- Restructuring of the existing recreational, sanitary and tourist fund according to social needs of the population and market economy conditions;
- Construction of new establishments, which answer world standards, for the development of the national tourism system and integration into international tourist structures;
- Provision of vacation conditions of socially sensitive categories of the population, especially those, who were exposed to radiation from the Chernobyl accident;
- Creation of legislative conditions for the development of ecotourism, which will promote the rational use and protection of landscape resources.

According to the legal definition green tourism is a rest with any purpose and different form of organization in rural territory including staying at a country house of a farmer. It is especially spread in the regions with some specific characteristics but can exist in any farm cottage in city suburb.

Basic conditions, which let farm get into green business and revenues, which it can get, afterwards could be summarized using the graph. So, ecotourism is consisted of rural and cultural tourism elements. Tourists interested in ecotourism are usually more educated than average tourist. They are interesting in learning about flora and fauna in a non-polluted area, and in life of the local community that's living it that area at the same time. Their interests can be meet by integration of activity of ecotourism subjects and cultural heritage tourism, forming a tourism product that could provide an overview of local tradition, art and local folklore, as well as natural surrounding.

Tourists visiting national parks and forests have various possibilities for «tourist experience». Many of world's national parks have rivers and lakes, which provide an opportunity to form different tourist offers that include rafting, swimming, boat rides, fishing and bird watching.



### ***Methodology of water quality estimation***

Ukraine is one of Europe's countries with shortage of water resources. One of the ways to predict the water crisis is based on the development of the precautionary measures to reduce level of water use of powerful water consumers. The implementation of such measures should be supported by decision-making tools to include sustainable indicators and criteria.

When determining the method of risk assessment one usually chooses a special method developed by United States Environmental Protection Agency or its modifications. Under this method four stages of risk assessment are determined:

1. *Determination (identification) of a danger.* This stage means assessing of available proof of presence and danger of pollutants that can cause harmful effects.

2. *Evaluation of "dose-response" dependence* which determines the rate of influence of various doses. This dependence varies for carcinogenic and toxic effects. It is supposed that carcinogenic effect can be caused by any dose of a hazardous substance, whereas toxic effect becomes evident only if dose exceeds some threshold level called the referent dose.

3. *Evaluation of exposure.* This stage supposes the definition of the value, duration and frequency of exposure of a human with the determined pollutant and the number of people who are exposed to the effect of hazardous substance in various ways.

4. *Risk characteristics.* This means connecting the information obtained from identification of danger, evaluation of "dose-response" dependence and evaluation of exposure for assessment of the risk related to each of scenarios of concerned effect and representation of information about uncertainties or assumptions during realization of analysis.

### ***Problems of waste management***

Waste, to reduce its volume and dangerousness, is processed before its final disposal. The processes can include such options as incineration, composting, hydrolysis, and sorting, etc. These processes guarantee reaching the desired goals, but at the high economic, social, and environmental costs. Technology has yet to provide the ultimate answer to the problem of waste; presently, it can only reduce its magnitude. Technical solutions to the problem of waste are typical examples of "end of the pipe technologies." Realizing that "the pipe" does start somewhere, however, it is useful to examine how we can affect behavior at the front end of the "waste production line."

The concept of sustainable development for solid waste management requires this waste handling hierarchy: avoidance, minimization, reuse, recycling, treatment with energy recovery, safe disposal.

As economic analysis indicates, this hierarchical approach should be seen far more as a rule of thumb than a binding standard. Nevertheless, it requires and puts the highest pressure on the avoidance and minimization of waste generation. This cannot be achieved by any of the techniques of waste disposal. To obtain these goals the governments must use administrative and economic tools that address the problem at its source, at the point where waste is generated. Generally, these tools are based on the Polluter Pays Principle (PPP), and their goal is to encourage or enforce the potential waste producers to develop and implement procedures that will result in the generation of a smaller amount of or higher quality waste.

### ***Economic-ecological interconnection in education***

It is evident and nevertheless should be once again reminded, that economical studies are to be inseparably linked with ecological education and vice versa. This interdependence is purely explained by the integral part and defining role and influence of nature conditions and

resources on the development of humanity and thus on its economic activity. Being conscious that a human-being is at any rate a part of nature, its most prodigious part, it would be rather logical to build up a future upon strong and inevitable interrelations between the development of mankind and nature processes, principles and rules.

Formation of ecologically oriented perception of reality has already had its start at the end of 20th century. Nowadays this educational branch is presupposed to get much deeper so that to be realized in basic human values, such as ecological outlook, culture, moral and so on. In case of success of the mentioned above realization, people are to develop and build up their lives upon strong consideration of the outcomes and consequences of their activity in reference to the natural aspect.

#### ***Experience of agro-environmental policy in EU countries***

The agri-environmental programs are a part of European Union agricultural and rural development policies. Every EU member state is obliged to introduce an agri-environmental program. However, member countries are independent to a large degree to design the particular measures of the program. The current subsidy titles of agri-environmental measures:

1. Organic farming
2. Grassland maintenance
3. Conversion of arable land into grassland
4. Grass belts on slopes
5. Growing of catch crops (intercrops)
6. Bio-belts
7. Permanently water-logged meadows and peat meadows
8. Bird habitats on grassland (waders, corn crane)
9. Crop procedures in cave protection zones
10. Integrated fruit and vineyard production

*Evaluation results.* There is no systematic evaluation of effectiveness as far as biodiversity increase and maintenance is concerned. The evaluation of economic efficiency of biodiversity maintenance and improvement measures is totally missing. The possible reasons are: the relatively short history of agri-environmental schemes, the methodological difficulty and high costs of efficiency evaluations, non-interest of some stakeholders in effectiveness and efficiency evaluations.

Forest-environmental measures are at the planning stage only. The planned measures are: 1) leaving of old trees and deadwood, and 2) improvement of structure and species composition of the forest. The total amount of forest subsidies is to be substantially lower than the total amount of agriculture subsidies.

#### ***Creation of 'Forest code' in Ukraine – its positive and negative aspects***

„Forest code" was accepted on February, 8, 2006 by the Verkhovna Rada of Ukraine. One of the positive aspects of the Code is the creation of state forest guard, which will have the status of law enforcement authority. It is the first step in the struggle against the illegal felling of forests (only during the last year the illegally felling of 84000 m<sup>3</sup> of forests was registered; equivalent to UAH 25,2 mln.). The reduction of felling will support the average annual increase of the Ukrainian forests that now makes 40 mln.m<sup>3</sup>. If we transform these numbers to timber, we will get not less than 25 mln.m<sup>3</sup> wood per year (not taking into account forest reserves) or \$1,5 billion (1 m<sup>3</sup> wood costs UAH 300).

On the other hand the problem of forest property arises. Any resident of Ukraine will be able to acquire up to 5 hectare of forests and dispose of them. It means that firstly, the forest property will be concentrated in the hands of a few financial and industrial groups. Secondly, the ownership by foreign citizens through “false residents” and as a result strategic influence on the state is highly probable.

Acceptance of the given Code will not solve basic ecological problems such as „black storms” in Crimea, mudflows, dust content, and noise. The possible ways of solving these ecological problems are: expansion of fast growing and valuable species of trees; growing of forests by a planting method; providing nature protection measures that will save forests.

By the way, forest is the only natural resource (compared to petroleum, gas, coal), which recommences. A forest complex in Ukraine is formed in conditions of the small bringing and insufficient supplies of forest resources (own necessities are provided up to 20- 25%) in. This happens if the country is wonderfully provided with climatic conditions and soils for growing valuable species of trees - oak, beech.

The main economic problems of forestry are:

- export of valuable species of trees at a low price;
- insufficient development of contiguous and supporting industries;
- import of finished wooden products of the forest complex.

We offer several solutions of the above mentioned problems:

- setting a duty on the export of raw materials of the forest complex;
- separating forestry from forest industry;
- development of the process of wood elaborating;
- introduction of a forest (landed) tax (as in Poland).

#### ***Alternative sources of energy: problems of implementation of wind power stations in Ukraine***

Every day electricity demand increases. Within the next 10 years we will feel the scarcity of oil. This will, very likely, push up the prices of all energy carriers, especially of oil. Thus we have to develop alternative energy sources.

We settled on the wind energy. It is inexhaustible and absolutely ecological. An important point is that wind energy can be taken easier than solar, because angle is not of such importance, though it is very important too.

Europe already began to work in this course. The European Wind Energy Association (EWEA) has extensive plans to make wing-generating capacity 75.000 megawatts in 2010 and 180.000 megawatts in 2020. In Ukraine we’ve just began to develop the wind-power engineering. The territory of Ukraine can be virtually divided into 3 parts according to their yearly average wind speed. The first and the second parts are not suitable and relatively suitable for getting wing energy. The third part (west and east of Crimea, south of Donetsk, Nikolaev, Zaporozhye, and Kherson regions) has a yearly average wind speed more than 5 m/s – it is enough for the wind-power engineering to be profitable. This can be achieved by concentrating the generative machines and making them more powerful and by reservation of powers depending on the demand.

There are other ways of development: we can build smaller (medium) wind turbines on the high places. The higher the place is the stronger is the wind, the better results we can get. Only in Donetsk region there are some 400 waste banks about 100 meters high. It is an ideal place for a medium wind turbine. But the most profitable are the shelf turbines. They are already

used in Denmark, France, Germany, etc. Crimea perfectly suits all the needs of the wind engineering.

***Cultural differences in the international management***

Intensification of economic sphere internationalization causes the expansion of participant-countries staff. It leads to complicated economic relations. According to management practice this process includes both national and corporative cultures approach proceeding disputes.

International management experience shows that companies happen to be unable to find the way to foreign markets or even fail. The main reason is lack of knowledge on specific matters of countries-participants' management that were formed under the influence of their national traditions, history and culture. Indeed, so long as management is connected with human integration at their enterprises, it deeps inside culture. Knowledge of management system's features, specificity of the national business-culture and typical models of local inhabitants' business behavior form company's particular cross-cultural competence. Also a system of cross-cultural coordinates is necessary. It has to be a system in which subjective observation and objective information will put down firmly.

There are some general recommendations that can be used to solve the problem of cultural differences in the international management:

- to carry out training devoted to crass-cultural communication;
- to develop cross-cultural competence, which is one of the modern manager's important features;
- to work out and improve systems of cross-cultural coordinates that will give an opportunity to expose important parameters of the national character and minimize cross-cultural differences;
- to use foreigners as the branch establishment's top-managers during the first steps of organization structure's construction;
- to displace local managers to foreign headquarter for training during 1 or 2 years.

***Institutional basics of sustainable development***

The problem dealing with providing sustainable development lies on the plane of three basic elements: social, economic, and ecological one. That's why sustainable development has to fulfill and solve the problems of these three spheres:

In the sphere of Economics:	In the sphere of Environment:	In the social sphere:
<ul style="list-style-type: none"> <li>- unlimited needs;</li> <li>- lack of information;</li> <li>- non-rational consumption;</li> <li>- low level of welfare;</li> <li>- low level of investments.</li> </ul>	<ul style="list-style-type: none"> <li>- environmental pollution;</li> <li>- limited natural resources;</li> <li>- species extinction;</li> <li>- non-environmental way of thinking.</li> </ul>	<ul style="list-style-type: none"> <li>- unemployment;</li> <li>- illiteracy;</li> <li>- population explosion;</li> <li>- poverty;</li> <li>- mass migration.</li> </ul>

It may be affirmed that sustainable development has two main vectors: in space, or intra-generational equity (geographical or social differentiation), and in time, or inter-generational equity. The first tendency deals with politics. "Intra-generational equity" means international equality. The second tendency includes social institutions.

Institutions are the complex of norms regulating the stable actions in the process of social sphere. There are three types of institutions:



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- 1) decision-making systems (market, democracy, hierarchy, a system of negotiations);
- 2) norms, traditions, habits;
- 3) organizations (state, corporation, family).

Institutional factor plays a considerable role in transitional process on the way to sustainable type of economic development. The way towards sustainable development requires environmental thinking, new approaches to creating social-economic strategy and the state policy as the different components of institutional mechanism. Cumulative effect of social institutions impact is obvious. For instance, a long-term democracy leads to a better today's democracy. However, institutional development is not any more the power-accumulating process for only social institutions (which are intensified by a state-dominating society and the weakness of social role). This means the development of private sector and non-government organizations.

As an agenda for action there can be taken the next steps dealing with the institutional changes on the way to sustainable development:

1. State level:
  - it's necessary to work out environmental protection laws (for example, dealing with emission standards, privileged taxation, etc.);
  - to create social-economic strategy (for example, investments into sphere of science and education including environmental education).
2. Corporate level:
  - to make inner environmental policy connected with purposes of the firm with respect to natural resources protection;
  - to reduce negative influence on the environment.
3. Family level:
  - to set contract rules signing private treaties keeping within the frames of legislation;
  - environmental education and education for sustainable development.

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**Методи прийняття рішень в економіці довкілля**  
**(за результатами конференції ISCS'2006)**

*В статті надано деякі підходи до вирішення еколого-економічних проблем на шляху до сталого еколого-економічного розвитку. Розглянуто наступні проблеми: позитивна та негативна мотивація до сталого розвитку, екологічна економіка – заснування нової науки, економічний механізм екологічного менеджменту, проблема обмеженості ресурсів та шляхи її вирішення, розвиток екологічного та зеленого туризму в Україні, методологія оцінки якості води, проблеми управління відходами, еколого-економічні взаємозв'язки в освіті, досвід агро-екологічної політики в країнам Євросоюзу, створення "коду лісу" в Україні – позитивні та негативні аспекти, альтернативні джерела енергії: проблеми впровадження вітрових станцій в Україні, культурні розбіжності в міжнародному менеджменті, інституційні засади сталого розвитку. Стаття підготовлена по результатах XII-ої міжнародної студентської (молодіжної) конференції в м. Суми (ISCS'2006).*