

Ministry of Education and Science of Ukraine
Sumy State University
Economic Research Centre

13th International Student Conference

**"Economics for Ecology"
ISCS'2007**

*Sumy, Ukraine,
May 3-7, 2007*



XIII Міжнародна студентська конференція

"Економіка для екології"

*м. Суми, Україна,
3-7 травня 2007 р.*



13th INTERNATIONAL STUDENT
CONFERENCE
"ECONOMICS FOR ECOLOGY"
(ISCS'2007)

May 3-7, 2007, Sumy, Ukraine

**The conference
organizers:**

Sumy State University

Economic Research Centre

Sumy local public youth organization "Youth and entrepreneurship"

**The topics of the
conference:**

theoretical problems, case studies, methodology, co-operation examples, environmental education, NGO activities and so on.

**The conference is
directed to:**

students, young researchers, representatives of youth organisations and NGOs.

**Conference
languages:**

the official conference language is **English**

Conference place:

Sumy State University

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PROGRAM OF THE INTERNATIONAL STUDENT CONFERENCE "ECONOMICS FOR ECOLOGY" (ISCS'2007)

Thursday, 3

| | |
|---------------|---|
| 08.00 – 11.45 | Registration of the participants |
| 10.00 – 10.30 | Coffee Break |
| 12.00 – 13.40 | Official conference opening at the Assembly hall of SSU |
| 14.00 – 14.45 | Lunch at the Canteen of SSU |
| 15.00 – 18.00 | Plenary session |
| 16.45 – 17.00 | Coffee Break |
| 18.00 – 19.00 | Departure to the recreation center for settlement |
| 19.00 – 19.30 | Accommodation |
| 19.30 – 20.30 | Dinner |
| 20.30 – 21.00 | Spare time |
| 21.00 – 23.00 | Welcome party |

Friday, 4

| | |
|---------------|-----------------|
| 08.30 – 09.30 | Breakfast |
| 09.30 – 11.00 | Workshops |
| 11.00 – 11.15 | Coffee Break |
| 11.15 – 14.00 | Workshops |
| 14.00 – 15.00 | Lunch |
| 15.00 – 17.00 | Workshops |
| 17.00 – 17.15 | Coffee Break |
| 17.15 – 19.00 | Debates |
| 19.00 – 20.00 | Dinner |
| 20.00 – 23.00 | Ukrainian party |

Saturday, 5

| | |
|---------------|--|
| 08.30 – 09.30 | Breakfast |
| 09.30 – 11.30 | Workshops |
| 11.30 – 11.45 | Coffee Break |
| 11.45 – 14.00 | Debates |
| 14.00 – 15.00 | Lunch |
| 15.00 – 17.00 | Role Games |
| 17.00 – 17.30 | Coffee Break |
| 17.30 – 19.00 | Conclusions of the workshops and the conference as a whole |
| 19.00 – 20.00 | Dinner |
| 20.00 – 23.00 | International party |

Sunday, 6

| | |
|---------------|---|
| 08.00 – 09.00 | Breakfast |
| 09.00 – 19.00 | Excursion about memorable places of Sumy region |
| 19.00 – 20.00 | Dinner |
| 20.00 – 23.00 | Farewell party (Fire party) |

Monday, 7

| | |
|---------------|-------------------|
| 08.30 – 09.30 | Breakfast |
| 09.30 | Departure to Sumy |

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EDUCATION FOR SUSTAINABLE DEVELOPMENT

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Knowledge - outlook - skills. This triad is the basis of any educational cycle, and determines a key framework of forms and methods of education. Each component of the triad contributes to the reproduction of two others. Finally, the triad mentioned is to realize three conditions of a human being: to know, want, and be able to do something. To know means to want, to want means to be able. Any skill reproduces needs for a new knowledge, and the cycle repeats on a new qualitative basis. When it deals with sustainable development (SD) the problem is that this cycle for each human of the Earth would be reproduced constantly. When a human being is getting older, this cycle should be realized automatically (in particular, due to human self-training processes).

Human – the biosphere - economy. Methodological complexity of SD concept understanding is amplified by the necessity to manage a systemic whole: human – nature – society. The homeostasis levels of three key systems cause this whole: human organism (in fact, billions of humans on the Earth), the biosphere (actually, trillions of species, that form planet's ecosystems) and economy (actually, millions of economic subjects providing world economic systems functioning). Due to its dynamics this task is of an extreme complexity. Any of its condition should be reproduced anew every moment and in each point of space. Characteristic features of the systems in question are that homeostasis levels of the first two systems may not be changed essentially. Any deviation of temperature, pressure, solar radiation and hundreds of other parameters of the environment, on which life conditions and human activity depend, will be fatal for it. To support Earth environment, the biosphere should keep homeostasis parameters, and consequently, quantitative structure of ecosystems as well as qualitative characteristics of the processes running inside. Hence, in conditions of constant population growth, the triad examined in order not to lose its stability, economy constantly should change the level of its homeostasis. The vector of such changes should be directed at the reduction of nature intensity of human life-supporting systems (input of materials per unit of product, energy intensity). The rate of this reduction should overrun population growth rate or at least meet them.

“Bio-”, “socio-” and “labour” of the human nature. To solve the objectives of SD ensuring mentioned above, crucial transformation of one more triad that exists in human is needed. It deals with personality (information) origin of the social human, which develops in his physical body. It also deals with the essence which unites the given two origins and forms of the human labour potential. This is a social human that determines the behaviour of the “labour” person (the economic person), acting as the determining factor of an industrial system. Both “socio” and “labour” persons are bind in a human body. Hence, ecological improvement of

reproducing system (economy), that provides the realization of human existence functions on the Earth, is determined by the perfection of social human and common harmony of the human system's trinity.

Matter - information - synergy. Getting acquainted with basics of SD, human should study to comprehend the art of "tender" environmental management that does not destroy fundamental principles of natural reproduction phenomenon of systems. Human cannot fully comprehend the sacrament of natural essences. Each of such essence (a plant, an animal, an ecosystem, the biosphere) represents the unity of three natural origins (material basis, information and synergetic, uniting phenomenon), which is constantly reproduced by this natural essence in time and space. Human can learn only general contours of its reproduction mechanism, but may not fully penetrate into the depths of all processes of this reproduction realization. Hence, the person is not capable of controlling these processes completely. In this case it is only necessary to control conditions in which natural essence may reproduce itself. This is the way human operates, preserving territories with the certain mode of natural objects utilization: reserves, protected areas and natural parks.

ECOLOGY, TOURISM AND INVESTMENTS IN MONTENEGRO

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First ecological state on the world

DECLARATION OF ECOLOGICAL STATE MONTENEGRO

''We, deputies of the Parliament of Republic of Montenegro, see that the protection of identity of our people and land on which we live and work, because of destructing the nature, has become our opportune and the most important job. By respecting our due to the nature, which gives us the strength of health, freedom and culture, we turn ourselves to the protection of hers, in the name of our own survival and the future of our successors. Not feeling any difference between us so strong, as the changes, which our natural environment is exposed to, we subject our national, religious, political and other feelings and trusts to the plan to turn the Montenegro into an ecological state. We announce by this act of the Declaration, that Montenegro begins to make the state relationships with the nature.''

*THE PARLIAMENT OF THE
REPUBLIC OF MONTENEGRO*

Tourism

Tourism is most important branch of economy in Montenegro. By occupation, 68% of labor force is employed in services, mostly in or connected with tourism.

Strategies of tourism – since year 2000 elite and ecotourism more is affirmed in stead of mass tourism. It is thought that ecotourism that what can be offered by little number of countries, and among them is Montenegro. Advantage is size of Montenegro – in one day tourist could go skiing on the mountains and swim in Adriatic Sea. Slogan of Montenegrin Tourism Agency is MONTENEGRO – WILD BEAUTY and last year was “year of national cuisine”

Montenegrin coast – Length 280 km and offers to tourists various possibilities for everybody. Adriatic Sea is dark blue color, is transparent about 60 m and is considered as hot current. Every summer season is more and more blue-flag beaches, as well as many luxury hotels were built.

Mountains – 70% of Montenegrin territory are mountains. Good destinations for tourists are 2 national parks, glacier lakes, the biggest canyon of Europe and skiing sites.

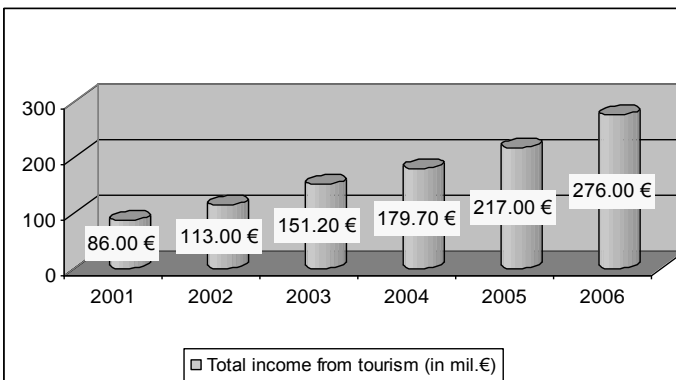
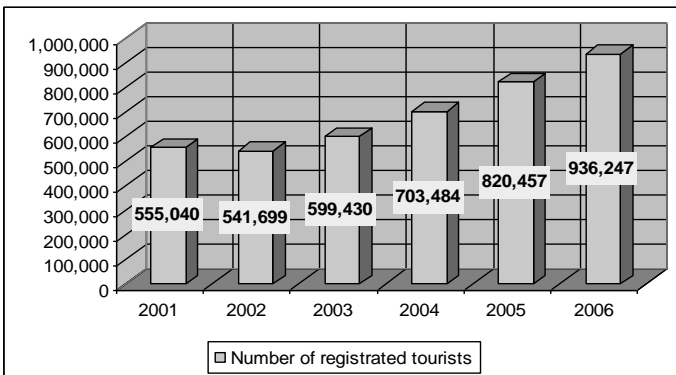
Religion / culture – most of population are Eastern Orthodox, but also are present Catholics and Muslims. There are a lot of interesting churches, cathedrals, monasteries and temples. In Montenegro were mixtures of flounces of East and West, as well as architecture, culture, art, literature, etc. In Cetinje is held 3 most

important Christian relics – Our lady of Filermo, 2000 years-old icon, hand of St. Joan and a piece of True Cross, which found resting-place after tempestuous journey around Europe.

Montenegro also offers to tourist many places for joy and recreation, sport and cultural programs, national food, wine and drinks.

Sustainable development & Investments

Montenegro should develop as a microstate. Every year Montenegro becomes more attractive place for investments (276 mil. € in 2006) and this trend is expected in next years. Reasons why Montenegro is attractive for investments are because: 1) it is first independent country of XXI century; 2) it has stable political situation; 3) official currency is EURO 4) stable macro-economy and good market opportunities and 5) favorable tax climate. On conference of World travel and tourist centre (WTTC) held this year Montenegro was pronounced as country with the fastest growth of tourism economy on the world.



Conclusion

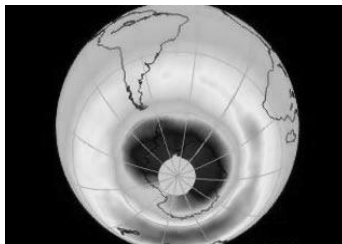
Tourism development is one of the Montenegrin economic priorities. The choice to make tourism the driving force of the economy and of the new development cycle is rooted in the fact that Montenegro has the resources necessary for tourism development. At the same time, tourism generates the development of other complementary activities, such as transport, trade, banking, agriculture, construction etc. Such a development has a whole set of positive economic effects, including decrease of unemployment, increase of living standard and contribution to regional/ rural development (by keeping people in the villages and mitigating the problem of «ageing» of the villages through the development of agriculture and forms of tourism related to countryside and agriculture – agro-tourism, eco-tourism and countryside tourism).

As first ecological state, Montenegro should be known by ecotourism in the world.

THE ARTIFICIAL METHOD OF THE OZONE LAYER RESTORATION

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The problem of the ozone holes became known for mankind at the 80-th years last century. Ozone loss was first detected in the stratosphere over Antarctica. In 1985, Vienna Convention related to the ozone layer protection was proclaimed. In 1987, one hundred and forty nine nations signed the Montreal Protocol. But these actions didn't solve the problem. The ozone holes exist and increase. The biggest ozone hole over Antarctica reached 24 million square kilometers in 2005.



Picture 1. The ozone hole over Antarctica (blue color)

Many scientists affirm that the ozone layer is restoring. It will be recovered in 50 years. In our mind it is not so attractive statements. We want to go to the beach,

don't afraid the sun today. That's why we must act today and solve the problem as quickly as possible.

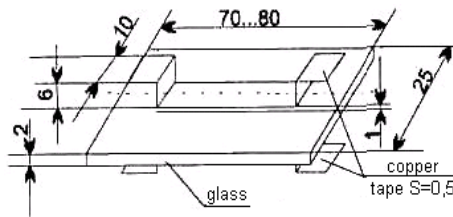
What is ozone? Ozone is a blue gas with a rough smell that is constantly formed under the influence of ultra-violet radiation from the sun or during the electric discharge of the lightning in the stratosphere. Ozone molecule absorbs damaging ultra-violet rays and safe ultra-violet rays reach the earth. That's why the ozone layer is called the sun-glasses of the planet. If it isn't the ozone layer everything will die on the earth.

Causes for the ozone depletion: 1) the usage of chlorofluorocarbons, known as CFCs or Freon, which dissociate into dangerous chlorine compounds. These CFCs commonly used in fridges; 2) the flying of the air-craft leading to nitric oxide release from the funnel gases, particularly the launches of the spacecraft such as American Space Shuttles.

The natural formation and dissolution of ozone was damaged last time. Unnatural dissolution of ozone must be stopped or the ozone layer must be restored by an artificial method. It suggests the using of the ozone restore technology.

We propose to project and to make the ozone production device – "ozonator". It will use the property of the air to form ozone during an electric current or arc on the emitter passes through the air.

The picture 2 shows the main worker area of the ozonator. The device only needs the electricity and the atmospheric air cleared of the dust. Other recourses are not necessary.



Picture 2. The emitter construction

Other recourses are not necessary.

The production of 1 cubic meter of ozone demands 2000 kilowatts of electricity. The average price for 1 kilowatt of electricity in the world is 2 sent, thus the production of 1 cubic meter of ozone will cost 40\$.

Ozone can be transported up into the stratosphere in liquid state, under the high pressure and at the temperature 90 degrees or 120 degrees of frost by air-fighter AH 124"Ruslan". Around 80 tones of liquid ozone can be delivered at altitude 12-14 kilometers for one flight. The exact place of ozone release can be considered through the gas-analyzer. Ozone released into the stratosphere will be transformed into a gas. It will rise to the upper atmosphere because its volatility

more than the air volatility in 1,62 times. It is necessary to release ozone by night and at the lowest temperature, because ozone quickly decomposes to oxygen by sunlight. But ozone atom is stable at the temperature 73 degrees of frost.

3 cubic meters of ozone eliminate 1 square kilometer of the ozone hole. In order to eliminate the ozone hole over Antarctica completely 72000000 cubic meters of ozone is required. 72000000 cubic meter of ozone can be transported for 700 flights. It is necessary to remember the amount of ozone reactions with chlorine, fluorine, nitric oxide, which catalyze the ozone depletion. One molecule of these substances removes from one thousand to hundred thousand ozone molecules. Thus, 700 flights by one thousand ozone molecules is 700 thousand flights.

Those countries should pay for electricity, equipment, fuel and the tenancy of the plane, whose contribution to the destruction of the ozone layer is the biggest. They are: United States, Japan, United Kingdom, Germany, France, Russia.

If these countries refuse to pay the problem of the ozone layer can be solved in other way: the ozonator can be placed directly in Antarctica. The ozone will be released from the funnel 10-20 meters in high during the polar night. Ozone will rise to the stratosphere and step by step eliminate the hole. The electricity for the ozonator can be received from the gas electro producer. There is a great number of the gas deposits in Antarctica, which are prohibited from the countries using. But it can be used for safety of the world. Thus gas can be gained from little gas-works in Antarctica, which have no the industrial value for the future. The cost of the maintenance of the "ozonator-plant" in Antarctica is not so expensive for all mankind. It is estimated in 1 million dollars per year.

WATER MARKETING AS ONE OF ELEMENTS OF ECONOMICAL REGULATORY MECHANISM IN WATER USE ACTIVITY. EXPERIENCE OF THE UNITED STATES OF AMERICA

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On the modern stage of development rapid increase of the Ukrainian economy accompanies negative tendencies in water economy. The continual increase in demand will result in increased water scarcity over time. Further economic advance and development will cause added water demand too. Pollution and unpractical use of water resources are grown in water economy. Environmentally oriented demands for water have risen rapidly in recent decades and may continue to do so. Water supply is not rising; in fact, it is shrinking due to pollution and ground water depletion. The fallout will magnify the consequences of rising water demand. Our amassed assets in water infrastructure are depreciating.

Construction costs are high as is the regulatory burden stemming from ecosystem protection. In addition to normal forms of infrastructural aging, sedimentation has progressively claimed reservoir storage capacity. Public health concerns pertaining to the quality and security of drinking water continues to boost the costs of water and wastewater treatment operations. While additional water development can play a role in managing growing scarcity, development must be shaped strongly differently than it has been in the past. So, an enhancement of water use efficiency has special actual continuity today.

Solving of the tasks, which were caused by the problems of water use and were established by the conception of the stable development in Ukraine, were put on the water resources economics. People market all sorts of humanly essential commodities, so marketing as relevant economic instrument can be applied to water resource issues. The object of research is water resources marketing and mechanism of water markets functioning in the USA.

Water marketing as one of elements of economical regulatory mechanism can be applied to Ukrainian economic environment. Exactly the economic mechanism of water use should have strategical, complex and system disposition in the water use efficiency, both on the local and the national levels.

Water marketing is a management policy for natural water (in a difference from water pricing what pertains to partially or fully processed (retail) water) and has grand potential role among the set of efficiency-enhancing economical tools.

Water marketing means the exchange of natural water rights by willing buyers and sellers. Water markets are enabled by the full or partial adjudication of natural water resources among agents, with the crucial characteristic of transferability included.

The marketing of water is neither novel nor new. Centuries ago, it was practiced along English rivers (Csott and Coustalin 1995) and within at least one irrigation district in Spain (Maas and Anderson 1978). Water marketing is also conducted in various countries. Australia has also delved into water marketing through new policies (Sturgess 1997). Water marketing in some countries exists informally, or in black market form, in some regions where it is not sanctioned. Such examples are testaments to the worth of natural water and the potential differences among trader's marginal value of water.

In recent times a large variety of marketing instruments are feasible, such as: water right sale, water right lease or rental, a water right option (sometimes called a dry-year option), water right banking, a water right delivery contract, etc. Each style of water rights has its comparative advantages.

By contrast with the water use government regulation, a water market motivates both old and new water users to assess their water use strategies in relation to the scarcity value of water. Besides, in some circumstances, allowing water trades will be slow to motivate water reallocation. The most significant of these occurs where irrigation districts supply water to farmers, but the end users do not hold title to the water rights. Individual irrigators might then welcome trade and reductions in their water use, yet be unable to do it. Furthermore, in some districts in the USA neither the

irrigators nor the district have the right to transfer water rights because the rights are officially owned by the government. The latter condition need not be viewed as permanent in light of opportunities to convert state property into private property, but it is a tough hurdle to overcome.

Real U.S. water markets are operating in a “mixed system” constituting a governmentally regulated market. Governments actually oversee water markets, and are regulators effective in promoting economic efficiency. There is an appointed typically staged exchange framework, and the notification stage can be practiced narrowly or widely, depending on state rules type of water right holders and the flow character of water. The flow character of water creates all kinds of noteworthy interrelationships among a watershed’s water users.

The most active markets in the United States have benefited from special circumstances that have reduced transaction costs. Lowered transaction costs lower the burdens to be overcome by buyers and sellers, thereby furthering their incentives to participate. All of the most notable U.S. water markets lie in the West, because eastern, riparian-based laws have been unsupportive and scarcity is lower, at least thus far. For example, Northern Colorado Water Conservancy District, created in 1937, has important surface water flows in the Arkansas and South Platte basins. The Lower Rio Grande Valley of Texas has performed a social service in a semiarid region of substantial population growth. By virtue of an extensive system of canals and storage facilities, California market possesses an unusual ability to wheel water about the state.

So, theoretical concepts, which will be obtained in research, new methodical approaches and results will be allowed to use in the process of water recourse economics teaching courses and for preparing practical recommendations for water economy according to conception of the stable development in Ukraine.

THE COEFFICIENT OF CORRECTION OF EFFECTIVENESS WITH THE ACCOUNT OF NATURAL FACTORS

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The existing methods of determination of effectiveness don’t give the opportunity to emphasize the factors to the full extent. By which we can achieve the effect: the level of development of technologies, exploitation of natural resources, i.e. the damage to the environment etc. The economic damage, caused to the environment as a result of exploitation of natural resources and ecological violations at the given moment, doesn’t have a precise definition at the profound level.

To reveal the level of effectiveness by natural factors it is proposed to use the following coefficient:

$$K_{np} = \frac{\sum K_3 - (\sum T_3 + \sum \Pi_{np} + \sum III)}{\mathcal{O}} \quad (1)$$

where K_{np} - a coefficient of correction of effectiveness with the account of natural factors;

$\sum K_3$ - a sum of capital expenses for protection of nature;

$\sum T_3$ - a sum current for protection of nature;

$\sum \Pi_{np}$ - a sum of payment for exploitation of natural resources;

$\sum III$ - a sum of beices for contamination of the environment and overlimited exploitation of natural resources;

\mathcal{O} - an economic effect.

To explain the economic sense of the given coefficient K_{np} we pay attention on his key and boundary meanings.

The multitude of meanings K_{np} is $K_{np} = [-1, 1]$. The key meanings are -1, 0, 1. Zed's examine each of them.

1. $K_{np} = -1 \Rightarrow \sum K_3 = 0; \mathcal{O} = \sum T_3 + \sum \Pi_{np} + \sum III$ i. s. a subject of economic activities doesn't bear any capital expenses for protection of nature and all the economic effect is spent on payment of natural resources used in the production process and on liquidation of penalty sanctions. In this situation the subject is busy with ecodestructive activities.

Effectiveness is bully achieved by natural factors.

2. $K_{np} = 0 \Rightarrow \sum K_3 = \sum T_3 + \sum \Pi_{np} + \sum III$. The subject of economic activities devotes energies to resume the environment so being ecologically neutral. The given development can be characterized as deadlocked, exactly: having directed all the means on resuming the environment the subject can raise the quality of water resources, the atmosphere, bat by no means he can resume exhausted nonrenewable resources (gas, oil etc). Making calculations of effectiveness the given meaning is not used.

3. $K_{np} = 1 \Rightarrow \sum K_3 = \mathcal{O}, \sum T_3 + \sum \Pi_{np} + \sum III = 0$. The subject without doing any harm to the environment all received means directs to resuming the environment. Effectiveness is achieved by ecologically safe productions and technologies. An example of such subject can be the ecological fund.

For more detailed study of boundary meanings, characterizing a transition info phases of ecological crisis, ecological neutrality, observance of principles of steady development, we propose to use the method of the expert appraisal.

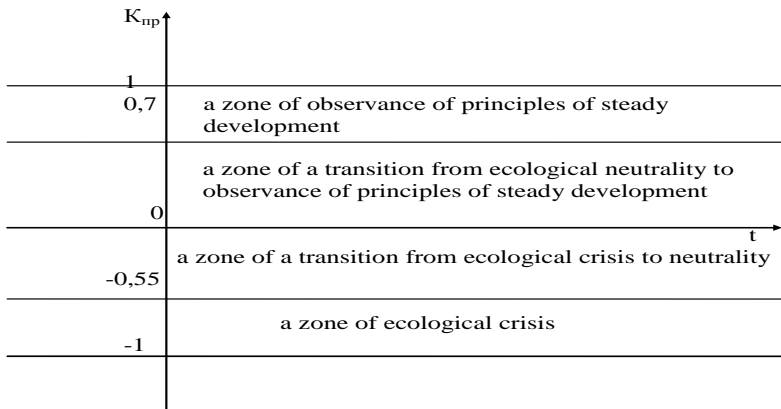


Fig. 1 Phases of development of a subject depending on the meaning K_{np}

To considering the factual meanings of K_{np} taking into account forced and boundary meanings you can come to a conclusion about the level of effectiveness of exploitation of natural factors by an economic subject. Under the meanings of the coefficient $[0,7; -0,55]$ it is proposed to conduct ecological – economic restructuring. And under the meanings $[-0,55; -1]$ conducting restructuring must be obligatory.

REASONS FOR ENTERPRISES TO ADOPT SOCIAL ENVIRONMENTALLY RESPONSIBLE MARKETING

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Many firms are beginning to realize that they are members of the wider community and therefore must behave in an environmentally responsible fashion. This translates into firms that believe they must achieve environmental objectives as well as profit related objectives. This results in environmental issues being integrated into the firm's corporate culture. Firms in this situation can take two perspectives; 1) they can use the fact that they are environmentally responsible as a marketing tool; or 2) they can become responsible without promoting this fact.

This paper will attempt 1) to introduce the term of green marketing; 2) discuss why going green is important; 3) examine the reason that organizations are

adopting a green marketing philosophy; and 4) mention some of the problems with green marketing.

Green marketing incorporates a broad range of activities, including product modification, changes to the production process, packaging changes, as well as modifying advertising. Yet defining green marketing is not a simple task. Indeed the terminology used in this area has varied, it includes: Green Marketing, Environmental Marketing and Ecological Marketing. While green marketing came into prominence in the late 1980s and early 1990s, it was first discussed much earlier. The American Marketing Association (AMA) held the first workshop on "Ecological Marketing" in 1975. The proceedings of this workshop resulted in one of the first books on green marketing entitled "Ecological Marketing"

The AMA workshop attempted to bring together academics, practitioners, and public policy makers to examine marketing's impact on the natural environment. At this workshop ecological marketing was defined as:

the study of the positive and negative aspects of marketing activities on pollution, energy depletion and nonenergy resource depletion.

This early definition has three key components,

1. it is a subset of the overall marketing activity;
2. it examines both the positive and negative activities;
3. a narrow range of environmental issues are examined.

While this definition is a useful starting point, to be comprehensive green marketing needs to be more broadly defined. Before providing an alternative definition it should be noted that no one definition or terminology has been universally accepted. This lack of consistency is a large part of the problem, for how can an issue be evaluated if all researchers have a different perception of what they are researching.

No matter why a firm uses green marketing there are a number of potential problems that they must overcome.

The first is that firms using green marketing must ensure that their activities are not misleading to consumers or industry, and do not breach any of the regulations or laws dealing with environmental marketing. For example marketers must ensure their green marketing claims can meet the following set of criteria, in order to comply with the FTC's guidelines. Green marketing claims must;

- Clearly state environmental benefits;
- Explain environmental characteristics;
- Explain how benefits are achieved;
- Ensure comparative differences are justified;
- Ensure negative factors are taken into consideration; and
- Only use meaningful terms and pictures.

The second problem firms face is that those who modify their products due to increased consumer concern must contend with the fact that consumers' perceptions are sometimes not correct.

When firms attempt to become socially responsible, they may face the risk that the environmentally responsible action of today will be found to be harmful in the future. Given the limited scientific knowledge at any point in time, it may be impossible for a firm to be certain they have made the correct environmental decision. This may explain why some firms are becoming socially responsible without publicizing the point. They may be protecting themselves from potential future negative backlash, if it is determined they made the wrong decision in the past.

While *governmental regulation* is designed to give consumers the opportunity to make better decisions or to motivate them to be more environmentally responsible, there is difficulty in establishing policies that will address all environmental issues. For example, guidelines developed to control environmental marketing address only a very narrow set of issues, i.e., the truthfulness of environmental marketing claims. If governments want to modify consumer behavior they need to establish a different set of regulations. Thus governmental attempts to protect the environment may result in a proliferation of regulations and guidelines, with no one central controlling body.

Reacting to *competitive pressures* can cause all "followers" to make the same mistake as the "leader." Thus blindly following the competition can have costly ramifications.

The push to *reduce costs* or *increase profits* may not force firms to address the important issue of environmental degradation. End-of-pipe solutions may not actually reduce the waste but rather shift it around. While this may be beneficial, it does not necessarily address the larger environmental problem, though it may minimize its short term affects. Ultimately most waste produced will enter the waste stream, therefore to be environmentally responsible organizations should attempt to minimize their waste, rather than find "appropriate" uses for it.

Green marketing covers more than a firm's marketing claims. While firms must bear much of the responsibility for environmental degradation, ultimately it is consumers who demand goods, and thus create environmental problems.

PECULIARITIES OF ECOLOGICAL RISKS INSURANCE

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In conditions of integration of Ukrainian economy into the global economic system the main task is the transition to the management of environment in accordance with the international standards. Therefore there appears a necessity to organize a risk-management system where the management of ecological risks is of not least importance.

The analysis of the literary sources is the evidence to the lack of attention to this issue in the domestic applications. There is no any unilateral classification of the ecological risks, not enough scientific-methodological developments regarding the issues of risk assessment and minimizing.

Within production activity of enterprises there appear such kinds of ecological risks: natural, risks of catastrophes, economic, demographic and others.

Such type of risk as the ecological is one of those greatly complicated, having the following peculiarities:

1. The scale of the risk consequences, which cause damage to the population of dangerous zone and not to the company itself.

2. The moment when the consequences appear. The damage to the environment and the people's health becomes evident in an indefinite time period after the emission.

3. Difficulty in exact financial assessment of ecological risks. This is explained by the difficulties in the assessment of moral damage and the use of outdated methodology of ecological-economic losses.

Activity of the productive companies may cause damage to the environment, health, etc. Occasional wreckage may cause serious material losses. Who and how should compensate the damage caused to the population and environment?

It is illegal to blame state for the consequences of economic risks as the majority of companies are private. However the company may not have enough costs for compensation of the caused damage. In these conditions one of the ways to minimize economic risks is insurance. Ecological insurance can become a guarantee to the mechanism of responsibility. The following conditions are necessary for this:

1. Availability of modern methods of calculation of risks possibility and assessment of their losses.

2. Economic effectiveness of insurance operations.

3. The moment of insurance event must not be planned

4. Availability of the reason-consequence connection between damage and revealing of pollution

Calculations of the foreign experts prove that the system of insurance of ecological risks allows compensating up to 40% of losses along with high financial steadiness of financial operations.

The system of ecological insurance has a number of advantages:

1. Ecological insurance helps to compensate the losses (however it doesn't release responsibility).

2. This kind of insurance can be beneficial to insurance companies. Statistics allows to evaluate the level of ecological risk and define the amount of the insurance cost

3. The system of insurance favours the implementation of ecological management and eco-friendly modern technologies of production in companies.

This positively influences competitiveness of the companies and the country's economy overall.

Ecological insurance is more and more popular with the Western countries. In Ukraine such an insurance product is rather new. The key tasks for the implementation and development of the ecological insurance system are:

1. Improvement of the legislation in the sphere of ecological insurance.
2. Development of scientific and methodological background for insurance of ecological risks.
3. Creation of a sole national register of the data on objects demanding the insurance defence.
4. Preparation and certification of staff for insurance sphere.

Performance of these tasks will depend on the position of society, desire of legislature and executive branch of power to take into consideration the factors of ecological development in the process of the development of the strategies of economic transformation.

ENVIRONMENTALLY SOUND MANAGEMENT OF SOLID WASTES AS AN IMPORTANT STEP TO SUSTAINABLE DEVELOPMENT

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A widely-used and accepted international definition of sustainable development is: *'development which meets the needs of the present without compromising the ability of future generations to meet their own needs'*. Globally we are not even meeting the needs of the present let alone considering the needs of future generations. The past 20 years have seen a growing realization that the current model of development is unsustainable. Our way of life is placing an increasing burden on the planet. The increasing stress we put on resources and environmental systems such as water, land and air cannot go on forever. We all need to make different choices if we are to achieve the vision of sustainable development. This is particularly true for our everyday actions.

Environmentally sound management of wastes is among the environmental issues of major concern in maintaining the quality of the Earth's environment and especially in achieving environmentally sound and sustainable development in all countries. The household solid waste (HSW) and dust are daily collect in every occupied item, and derivate huge problems, their concerning recycling.

"Ukraine can sink in waste"- to such conclusion there came the participants of a round table on ecological questions, which was held in "Ukrinform". Every year on garbage dumps acts of 26-27 millions tons household waste, which total makes more than 35 billions tons. They occupy of 130 thousand hectares. 90% of these

territories do not meet basic environmental standards and are polluting air, water and soil. Paper, scrap metal, and glass are used as recyclable wastes, but the percentage of recovered (recycled) waste is obviously not sufficient. Moreover, in Ukraine there is no system of separate waste collection, so sorting of waste at the collection stations or landfills is necessary.

The situation is critical. There are many different reasons, which have resulted in it:

- the weak nature protection legislation;
- there is no interest at the investors to give money for processing waste;
- insufficient ecological education in our society.
- There are some ways correctly to act with waste. They are:
 - burial place;
 - burning ;
 - processing;

The most widespread way is a burial place of waste. Approximately 90 percents wastes dig in before this time in USA. But even the large areas of ground are necessary for a usual burial place, and it promotes pollution of underground waters and top layers of ground by connections of heavy metals, it dangerously for the people's health and threat for an environment (as for restoration of a layer of ground by thickness of 15 centimeters, without intervention of the men, 3000 years are necessary approximately).

Therefore in western and central Europe the way of a burial place was replaced with burning. The burning has reduced volume of dust on 70-90 of percents. Heat at burning dust used for reception of the electric power. But in cities, which used these burning furnaces for dust, the structure of air became worse. Therefore burial place of waste remained by the most popular method of the decision of a problem with waste. The most perspective way of the decision of a problem is the processing of waste. The basis of processing is sorting of dust and development of technological level of processing.

As to Ukraine that almost 100 percents of dust are dig in. Before this time the tariffs for accommodation of waste are not given in the order. If in Europe pay for it 40 dollars for ton, in USA – 90 dollars for ton, in our city (Sumy) it is 4 hryvnas for ton(over 1 dollar).

Abroad tax, storage, recycling of waste is favorable business, and for us is unprofitable. Ukraine should take for a basis the European slogan: *“With waste the incomes”*. In its realization the main purpose is not a raising of the tariffs, and creation of a complete productive chain: *the tax, sorting, recycling, processing*. With the waste it is possible to receive the cheap petroleum, synthetic fabrics, and goods of daily demand. That is not subject to processing should be burnt.

At the present stage Ukraine should put before itself such tasks:

- Selection of dust. It will be by the important step for introduction in Ukraine not burial places, and processing of waste. As only then the investments

on construction of factories on processing dust will act in our country, when the system of selection of dust will be adjusted.

- To reduce weight of waste at the expense of increase of culture of manufacture.
- To give credit and tax advantages to the enterprises, which are engaged in processing of waste.
- To strengthen ecological education of the population.

MUNICIPAL POLYMERIC WASTE AS A SECONDARY SOURCE OF RAW MATERIAL

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Waste is formed during extraction, processing, and use of natural resources, at the stage of manufacturing and the use of final products. Thus the amount of products for which manufacturing expends a lot of energy and human work, results in waste after a single use (for example, canning containers, aluminum containers, various kinds of packing materials, polymeric materials, paper and etc.). On one side, waste is the main pollutant (annually hundred million tons of wastes are formed); on the other side waste frequently represents valuable products, potentially suitable for processing and secondary use. Proper waste handling can provide about 15 % gain on the total national income.

During the USSR period, 2.5% of municipal waste was used as secondary raw material. Today, the processing of waste with the extraction of all valuable raw components is the most effective form of recycling and production of high-grade kinds of raw materials used for more economical manufacture of consumer and technical goods. Nowadays, this problem is very real, especially because we are having the shortage of landfills and also with the transition to a market economy. Simultaneously, by using secondary raw materials, a significant amount of primary resources can be saved; we may use primary resources as additional resources for other needs, deliver it to other regions, or export it. Such increases in regional resource potential without incurring large expenses results in additional finances to the budget. Besides, the activated work in preparation and processing of secondary raw material creates an opportunity to increase the number of new workplaces and the level of employment of the population.

The polymeric material waste requires special attention. The reason is a wide spectrum of their use and, accordingly, constant growth of volume of these waste products.

The structure of the polymeric waste is: 34 % of polythene, 20.4 % - from PETF, 17 % - from the laminated paper, 13.6 % - from PVC, 7.6 % - from polystyrene, 7.4 % - from polypropylene.

Synthetic waste can be recycled; consumption waste in the form of a polymeric film withdrawn from circulation, polymeric bags and other packing materials; plastic boxes, canisters, pipes, utensils, toys; a wide range of plastic products and details of complex household and industrial equipment, including cars and radio-electronic equipment.

After products that use polymeric materials are discarded, they retain their physical and chemical properties after processing. These properties define the growing interest in the secondary processing of polymeric materials and the increasing demand on secondary crushed, agglomerated, or granulated plastic.

20 % of polythene waste, 10 % waste of PVC, 12 % of polystyrene, 17 % of polypropylene and 12 % of PETF are processed and recycled. The secondary crushed, agglomerated, and granulated plastics are the main products from polymeric waste.

The ability to manufacture products from secondary polymers continues to develop quickly, while the supply of these secondary crushed, agglomerated, or granulated plastics lags behind. Various kinds of equipment are made to process polymeric waste in all developed industrial countries. There are manufacturers for specific kinds of equipment for waste recycling in the CIS too, but such equipment is for processing of pure industrial wastes only. The polluted waste has, on one hand, commercial benefit. On the other, the waste creates real environmental problems.

The secondary raw material is used practically in all spheres of economy: motor industry, home appliances, floor coverings, utensils, and furniture – these are only a few examples. In some sectors the use of secondary materials (the food-processing industry, medical equipment and etc.) is limited, but for the majority of manufacturers of technical goods it is possible and necessary to work using a secondary material. For example, secondary PE and PP granulate are used to manufacture plastic wrap for packing goods, technical film, sewer pipes, and polymeric tile to improve the properties of bitumen composition of asphalt manufacture, etc. Secondary PET is applied as the additive to primary raw material up to 50 %, in the manufacture of building materials, trash containers, sewer pipes, etc.

The process of recycling polymeric waste solves the environmental problems by reducing waste generation, saving primary raw material, and by producing the necessary products for human life.

MAPPING CONSUPTION OF PLANT PRODUCTION

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Recent satellite images are helping measure the impact humans have on global plant production. This will identify impacts on ecosystems, particularly the Earth's carbon cycle, which affects global warming.

NASA has been using satellite data to measure Net Primary Production (NPP), the yield of organic mass stored by plants. NPP is a parameter used to quantify the net carbon absorption rate by living plants. NPP is the difference between plant photosynthesis and respiration which releases part of the carbon absorbed, that is, $NPP = \text{Photosynthesis Rate} - \text{Plant Respiration Rate}$ (expressed in units of gram carbon/square metre/year). This indicates the rate of carbon fixation by photosynthesis, an essential function of life on earth. By gathering measurements of a variety of plant properties, scientists can map how NPP changes every eight days. Additional data from the World Wildlife Fund and other groups has measured how much of this quantity is being consumed by humans in the form of food, fibre, wood and fuel. NASA models also took into account the amount of plant-life required to support domestic animals.

Benefits of using satellite data:

- Rapid coverage of large areas
- Detection of inter-seasonal and inter-annual variations
- Consistent data quality
- No damage to plants
- Cost effectiveness

NPP varies by ecosystem. Coral reefs, algal beds and wetlands are the most productive (2,500 grams per square metre per year), followed closely by rainforests (2,200). The highest productivity occurs during midsummer in temperate climates, however tropical regions are more productive over a year because they have a longer growing season. Temperate forests are about half as productive annually as rainforests. Cultivated land is even lower (650).

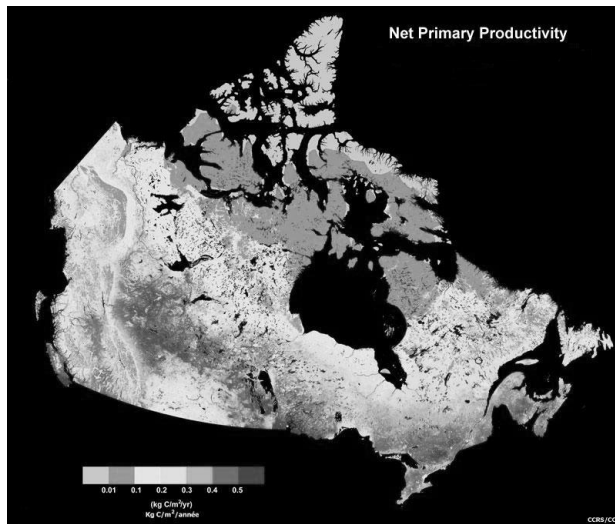
Humans annually consume 20 per cent of NPP generated on land (the models did not take into account ocean production). Consumption varies by region. Humans in sparsely populated regions place little demand on local production, however urban areas may consume 300 times what is produced locally. East and South Central Asia contains about half the world's population and consumes 72 per cent of the region's NPP.

However per capita consumption also varies drastically by region. The same part of Asia consumes far less than the global average per person. If everyone consumed at the same rate as North Americans, global consumption of NPP would be about 35 per cent.

Table 1. Average annual Net Primary Productivity of the Earth's major biomes

| Ecosystem Type | Net Productivity(kilocalories/meter⁻²/year) | Primary |
|----------------------------|---|----------------|
| Tropical Rain Forest | 9000 | |
| Estuary | 9000 | |
| Swamps and Marshes | 9000 | |
| Savanna | 3000 | |
| Deciduous Temperate Forest | 6000 | |
| Boreal Forest | 3500 | |
| Temperate Grassland | 2000 | |
| Polar Tundra | 600 | |
| Desert | <200 | |

Net Primary Productivity, Canada.



Understanding human impact on NPP is essential because it relates to plants' consumption of carbon dioxide, a gas that contributes to global warming. High plant productivity helps moderate climate change. Regions showing a high consumption of NPP may have a direct effect on the earth's metabolism and ability to absorb CO₂. Other regions, like North America, have a more indirect effect. While their consumption of local NPP is close to the global average, they are high importers of products from other regions.

MODERN PERSPECTIVE SUGGESTIONS IN RELATION TO THE IMPROVEMENT OF SITUATION IN THE ECOLOGICAL AND ECONOMIC REGIONS

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History was folded, that natural resources of life-support (air, sun heat, water) in the conditions of absence of exclusive technologies of their redistribution and use (such, as plumbing) in the whole world were communal property. Natural resources, that are immediately involved in the production relations depending on the conceptual organization of society can be either by the article of own of individuals, firms, corporations, or by own of state.

Today, taking into account all growing exhaustion of natural resources, marketekonomaist is offered introduction of wide spectrum of ownership rights in relation to natural using of resource, with their successive transformation in the private right. Herein a basic way is seen to saving and defence of natural resources from the predatory consumption, since wasteful use of natural resources straight related consumption to conception of public product. Executing functions of utilization and being a place of placing wastes of economic activity, the natural resources can be interpreted, as a resource of common property, but public product of consumption. Providing society natural resources (such, as water) the "public product" gets under title. Earlier, in the old times, this resource was used free of charge through his availability and freedom of distributing. The system of ownership rights began to appear, when developed technologies and volunteered services of water-supply. Water was used, as a resource of common property. But in the end, while water resources are larger exhausted, the system of modified ownership rights develops for the different services of water-supply. Ownership rights for other natural resources (earth, forest, petroleum, mineral resources) are well set, although in countries different social and political suestem are different. In Ukraine they belong so far to the state, although some transitional (collective, joint-stock) forms of own, up to private, take place in the use of landed and forest resources. The determination of natural resources, as a public product of consumption, becomes relevant only in relation to their use, as socialusing products (such, as a landscape, air, other structures of life-support, which we name "quality" of surrounding natural environment). The change of forms of own allows to a certain extent to use economic market machineries of adjusting resource alocation problems, it would seem, undecided in the case of use of natural resources, as a public product of consumption. One of basic problem irresponsible use of natural resources. If the public product exists, the individual can use him, but have a desire to pay for the expenditures on his recreation. In attitude toward

the private product he can be "unticket": his desire to pay is determined by the market prices, and also alternative expenditures.

It is possible to consider conception of reformation of the tax system on the basis of theory about the "double dividends", as new direction of ecological researches of problems of environment and natural resources, that beginning is fixed in the recent years the XX item Essence her does consists in that in countries with the distorted tax system?, what character above all things for the poorly developed countries, the introduction of new or strengthening traditional ecological taxes can give a double benefit. Such benefit will takes place only then, when the ecological taxes will be to be accompanied by weakeningof "twisted" taxes. Thus the structure of taxes changes only, and the balance of the tax system remains unalterable. The general benefit from such reformation of the tax system consists in the improvement of state of environment and in the economic and social effects from weakening of negative influence on economy and social sphere of distorted taxes. This conception of reformation of the tax system got the name "double dividends". The part of economists perceives her, as an axiom, part-yak theorem, confirmation of which is possible only after the protracted empiric researches.

COMPLICITY CRITERIA OF A HUMAN IN CREATION

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Sense of human economy lays in satisfaction of material, social and cultural human needs. However human is not a master of the environment. He takes participation in a process of the nature development and is its integral part. There fore a human being fulfils a complicity act in creation and development.

Complicity criteria define a human debt. It includes humane attitude as to human beings as to the environment. Unfair act forward the nature can't be a humane act forward a man. And inhumane act forward a man can't be an ecologically fair act. So a man possesses a specific responsibility of the next three types.

In first, this is stabilization of population number. From the point of modern industry capacities production of goods for sufficient life quality is not a problem nowadays. Dilemma is in an ecology plane. Production increasing means reinforcement of natural resources and energy sources exploitation, and, as a result, growth of negative ecologic impacts.

Humanity has to stabilize population number, taking increasing of resources deficit and ecological threat into account, which has become uncontrolled and threatened the nature. Economy won't be able to realize its major destination or ruin biological basics of life without such stabilization.

In second, this is needs stabilization. Life level of huge population part on the planet is insufferable low, and, of course, in must be raised in the closest decades. Economies' development in developing countries will course colossal use of nature resources. Even if population growth is stabilized, it will be possible to realize this process, if only small in number population, who lives smartly, will agree not to enhance their life quality more.

Specific responsibility of a human is based also on a fact, that human needs are defined by environment opportunities (it is meant in developed countries).

In third, this is environment stabilization. Of course, it doesn't mean that economy development must be stopped. Stopped economy won't be able to realize its function to serve in behalf of life in the world, where huge population number lives in inadmissibly hard conditions. That's why this is necessary to talk not about economy's growth stop, but about its quality. Quality growth means continuation of investment process into economy, but under condition of social product increasing without energy and raw materials usage enhancing.

Our responsibility as accessories of the world creation is not only in maximum exclusion and correction of inevitable harmful growth consequences on the environment. Our issue is more difficult. We have to find roots of radical decisions and level all ecological problems with economic ones.

For example, such ecological boon as air changed into insufficient boon, which has to be priced too. But people consider that they have the air in excess and continue its exploitation rashly. And if a modern market estimates many ecological boons with a "zero price", the government's intervention is extremely needed.

The examples of such regulation, and not only from the side of government, can be: external expenses internalization by principle of persons' material responsibility, whose activity coursed the damage; emission regulative tax; energy use taxes; energy conservation rationalization etc.

Stabilization of population number, human needs and the environment can result in progressive quality economy development, ethical resources allocation between nations and preservation of our common home.

SUSTAINABLE DEVELOPMENT AND NOOSPHERE

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The system approach to the analysis of the phenomena in nature and society have developed intensively for many decades. Usually in the theory of stability the difficult multidimensional system is understand as the system approach, and the scientific information can be integrated without distortion in relatively simple model that showing (sometimes using mathematical tools) origin and development

of separate processes. We will select three main methods in constructing of models of steady development: resource, biosphere and integrative. All of them are based on single philosophical and natural-science foundation.

The works of V. Vernadskiy about a biosphere was the first stage of direct preparation of appearance of the sustainable development theory. New state of biosphere to which we will approach is noosphere.

In the noosphere concept humanity is not only as a component of earth biomass but as key factor of its change by the way of conscious, reasonable transformation of surrounding nature to modify life conditions. Such concept could appear only in 20th century, when the man-caused effects on nature grew intensively and changed the quality of this influence. Growth of scientific knowledge creates noosphere. V. Vernadskiy created conceptual bases of sustainable development as studies about noosphere which is such stage of evolution of biosphere of Earth, on which as a result of victory of collective human reason will begin concertedly to develop and man as personality, both incorporated human society and expediently regenerate people natural environment.

On the basis of sustainable development pictures is becoming of integral noosphere scientific paradigm of knowledge, which arises up as a result of wide synthesis of sciences about nature, society and man. The special mission here belongs to the modeling processes using hypothetical standards, descriptions, charts, connections between its elements and functions.

RISKS OF THE LOGISTIC SYSTEM AND METHODS OF THEIR REDUCING

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Logistic system – it is the dynamic, opened, stochastic, adaptive difficult or large system with the feed-back, executing different logistic functions, for example, industrial enterprise, trade company and etc. As a rule, it consists of a few subsystems and has therade developed communications with an external environment. The target of logistic is system is delivery of commodities and wares in maximal accordance with the requirements of consumers with the minimum (or set) level of costs.

The risk in every system is explained by reasons both subjective and objective. For example, the stop of equipment can happen because of the death of its separate parts or disconnection of electric power. To big supplies of the prepared products arise up from the study of demand incomplete or wrong, and also when analogues entry the market.

The ecological risk which is the special type of risks of the logistic system. It appears in all its subsystems. The risks of spilling, overflow, explosion of materials

or products at their transporting to the producer or consumer behave to it, storage on ware-houses, use in production etc.

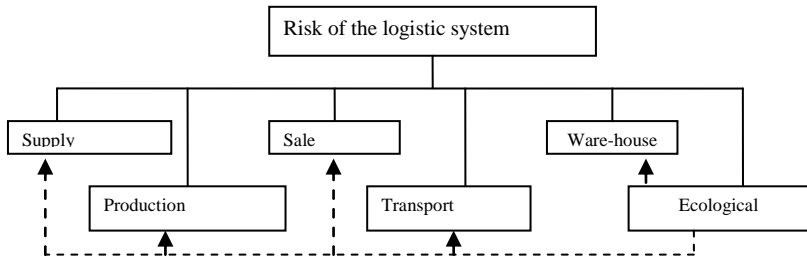


Figure 1. Risks of the logistic system

The decline of risk of the logistic systems is possible at existence of the developed infrastructure. Thus notion «logistic infrastructure» can be seen variously. From point of the included objects, logistic infrastructure, in particular its kernel – production infrastructure – sometimes equates with logistic. From point of sphere of economy, a logistic infrastructure is activity on maintenance of process of goods flow.

PROBLEMS OF BUILDING INFORMATION SOCIETIES IN DEVELOPING COUNTRIES

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Formulating ICT strategies

National and regional ICT strategies and policies in developing countries and regions will determine whether the growing availability of ICTs and their applications brings social and economic improvement or leads to new forms of exclusion. An effective strategy must include the accumulation of capabilities to assess the strengths and weaknesses of various hardware and software alternatives and to select specific applications in line with development priorities.

As developing countries join the global information infrastructure, they will need to establish effective ways to maximize the benefits and control the risks of ICTs. This means coordinated action, encompassing the technologies and services, as well as many aspects of the institutional environment. Strategies are needed to establish the necessary S&T, engineering knowledge, and management techniques and to build the social and economic institutions needed to reap the potential social

and economic benefit of ICTs. Priority should be given to policies, regulations, education, training, and technology-assessment programs to enhance the capacities to creatively produce or use ICTs.

Given the potential of ICTs, all governments and other stakeholders need to build new capabilities to produce, access, and use these technologies. To build these capabilities, ICT strategies must be responsive to sustainable-development goals and involve all social and economic stakeholders. The government has a very important role to play: supporting new forms of market facilitation, introducing effective regulation, promoting stakeholder dialogues, and providing public services appropriate to local conditions.

Technology choices and capacity-building

The national information infrastructure in developing countries will depend to some extent on the strength of their firms' R&D capabilities and their propensity to invest in the R&D that will enable them to help construct and use this infrastructure. Other equally important elements will be the R&D capabilities of public-sector institutions, the links between these institutions and the private sector, and the relationships between domestic organizations and those located in distant places around the world. The production, maintenance, and use of ICT systems almost always lead to new forms of organization. These organizational changes need to be identified and implemented by informed managers. If S&T research results and practical experience with the production and use of ICTs are shared, replication of problems can be avoided and risks can be minimized. Competition in domestic and international markets is forcing firms in industrialized countries to reduce costs and improve quality. This requires increased investment in R&D activities. Some developing countries are already giving a high priority to R&D activities in the ICT sector. Bermuda, Brazil, Indonesia, Jamaica, Malaysia, Malta, Mexico, Singapore, South Africa, South Korea, and Vietnam are among the countries that have put considerable effort into developing ICT strategies.

Impediments to use ICT

Cost of services. Users' concern about fees charged for services. The high cost of services in relation to user incomes and earnings are identified as a serious barrier for women, the unemployed, students and poor community members.

Cost of equipment, maintenance and supplies. The high cost of equipment, supplies and maintenance, e.g., cost of computers, software licenses and cartridges for inkjet printers, electricity, telephones (and the charges) and the common practice of getting technicians from far away places for either routine maintenance or repairs is a constant heavy burden to carry which affected use. These costs are usually reflected in service charges.

Inadequate physical facilities. Small or poorly managed available space, with little privacy for users of the telephones or other equipment.

Poor management. Management problems, ranging from poor attitudes, to weak management, technical and even social skills. inadequate quality and number of staff, the use of poorly trained staff and volunteers with weak remuneration.

Hours of operation. Formal government working hours in telecentres, which limit the time during which the facilities are open to the public. Absence of access to ICT facilities, at night, on Sundays, or during public holidays.

Inappropriate location. Inappropriate location. Additional costs, such as for transportation to get to the telecentre, and perceived threats to the users (i.e. safety/security), or discomfort associated with the location, reduced use.

Poor publicity. Not enough seems to have been done to create awareness about either the locations of the telecentres or the services offered by them.

Literacy and language. The telecentres are perceived as places providing services for the educated on account of the language of the content, most of which is in English.

OPTIMISATION OF ORGANISATION STRUCTURE AS AN ADAPTATION MECHANISM

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In the situation of transition economy one of the biggest problem is adaptation of firm activity to new forms and rules of business-making. It can be achieved by restructuring of organization system of management as a mechanism of changes implementation. Organizational forms of management in the conditions of vagueness of market and instability of external environment are expected to be characterized by the high degree of adaptability to the external environment and strengthening of role of operative management. It generates a tendency of restructuring to more decentralized and flexible structures in which particular employee gets larger responsibility, but at the same time rights to use assets and of personnel management are broadened out.

Main typical defects of present organization systems are:

- excessive dependence of structural subdivisions upon the highest leaders and overloading of these leaders;
- presence of great number of general director deputies with intersecting ranges of responsibility;
- appearance along with subdivisions, typical for the command methods of management, additional subdivisions related directly to the market economy but with unformed yet functions, and, as a result, doubling of functions;

- absence of serious informative support of enterprise and its subdivisions activity;
- absence or just formal presence of special economic-financial subdivision or worker responsible for the results of financial activity;
- absence of changes control managers and group of the strategic planning.

Nowadays the classical linear-functional structures of management are used only in small and partly in the middle-size companies. Big corporation prefer divisional approach. It means that first leaders and managers delegate part of their functions and even rights to the lower levels managers. It brings more importance (and therefore more costs) to the control departments.

Another aspect is a new way of decision-making process with domination of collectively approved projects and plans, etc. instead of individual orders of main leader. Positive sides of this trend are:

- Group has much more amount of important knowledge than a single expert. It may be use effectively in project-making.
- Collectively approved change is more acceptable for each member of the group. It will make an implementation easier.
- Decision of the expert group is more accurate if it related to checking-out somebody's ideas. It is used in expert methods of estimation.

But there are some negative points in collective decision-making.

- Individuals with a higher status has more influence on final decision.
- During "hot" debates group can loose the main target.
- Groups loose a lot of time on solving personal conflicts.

We are more interested in increasing of costs and time loss. Also we can take into account general corporate culture changes including number of new ideas from employees or standing for common rights in groups of workers at different level.

Time loss we are able to estimate using managers and departments schedule and fixing time of decision preparation and improvement in case of linear-functional management and project-team work. The same situation can be used in costs increasing estimation during the "democratization" process. It can be find in financial reports of enterprise by the way of summing up additional costs spreading to controlling departments and managers, additional wages of managers or analytical teams of middle-level strategic management etc. But these two parameters should be analyzed together to show the kind of "effectiveness-change/cost-change" ratio.

Estimating of corporate culture changes is harder and today has only expert opinion methods available. Researchers usually mention three levels of business transformation.

During transformations of the first level company just assumes certain measures for the reaching of required result and changes nothing in usual style of work. Example of such transformation is the selection of basic business among all types of activity and concentration of main resources on it.

With transformations of the second level employees have to study the new way of working, but some characteristics will be already available. For example, a company that grows due to innovative activity can establish the collaboration with universities and research institutes and this way provide itself with new wave of new ideas and of new commodities to be produced.

The third level of transformations is the level of the deepest, cultural changes. For example, company will be able to fix its competitiveness only by fundamental reorganization of corporate culture. In other words company has to turn from the market-event-reacting culture to the initiative-making culture, or from a hierarchical culture — to cooperative, etc.

To reach a success in frequently changeable world of economy in transition small firms and huge corporations should find the most adequate structure of organization system. The hard choice between individualism and team-building may has only special solution for particular enterprise including elements of both variants. But right or wrong solution can be the efficiency determinant of all enterprise activity in general.

ECOLOGICAL EDUCATION AS A PROVIDING FACTOR OF SUSTAINABLE DEVELOPMENT OF UKRAINE

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A new approach to interaction of people with nature is realized by conception of sustainable development. This conception is settled at the level of all countries of the world and directed on the review of the basic schemes of economic development taking into account an ecological constituent and contemplates execution of several major principles: conservation of the environmental quality, economic development, solution of the social and demographic problems and providing of international safety.

Considerable influence on forming of the sustainable development conception was done by the report of the International commission of environment and development (ICED) “Our common future”, in which the offered long-term strategies in the sphere of preservation of environment can allow to attain the sustainable development of the world economy.

Numerous definitions of sustainable development are issued from the necessity to retain the natural-resources systems of life support and the quality of environment in such state that can provide not only for extant, but also future generations auspicious conditions for life and activity.

The term “sustainable development” includes two key interrelated ideas:

1. a notion of needs, i.e. priority, essential for existence of the poorest groups of population. The necessity of forming the reasonable needs was considered in the

conception equilibrium nature management, proposed by P.G. Oldak. The essence of author's idea consists in complex subsistence of three constituents: a) conversion to resource economy in nature and production; b) the forming of the sensible needs; c) the choice of system of goals that provide satisfaction of formed needs at the conservation of future capabilities.

2. a conception of limitations (technical, financial-economic, ecological, legislative etc.)

Exactly the forming of sensible needs of population substantially predetermines the quality of educational processes (scientific and training activity, management, informative technologies etc.) that directly realizes the training of specialists.

In modern industrial conditions the new attainments, those begin to change the essence of production factor, take on special significance. The knowledge of foundations and rules of science development and technics and objective descriptions of ecological-economic processes allows to form considered ecological strategy of development of enterprises, organizations, country and its regions.

For embodiment by the national economies of sustainable development idea the necessary condition is the presence of the specialists prepared properly, and which had the system view on ecological problems and have knowledge, skills and abilities of integral maintenance, understood, for example, on the features of different ecologically dangerous technologies of production of goods, services and processes, that take place in an environment under act of enterprises-pollutant and their communication with the state of recipients and others like that.

For getting really qualitative education the qualitative of demands (purposes, standards, norms) and essential qualitative resources (staff potential, educational programs, contingent of entrants, material support, finance etc.), in other words quality of conditions (investment in education) should be provided.

From afore-mentioned we see that actuality of ecological education of student youth and also all layers of population is the important enough and necessary task of modern society, and also one of basic terms of realization of the sustainable development conception. Knowledge about nature must be widely popularized by all possible facilities and only by common efforts, namely: government ↔ enterprises ↔ educational establishments of all levels ↔ public organizations ↔ mass media ↔ every family.

SYSTEM ECOLOGICAL MANAGEMENT ESSENCE AND PERSPECTIVE OF THE INCULCATION ON ENTERPRISE

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Management use, scientific well-founded and good constructed system of managing by the household subject, is the most important component of the success in the market economy.

Creation of the organization bases and suitable stimulus for the development of the ecological management in Ukraine are very important reformation condition of the existing managing system of the environmental protection activity at the present stage.

Rational use of the environment is the priority way of the activity and enterprises development. Formation of the strategies and managing programs by them, with the maximal (врахування/use) of the ecological content is the pledge for the inculcation of the principals of ecological managements.

Effective ecological management provides enterprises with trust in the relationships with all partners who are interested in enterprise activity.

Any enterprise, as the subject of the ecological management, is considered as the system which co-operate with the factors of the environment.

The models of organization and managing of the environment operate at the times then Ukraine in circumstances of the restrictions and changes in economy don't provide themselves the coordination between economical and environmental aims in the state and as the result the realization of the optimal ecologically-safe managing decisions. In this case we need to create the ecological management systems, as more progressive model of the organization management of the environment at the market transformation.

As the result we can mention what the aim of the ecological management inculcation to unite collective efforts of the enterprise for such aims:

- Providing the effective production and minimizing the level of environment pollution;
- Harmony the production and environment;
- Providing the clean environment, safety and profitably of produce (diee to the consumess' demans);
- Realization by workers all demands of environment protection;
- (Creation of new production and technological processes, which differs because of the minimal level of the pollution, safety of the consumption);
- Usage of the ecologically safe materials, which can be use for (подальше) utilization;
- Providing (profitableness) the pollution notification measures;
- Realization of the measures for the creation of the safe wording conditions and notification of the professional diseases;

- Realization of the ecological examination of the activity of enterprises and the valuation of the ecological risks.

THE MANAGEMENT MECHANISM OF CROSS-CULTURAL KNOWLEDGE TRANSLATION

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In the most traditional works devoted to the problems of culture and management in the context of international business culture was regarded as the source of fundamental differences. These differences in its turn were considered to be the reason of contradictions, misunderstanding between the agents of international economic relations. These assumptions are based on classic conception of the culture as an essence.

However the essence point of view can be used only, when we wish to understand the features of any cultural system, for example, country or company. But when cultures in any case clash or interlace in the practice of international business, such culture determination appears as an inappropriate one. Essence conception exaggerates culture difference since earliest times and just offers the criteria of their comparative estimation.

In such case cultural differences foresee misunderstanding, culture shock which an individual experiences entering to the world market. All these assumptions make us doubt of the necessity of merge and absorption processes and globalization of world association on the whole. But in fact language and culture differences go out on a foreground just when all other circumstances are unfavourable. Therefore the culture is not the reason but feasible stimulator of tensions in the cross-culture relations. Thus the modern globalizing world needs new approaches to the determination of culture essence. Besides to respond to requests of the world market, to derive benefit from unions through scopes, and to contribute to the organization knowledge exchange it is important to regard the culture as the resource instead of the threat.

Knowledge assumption contributes to these purposes greatly. According to this conception the culture is regarded as the variety of common knowledge, the location of common knowledge and similar world view, which are clashed and redistributed constantly. And until values and benefit of the culture are perceived as knowledge it will lie by a dead load instead of important resource.

In the transnational corporations culture conditioned knowledge that are dispersed on a whole world and, unfortunately, local, accessible only to the narrow circle of people. And it is quite difficult to obtain knowledge of local scale and spread them among the departments of that company. But these skills are very important because culture conditioned knowledge is unique, they absorbed the

specificity that is typical just for certain cultural system. Company that makes knowledge, which can be profitable for many departments, known just to one department risks to lose the unique competitive advantage.

As far as the culture and knowledge about the culture are regarded as the resources of organization, the cross-cultural management should pay less attention to the cultural differences, and to be concentrated on the use of this resource (that is not to neutralize or control cultural disagreements but to make its work based on them).

It is possible to assume that a cross-cultural management is the art of combination of various useful knowledge with interactive translation. Interactive translation is the form of cross-cultural activity that foresees participants' integration into multicultural groups in the process of work in order to develop common approach to understanding and decision of the problems within the international company. According to the knowledge sphere the translation allows universal knowledge that is somewhere to become accessible for other people. Also interactive translation foresees transference of values and experience. As a result knowledge that are possessed by their owners can be renewed and perfected or transformed in new forms of conduct and activity.

In order to get maximum benefit from such work, participants should feel the necessity in command work and disposition to cross-cultural interaction. All these form a participative competence that is the kernel of interactive translation. A participative competence favours the observance of the equality principle that is extremely important in the decision of general issues. Also the participative competence contributes to the common use of knowledge, experience transmission and stimulation of group studies. And the assistance in development of participative competence without which group studies and common use of knowledge appear impossible is the basic task of cross-cultural management.

The cross-cultural management also should favour the forming of effective cross-cultural technologies that provide existence of participative competence and stimulate command cross-cultural studies. The cross-cultural technologies form conditions for the joining of knowledge, values, experience from various internal and external cultural sources and transform them into the behaviour, concepts, goods and services.

Also the cross-cultural management should support the partner, opened atmosphere. It is achieved due to social abilities, professional competence, mind and tact in contacts. Such atmosphere facilitates interaction of cultures and favours a free knowledge association.

Successful implementation of the cross-cultural management's basic tasks allows companies to expose, accumulate and synthesize the culture conditioned knowledge, achieving synergetic effects, when intellectual potential of collective appears anymore than sum of potentials of his separate fellows. The cross-cultural knowledge translation is the instrument of a new unique knowledge creation. Such knowledge can arise up in headquarters of corporation scarcely.

While obtaining the new knowledge the first, organization can acquire the unique competitive advantage.

Now the cross-cultural management shouldn't be understood as an ability to manage cultural differences and to overcome cultural shock. In fact its central task is to contribute to the actions co-ordination in work and studies during the contacts, when knowledge, values and experience is plugged into the joint multicultural activity.

THE ALTERNATIVES OF SUB-NATIONAL VALUE ADDED TAX

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In recent years, the possibility for sub-national governments to operate a VAT has been largely discussed especially through the experiences of the European Union, dealing with the tax harmonization among states members. Possible models of VAT taxation and problems that may emerge from the operation of the tax are analyzed below. From the political economy point of view, macroeconomic considerations, and the reluctance of central governments to admit "tax room" regarding sub-national governments in so important tax base, have contributed to the opposition to decentralize this tax. From the technical point of view, fraud incentives dealing with sales destination in cross border trade, within a geographical area with no border controls, and the consequent administration difficulties for the enforcement of the tax, have delayed the adoption of a Sub-national VAT design of general acceptance in most countries.

The great challenge is to design a sales tax, that guaranteeing sub-national autonomy to fix the tax rate will satisfactorily perform on efficiency and enforcement grounds, in a common geographical space divided into several jurisdictions, states or provinces, without border controls of goods and services. Before analyzing this challenge, a sub-national VAT's taxonomy containing a brief characterization of each alternative is hereby presented.

"Pure" Origin VAT. Sales are taxed in the state or province where vendors reside. Fiscal credits recognized in each jurisdiction correspond exclusively to purchases inside the same jurisdiction. Whereas exports are taxed, imports from other jurisdictions do not generate fiscal credits. In this case there are not incentives for fraud at destination but generates incentives to sub-national governments for tempting firms to locate within their territory manipulating the tax burden, allowing the possibility of "tax wars". Exports are taxed while imports are not, generating an anti-export or pro-import bias.

"Restricted" Origin VAT. Sales inside the region or federation are taxed in origin, that is, where vendors reside, with an agreement to equalize tax rates in all

jurisdictions. Sales outside the region are zero-rated. The clearinghouse is avoided; states revenues will depend on – and each state will win or lose revenues according to– the interstate commercial flow, that won't be affected by the rate regime, since the tax rate is the same in all states, provinces or jurisdictions.

“Hybrid” Origin-Destination VAT. Interstate transactions are taxed in origin with reduced rates (smaller than the intrastate ones) in order to transfer resources, or potential revenues, from the “producing” states to the “consumers” states. The system is operative in Brazil at a state level. It consists on the application of differential rates centrally regulated by the federal government – initially 7%, now 9% -, for sales from developed states to less developed states; and initially 12%, now 11%, to the rest. States have the obligation to tax intrastate sales with a tax rate higher than the one ruling interstate sales (usually 17%).

“Prepaid” VAT. The registered vendors in any state or province should apply the local tax rate to all sales, unless buyers residing in another state or province provide them with a certificate that corroborates the tax has been already paid in their jurisdiction. By this way, firms that want to buy goods from another province should make two payments before the exporter makes the shipment of goods. One payment to the exporter, in concept of “price before tax” of the goods, and another to the state of his or her residence for the destination tax of such purchases. On getting such a certificate, exporter will be able to burden his or her sale to other state with zero tax rate and justify that situation at his or her provincial revenue service.

This kind of VAT adds financial advantages for revenue services, but it doesn't solve the elimination of fraud at destination, in spite of the biggest bureaucracy that requires for tracking interstate sales. Any merchant can buy a prepaid certificate in the province with the lowest tax rate.

“Dual” VAT. It is used in the province of Quebec and in the European Union, but with the particularity in Canada of coexisting with the federal VAT. Both taxes (federal and provincial) burden the same tax base; each government fixes its own rate and, administration of both taxes is assigned to one of the two revenue services. The problem is that “Dual” VAT seems not applicable to countries with weak tax administrations. As we can see, the performance of the VAT at sub-national level carries on problems that are not present in the case of national VAT. The basic reason is the uniformity of the national tax rate for all goods and services independently of sectors and places of origin and where such goods and services are used or consumed. When the VAT is applied to domestic interstate transactions by the sub-national governments, the consequences with are resumed in the expression “cross border trade problem” emerge with different characteristics according to the Sub-national VAT alternative chosen.

The basic problem arises in all cases when tax rate differentials among states or provinces are relevant. In all alternatives, experts hope for narrow sub-national tax rates differentials. But if tax rates differentials were near zero, any kind of VAT would be viable though not necessarily recommended from the fiscal

correspondence principle point of view. Anyhow, other difficulties have been found in national VAT performance that naturally will be present in the sub-national version of VAT.

As a concluding remark, the review of all the imaginable alternatives for a Sub-national VAT generate serious doubts on an efficiency of it. For some reason, very few countries have at present implemented the Sub-national VAT.: the Province of Quebec in Canada and Brazilian states (ICMS). Problems faces with ICMS are evidence of a bad tax design. It seems that Quebec BAT is the only successful experience.

RECYCLING OF NATURAL RESOURCES

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Switching of economy to the market economy is related to creation and realization of order of resource saving in all links of economic mechanism. It is one of primary objectives and features of transitional period. The policy of resource saving must engulf all of branch structures and all of the tools of territorial-economic complex. Important line of work in policy of saving resources is drawing secondary resources in turnover. Their stake in production consumption is small yet, although certain experience is accumulated in separate countries.

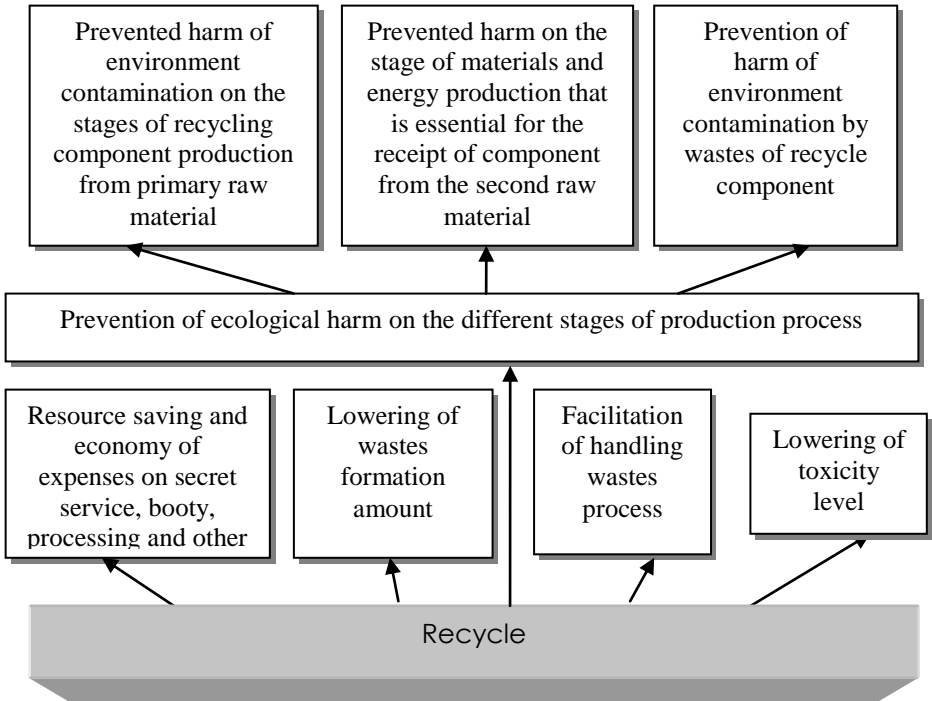
The problem of resource saving of natural resources has many-sided character. Resource saving, in the context of rationalization of nature management and ecologisation of production, while being the major factor of his reduction of prices, provides diminishing of specific expense of natural matter calculating on unit of the finished good and reduction of the negative loadings on an environment.

In its part, limitness of traditional natural resources, increasing necessity in them and providing of normal natural terms for reproduction and keeping ecological balance stimulates the processes of perfection of technologies by more complete utilization of primary raw material and not used before wastes. Essentially, nature-savings and making healthy of natural environment is two sides of single process of achieving ecological-economic balance and functioning of national economy complex.

In the industrially developed countries conception of unity of resource-saving and resource-efficiency, the improvements of quality of environment and economic progress have found practical realization at all levels of management. Thus, the guard of natural environment must be estimated as an important economic task of enterprise, and nature-savings activity assists prosperity of business and gives a positive result for an economy on the whole.

The consumption of new resources can be reduced by repeated engaging got wastes as raw material in the process of production. Energy is thus saved, because

power expenses at recycling, as a rule, is lower than by engaging new resources in the process of production. The substantial enough effect of energy saving turns out as a result. Besides important nuance of recycling is its positive affecting on ecological situation by the lowering of contamination on an environment up to its complete removal.



Recycling of natural resources

Organization of recycling of resources is an extraordinarily important problem. The effects of recycling to a full degree become obvious only from positions of pertaining to national economy approach, when not only narrow departmental interests are taken into account but also all aspects of economic results, including contiguous subdivisions of economy.

In the process of recycling the far of financial and power resources is saved, both replaced by recycling wastes and those which would need for the production of this resource from primary natural resources. A great deal of labour resources and cash facilities is released at the same time.

Recycling allows to get a number of ecological effects related to the lowering of economic harm on the different stages of production process (see chart).

Consequently, the active use in the national economy of the second resources will provide expansion of source of raw materials and also saving and rational use of natural resources.

CLIMATE CHANGE UNCERTAINTY DEBATES

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Anyone familiar with the climate change debate is familiar with the “scientific uncertainty” argument, which usually goes something like this:

The response to climate change must be based on sound science, not on speculation or theory. There is too much uncertainty and too much that we do not know about climate change. It would be irresponsible to undertake measures to reduce emissions, which could carry high economic costs, until we know that these are warranted.

Someone suggest that this argument can aid in convincing people to oppose action on climate change, especially when used as part of a broader set of arguments that include economic and standard rhetorical components. The foundation of the argument – that there is uncertainty in present scientific knowledge of climate change – is uncontroversial. But is there so much uncertainty that we should delay action on addressing climate change until we know more? According to this argument, the answer is yes.

To dissect this argument, let’s consider three different arenas of decision making under uncertainty:

1. Criminal trial: Anyone who’s watched TV knows that a criminal defendant is presumed innocent unless the prosecution succeeds in demonstrating guilt “beyond a reasonable doubt.” In other words, the decision to act (i.e., convict) requires a high standard of proof. The requirement of overwhelming proof is based on a value judgment about the relative severity of the two possible ways a criminal verdict can err — either by convicting an innocent defendant, or by acquitting a guilty one. Society has long judged it worse to convict an innocent defendant than to acquit a guilty one, so the criminal trial has been biased to make that outcome less likely.

The crucial point here is that the standard for conviction is based on a normative judgment about the relative harm of the two possible errors. The worse we judge a particular error to be, the more we try to make it unlikely by biasing the decision-making process against it. In doing so, we willingly accept a heightened risk of making the other type of error, because we judge it to be less bad.

2. Civil trial: In civil law – private suits by one party against another, in which usually only monetary damages or requirements to change behavior are at stake – society has judged that there is no clear basis to believe one type of error or

the other (i.e. errors that favor the plaintiff or the defendant) to be worse. As a result, civil suits are decided without bias, according to “the preponderance of the evidence.”

3. National defense: In matters of national security, US policy often takes action based on threats that are not just uncertain but unlikely. In other words, even a slight risk of a threat is sufficient to justify action. The reason is that our government judges that the cost of being unprepared to meet a threat that does materialize is much worse than the cost of preparing for a threat that never materializes. This is well articulated by Secretary of State (at the time) Colin Powell when discussing why the USA was pursuing national missile defense: “[T]here is recognition that there is a threat out there... And it would be irresponsible for the United States, as a nation with the capability to do something about such a threat, not to do something about [it]... you don’t wait until they are pointed at your heart. You start working on it now.” (Remarks at the International Media Center, Budapest, Hungary, May 29, 2001). This can be considered as a strident articulation of the “precautionary principle”.

What do these three examples tell us about climate change? The “uncertainty” argument we presented at the beginning of this post argues that we should wait until we have overwhelming evidence before acting to address climate change, adopting a standard similar to that for a criminal trial. On the other hand, environmentalists often use Powell’s missile defense argument to advocate immediate action on climate change despite uncertainty.

Which standard for action should we adopt? The choice is not scientific; rather, it reflects a judgment about the relative costs of the possible errors. The argument that climate science is too uncertain to merit action would be appropriate if one judged it a worse mistake to limit greenhouse gases (GHG) emissions too much than not to limit them enough — i.e. that the economic losses from too much mitigation were much worse than the costs of unavoided impacts of climate change.

It is our opinion that this is not the case and that, in fact, the reverse situation appears more likely. If uncontrolled climate change and its impacts turn out to lie at or below the bottom of the present projected range, then an aggressive mitigation program would impose substantial unnecessary costs, presently estimated to lie between a few tenths of a percent and several percent of future GDP. But if climate change and impacts lie near or above the top of the present projected range, then not pursuing aggressive mitigation would likely expose the world’s people to much more severe costs and risks, including a possibility of abrupt, catastrophic changes.

Thus, at its heart, the “scientific uncertainty” argument is not about science at all, but about a judgment about whether it is worse to under or overreact to climate change. Further, the argument is worded so as to imply that the “criminal trial” standard should be applied to GHGs — that GHGs are innocent until proven guilty beyond a reasonable doubt. We believe that a strong argument can be made that this standard is inappropriate and that overwhelming evidence is not necessary in

order for us to begin taking action on climate change. We have enough evidence now.

ENVIRONMENTAL ISSUES AND NGO'S

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Problems such as air quality and water pollution, global warming, nuclear waste, and energy resources are experienced globally, and as a result, individuals and organizations have coalesced around environmental issues worldwide. The term often used to describe the elements of these movements is nongovernmental organizations (NGOs). This differentiates the activism of grassroots organizations from the official policymaking conducted by governments and their leaders.

Global environmental activism is frequently linked to political and economic events, especially in newly developing areas. One study has found that as education and per capita income increase, environmental quality initially worsens; but at some point, this worsening peaks and then declines. Similarly, a growth in pollution-intensive industries and a lack of environmental regulation eventually evolve into service- and information-intensive activities, reducing the burden on the environment. The result is a gradual change in public opinion that demonstrates that there is a serious concern about environmental problems, although primarily those at the local level.

NGOs associated with environmental issues play a significant role in the global debate. They tend to serve as outspoken critics of the government and transnational corporations, highlighting activities that degrade the environment. They often serve as the independent monitors of international agreements and as linkages to international governmental organizations such as the United Nations. They may provide a forum that builds public awareness about environmental problems and, in some cases, become parties in legal proceedings against nations that fail to comply with international treaties and regimes. They have been less successful in affecting on those organizations, which finance large projects in developing countries.

It is important to note that on a global level, NGOs are changing rapidly in response to fluctuations in economies, political leadership, and sociocultural events.

The second half of the XX century made alterations both in the legal systems of almost entire countries and in an international law. An environment was world acknowledged as fundamental public value.

Till recently the ecological management was examined by the task especially governmental, which touched acceptance of laws and control after their implementation. In the best case industry was involved in it. However, the

awareness of that power, industry and population, is jointly responsible for the proper state of environment grew gradually. The problem of clean and healthy environment touches each of us.

Public more consciously perceives a fact, that contamination of environment and exploitation of nature have the harmful consequences. It compels politicians to take public opinion into account. Exactly public heaved up the questions of ecological problems, that was reflected in laws limitation of certain types of environmental impact. In many countries defense of natural values became the primary objective of policy both on national and on local levels. This certificate of that participation of public can be very effective.

Presently there is a number of the problems related to the environment and public participation in its defense.

There are mass violations of ecological legislation in Ukraine, the culprits of which, foremost, there are local and central public agents; Supreme Soviet of Ukraine does not execute the functions of supervisory organ. Legal nihilism inherent for all spheres of public life is peculiar and for nature protection practice, an ecological legislative base is corrected in the direction of diminishing of public rights.

The crisis of environment is caused by indifference of considerable part of civil servants to the problems of environment and indecision of public ecological organizations in relation to criticism of public servants.

The system of nature protections institutions has considerable internal problems:

- insufficient normative base of activity,
- absence of skilled personnel with modern administrative skills,
- shortage and ineffective using of resources,
- practical absence of modern methodical developments,
- deficit of objective information.

Public ecological organizations give negative description to the state of collaboration of public and imperious structures in introduction of ecological policy of the state. The mode of financing of NGOs in Ukraine is unfavorable, a state policy in industry of their support requires the revision.

At the same time bringing in of public to these processes have its own advantages.

The nongovernmental agencies, including noncommercial organizations, possess the acknowledged and various experience special knowledge's and potential in those regions which will matter special for realization ecologically safe and socially oriented steady development. The NGOs are a network which must be connected to work on achievement of these general aims, to provide with the proper plenary powers and to fix.

Public is one of the most substantial resources which can be used for development and introduction environmental preserving justice and policy.

Bringing in of public is a deciding factor in creation and introduction of the expedient and effective mode of environment preserving.

Plenty of citizens can compensate the lack of monitoring, supervisory and executive resources of government and to save its time and money. Citizens can come forward as «eyes and ears» of government, identifying an ecological danger or violation of current legislation and causing their liquidation or stopping.

Thus, society, governments and international bodies, must develop mechanisms by which the nongovernmental organizations would act part of partners taken to them in the process of ecologically safe and steady development responsibly and effectively.

The proper public authorities must carry responsibility for effective preparation of the state serving with the purpose of deepening of their understanding of duties in the field of access giving for public to information and simplifications of public participation in the process of decision-making in environmental preserving area.

The state must assist to public organization's participation in the processes of decision-making in environmental defense and in the processes of decision-making, having the considerable consequences for ecology.

ECONOMIC, SOCIAL AND POLITICAL ASPECTS OF SUSTAINABLE TOURISM

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The definition of sustainable tourism was given in 1988 by World Trade Organization (WTO). Sustainable tourism satisfies present needs of the tourists and destinations by protecting and increasing opportunities for the future. Management of all resources should be carried out in such way, that satisfaction of economic, social and aesthetic needs provide preservation of cultural values, essential ecological processes, biological variety and system of life-support. The output of sustainable tourism is the production, which exists in the consent with local environment, community and culture in such a manner that it is of benefit, instead of damage to tourism development.

It is necessary to avoid equating of sustainable tourism to eco-tourism. Ecotourism became popular in the 1980s and it's a form of tourism that focused in general on wildlife, nature, or exotic cultures. But this kind of tourism not always friendly influences on environment. So sustainable tourism, therefore, is an attempt to improve the impacts of all types of tourism on nature, local people and tourists themselves.

In the whole such kind of tourism is aimed to solve 3 types of problems:

1. Negative influence on an environment: spoiling of territories with solid wastes and loss of their aesthetic value; pollution of water objects by sewage; pollution of the air environment due to use of vehicles in the tourist purposes; noise pollution; degradation of natural complexes due to non-observance of norms of maximum permissible loadings (in particular, development of erosive processes); reduction of a biodiversity.

2. Negative influence on the social and economic environment: withdrawal from economic use of the significant areas; seasonal employment of workers; need for a plenty less-qualified staff (the parlourmaiden, waiters, gardeners, etc.); growth of criminalization among local population; cyclic character of transport services functioning, the enterprises of a feed, means of accommodation, etc.

3. Negative influence on the cultural environment: deterioration of a condition of cultural-historical monuments, objects and territories in connection with their heavy use in the tourist purposes; negative influence on culture and traditions of local population

Thus, the sustainable tourism should correspond with criteria of social, cultural, ecological and economic compatibility. It was set a stress on concepts of "compatibility" and "of sustainable development ". Proceeding from this fact, it is possible to allocate the basic principles of steady tourism:

- careful planning, complex approach, integration of sustainable tourism with the plans of regional development;
- sustainable use of natural resources;
- reduction of superfluous consumption of resources and wastes as a result of activity;
- maintenance of preservation of a natural, social and cultural variety;
- support of local economy;
- participation of the local population in development of tourism and division with them of financial and other advantages from this activity;
- training the personnel;
- appropriate marketing politics of the organizers of tourism.

If the destination is interested in sustainable tourism here are some steps for reaching it:

1. efficient use of energy and materials (solar heating system, toilets which work by micro-bial degradation and avoid water consumption, using of wind as natural air conditioning);
2. waste management (sorting system on recoverable and non-recoverable solid waste);
3. control and reduction of air pollution (using of battery electric vehicles on the territory of destination);
4. control and reduction of noise pollution ;
5. using of environmental marketing strategies (environmental quality of tourism influences its competitiveness);

6. mutual understanding and respect between people and communities (understanding and distribution of universal ethical values, respecting of religious, philosophical and moral beliefs);

7. protect natural environment and resources with guaranteeing healthy, forward and sustainable economic growth;

8. efficient using of cultural heritage;

9. the local people should be involved in tourism management.

The responsibility of the organizers of sustainable tourism is to provide preservation of a nature and cultural heritage, that is connected with it, to educate the visitors, to give them an opportunity to understand value of nature's protection, to learn it, including on an example of own activity, necessity of the careful, reasonable attitude to a nature.

In opinion of the experts, the tourism became determining sector in regional economy of the countries of the European union and world community as a whole. But thus the speech goes about its sustainable development allowing to increase human, natural and the economic capital.

RESOURCES SCARCITY AS THE FACTOR OF ECONOMIC DEVELOPMENT

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In modern society statements about finiteness of non-renewable resources are less heard. Malthus considered, that growth of population has natural limit determined by food products. However, for example, the recent development of agriculture proves this assumption doubtful.

The history of civilization development has shown that all resource crises are successfully overcome. Probably, in the future the development of society will be determined by the quality of *human resource* use.

Indispensable conditions for overcoming resource famine or crisis are:

1. Presence of necessary means (high level of economic development);

2. Sufficient level of science and technology;

3. Time for the development of resource saving and resource substitute technologies.

As in the modern world first two conditions are fulfilled, in the near future for resource famine not to occur it is necessary to finance *outripping* programs on the development of resource saving and resource substitute technologies.

The matter is that the period of development of new technologies may not be infinitely small and consequently, it is necessary to have enough time on research works and innovations tests. By modern estimations development of qualitative

resource saving technologies, for example, in the sphere of power engineering is about 10-12 years.

It is necessary to note, that to use only market self-regulation mechanisms for the formation of resource saving policies is not always effective. This is because the priority in fundamental developments is very difficult to protect and consequently all interested parties frequently use their result. Therefore, the role of state (association of states) is very important.

Concerning the things stated any occurrence of a resource shock or famine needs to be considered as the consequence of suddenness. For example, the petroleum shock of 1973 happened because of Arabian countries ultimatum to the USA.

The basic trend development of modern economy is intensive industrial growth in less developed countries (India, China, Russia, Brazil etc.). Thus, these countries intensively pass the same stages of development, which were characteristic to the advanced countries. It results in the sharp increase of material and power resources consumption

Because of oil fields scarcity, gas, metal etc., the entry of new players into the club of industrialized countries results in a sharp rise of resources prices. Therefore the modern rise in prices in the near future will probably proceed.

The given situation, which disturbs the advanced countries (the USA, Europe, Japan etc.), is the result of strategic mistakes of the beginning of 90s. Then these countries offered long-term investments in energy- and resource saving technologies for the benefit of accelerated economic growth.

Therefore, it is possible to predict in the near future that under the influence of resource famine there will be economic leveling between advanced and less developed countries. It contradicts the statements about low energy-and material intensity of gross national product units in the countries of “gold billion”. But in these countries the per capita resources consumption is maximum, and the low level of resource intensity of gross national product units has arisen not because of technological development, but because of resources prices disequilibrium and transition of industrial production to less developed countries.

Thus, the key goal is in the comprehension of future resource-environmental problems and in the stimulation of technologies development that will help to solve them.

PROTECTED AREAS LAND MANAGEMENT

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Protected areas contain some of the world’s most beautiful scenery and outstanding natural and cultural landscapes. They play a vital role in conservation

of biodiversity, maintaining genetic resources and protecting important ecosystem functions. At present more than 14000 protected areas exist in Russia occupying approximately 12 per cent of the country's area. Management of these territories affects many stakeholders. Therefore any management decision on protected areas should consider private and public interests and foresee possible ecological, economic, and social consequences.

Protected areas management shows consistent patterns of strengths and weaknesses. One of the main problems in protected areas management is some vagueness of land relationships on protected areas. According to the Land Code of 2001 all land fund of the Russian Federation is divided into 7 categories. Lands of protected areas should be ascribed to the 4th category "lands of specially protected territories and objects". By January 1st 2005 the total area of protected areas lands that has been inscribed to this category of land fund was 34 million ha. At the same time overall area of protected areas is more than 140 million ha. It's obvious that territories of protected areas are registered as lands of other categories. For example, all lands of Pribaikalsky National park are considered as lands of forest fund.

At the moment some protected areas are still facing problems regarding the demarcation of their physical boundaries. Less than a half of national parks and nature reserves have registered their lands in a proper way. Absence of documents on land hampers protection of rights of protected areas and is a serious threat to the full realization of their role. There are cases of emergence of unauthorized land users and attempts of federal, regional and municipal authorities to withdraw land from protected areas.

Sustainable land management in protected areas requires a comprehensive approach and should include territorial, economic, administrative, and juridical regulation. Land management is carried out on state, regional, municipal, and household (enterprise) level. Thereafter realization of functions of land resources management is carried out by state authorities as well as by municipal bodies, organizations and enterprises.

Policy-makers and stakeholders should consider the following peculiarities of protected areas:

- presence of unique natural complexes and objects that have special nature protection, scientific, cultural, aesthetic, recreational and health-improving value;
- public significance of protected areas and their openness to the public control and criticism;
- diversity of legal regimes for lands of different categories of protected areas;
- variety of stakeholders and forms of land use;
- inclusion of human settlements;
- underestimation by population and authorities of the role protected areas play, their ecosystem services; perception of protected areas as a way to withdraw natural resources out of use;

- necessity to integrate protected areas into socio-economic development of a region.

Territorial regulation involves land use planning, territory development, boundaries demarcation, zoning, creation of migration corridors and etc. The focus of this type of regulation should be placed on the local and enterprise level.

Economic regulation includes economic evaluation of land, land taxation, land rent regulation, valuation of benefits from establishing conservation easements, covenants and servitudes and tax implications, financing of conservation activities. Main economic measures should be developed on a federal level and can be broaden on lower levels.

Administrative regulation is a state regulation. It includes establishment and conduction of land cadastre, land monitoring, and land control. It guarantees that all mentioned subsystems, as well as economic measures follow standardized procedures throughout the country.

Juridical regulation implies development of legal measures for realization of all other types of regulation. It involves issues on land ownership and land titling, land rights protection, and conflict resolution.

Effective land management demands firsthand, reliable, homogeneous, complete, and comparable information on land resources capacity, land tenure, land use, land value and etc. The State land cadastre is the main source of this information and the core of a land management system. It can be defined as a parcel based and up-to-date land information system containing a record of interests in land (rights, restrictions and responsibilities). Comprehensive registration of ownership and other interests in parcels of land, indexed on a cadastral map is a basic land information product. When parcel information is linked to additional information about other use rights, restrictions, valuation and land use classification, the information becomes a powerful tool for land administration, management and distribution.

At the present time in Russia there is no integrated information resource that could contain all data on lands of protected areas. In the state land cadastre (and title register) there is no information on conservation easements, covenants and servitudes. The data on rights, borders of protected areas is not full. So in the view of the aforesaid it's clear that necessity of establishment and conducting of land cadastre is of high importance. There is need in development of guidelines for operation of land cadastre of protected areas in practice.

Land management in protected areas is essential for ensuring the proper management of protected areas. Availability of required information on land in the state land cadastre makes possible further improvement of land management system for protected areas: development of economic mechanism, correction of zoning, conflict resolution and other measures.

BIOMASS: ADVANTAGES AND DISADVANTAGES

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From prehistoric times, human beings have harnessed the power of fire by burning wood to create warmth and light and to cook food.

The term "biomass" can describe many different fuel types from such sources as trees; construction, wood, and agricultural wastes; fuel crops; sewage sludge; and manure. Agricultural wastes include materials such as cornhusks, rice hulls, peanut shells, grass clippings, and leaves. Trees and fuel crops (i.e., crops specifically grown for electricity production) can be replaced on a short time scale. Agricultural wastes, sewage sludge, and manure are organic wastes that will continue to be produced by society. For these reasons, biomass is considered a renewable resource.

Biomass obtains its energy from the sun while plants are growing. Plants convert solar energy into chemical energy during the process of photosynthesis. This energy is released as heat energy when the plant material is burned. Biomass power plants burn biomass fuel in boilers. The heat released from this process is used to heat water into steam to turn a steam turbine to create electricity.

Biomass is sometimes burned in combination with coal in boilers at power plants. This process, called co-firing, is typically used to reduce air emissions and other environmental impacts from burning coal. Co-firing biomass with coal may require a coal boiler to be modified somewhat so it can combust coal. When co-fired with coal, only a small amount of biomass is typically added to maintain the boiler's efficiency.

But the combustion can be achieved in the best available wood stoves and furnaces, most open fires and stoves are not so efficient. This means that not only is carbon dioxide released but other combustion products are also emitted, some of which are more powerful greenhouse gases than CO₂. In particular, these can include methane, which on a molecule-for-molecule basis has 20 times the global warming potential of CO₂ over a 20 year period. This suggests an urgent need to improve the efficiency of traditional wood burning processes. However it should be stressed that the overall global effect of greenhouse gas emissions arising from incomplete biomass combustion in developing countries is probably much less than that of emissions from burning fossil fuels, which occurs mostly in the 'developed' countries.

A further problem is that in many 'developing' countries wood fuel is being used at a rate that exceeds its re-growth. Also, when it has been gathered, firewood is often burned very inefficiently in open fires. This not only results in excess greenhouse gas emissions, but also gives much less effective warmth than if an efficient stove were used. Moreover, it usually results in high levels of smoke pollution, with very detrimental health effects.

PROSPECTS OF ATOMIC INDUSTRY DEVELOPMENT: ECONOMIC, GEOPOLITICAL AND ECOLOGICAL ASPECTS

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Based on the idea of the alternative energy sources growing importance, this contribution presents the analysis of the Kazakhstan's atomic industry background, current situation and potential future development. The paper shows the role of Kazakh players in the world uranium market. It briefly describes and compares the most typical examples of international alliances in the field between Kazakhstan and leading world powers, namely USA, Russia, Canada and Japan. Specifically, the contribution explores geopolitical interests of different countries in the region and their approaches to ensuring a global control over strategically important resources.

Given the scarcity of natural oil and gas resources, considerable growth of their prices, the role of alternative energy sources is getting more and more significant. One of these sources is uranium used as a fuel at atomic power stations.

Countries have to fight for their position in the uranium market with better established competitors. Since costs of uranium deposits development are higher than in the past, demand for nuclear fuel is growing and the role of atomic industry is increasing, those countries are forced to be very active if they want to ensure their influence in strategically important regions.

Kazakhstan is certainly one of the most powerful states in Central Asia, both economically and geopolitically. Its economy is well developed and political situation is quite stable. The country possesses numerous deposits of various natural resources including 19% of the world uranium ore stocks.

Mining of uranium ore was started in Kazakhstan in the middle of the last century when the Soviet Union's atomic complex was being created. It reached its peak at the beginning of the eighties. In Gorbachev's time, especially after the Chernobyl disaster, a policy of nuclear disarmament has been actively pursued and the Soviet atomic industry development programs were, in fact, terminated.

International cooperation is of utmost importance in the atomic industry. The progress itself is very unlikely without foreign investment and technology. Russia, Canada, USA and Japan are key strategic partners of Kazakhstan in this respect.

Development and growth of atomic industry is hardly possible without scientific exchange between researchers and specialists of different countries. Kazakhstan is actively involved in this cooperation.

The analysis of Kazakhstan's atomic industry shows that a special attention is paid to its rapid development since it is considered one of the most important factors of economic growth in the foreseeable future.

Currently the Kazakh government is actively looking for investors to develop uranium deposits located in the country and is trying to ensure favorable conditions

for foreign capital inflow. A substantial number of joint ventures already operate in the field. There are reasonable grounds for this policy. Constantly increasing crude oil prices influenced by partisan war in Iraq, crisis around Iran and “Bolivarian revolution” in Latin America, and forecasted exhaustion of this natural resource force industrially developed countries to search for alternative sources of energy. Given the size and scale of demand in electricity, atomic energy is likely to be the only alternative. Overcoming the Chernobyl syndrome, protests of Greenpeace activists and other radical ecologists the national governments of some countries have already taken their decisions to build atomic power stations.

ENERGY USE: ECONOMIC AND ECOLOGICAL PROBLEMS

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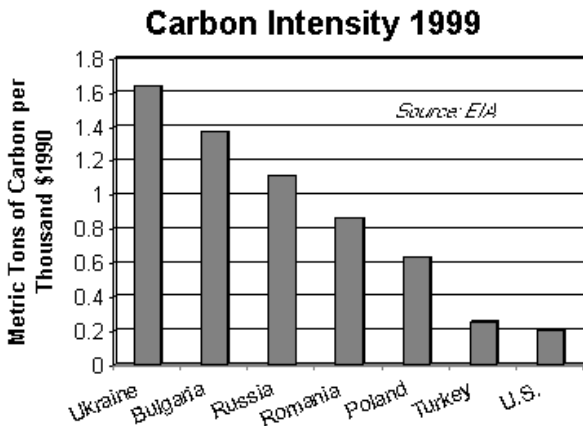
The nuclear meltdown at Chernobyl in 1986 and the resultant damage to the environment in Ukraine have been well documented, but the degradation of Ukraine's environment goes well beyond Chernobyl. Soviet industrialization of Ukraine, especially in the Donetsk basin, has left a legacy of air pollution, and industrial runoff into the Dnieper River has contributed to the pollution and decay of the Black Sea.

In addition, many of Ukraine's thermal power plants are old, with antiquated equipment, obsolete technology, and lacking modern pollution control equipment. In response, Ukraine adopted in May 1996 the "National Power Energy Program Until the Year 2010," designed to rehabilitate working thermal power stations to allow them to continue operation for the next 25 years. The program's mandate specified technological improvements, use of renewable energy sources and modernization of the power plants, as well as making them more environmentally friendly.

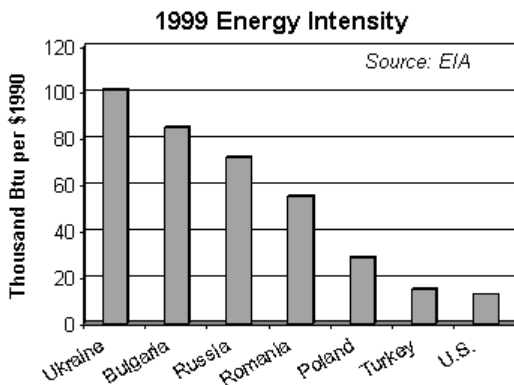
The program also specified that combined cycle-gas turbine equipment--as well as most of the auxiliary equipment--would be improved to reach acceptable safety levels. Good quality coal was to be used to reduce environmental damage. However, many of these reconstruction and modification projects have been seriously delayed because of the shortage of state budget financing for the Ministry of Environmental Protection and Nuclear Safety, unfavorable legislation, and the lack of private investment.

At 6.4 quadrillion Btu (quads) in 1999, Ukraine's energy consumption accounts for 1.7% of the world's total. In 1998, the country's vast industrial sector accounted for a disproportionate 61% share of the country's total, with residential standing at 16%, transportation at 14%, and commercial 9%. In 1999, natural gas consumption represented the largest percentage of energy consumption at 44%, with coal and oil at 30% and 11.8%, respectively.

Looking at recent trends, Ukraine has followed a continual pattern of reduced energy consumption. Since 1992, Ukraine energy consumption has dropped from 8.86 quads to 6.43 quads in 1999--a 27% drop. This figure is even more impressive when compared to Ukraine's neighbors that are also in transition to market economies. Only Russia, which saw a 25% decrease (from 34.9 quads to 26.0 quads), experienced a similar pattern. Unfortunately, much of the reduced energy consumption in Ukraine is due not to energy saving or energy efficiency but rather to the collapse in industrial production because of the contraction of the economy.



Ukraine emitted 104.3 million metric tons of energy-related carbon in 1999, representing 1.7% of the world's total. Ukraine's heavy dependence on coal accounts for the fact that this fuel makes up nearly half (46.8%) of the country's carbon emissions, with the remainder coming from natural gas (39.4%) and oil (13.9%).



But still any economy can not develop without intensive usage of energy. So, we face the problem of energetic sources.

The use of renewable energy in Ukraine was one of the principal goals of the 1996 National Power Energy Program. In 1999, however, renewable energy sources represented only 8.6% of electricity generation, a figure that includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, and industrial and municipal wastes. This figure appears low, but it can partially be explained by the fact that the development of renewable resources in Eastern Europe and the former Soviet Union remains limited primarily to expansion or refurbishment of existing hydroelectric units. Indeed, the National Power Energy Program called for completion of new hydropower utilities--such as the Dnistrovska hydro pumping storage station--to reduce dependence on imported energy sources.

Yet, renewable energy sources are beginning to find a market in Ukraine. In the Carpathian region of the country, the Environmentally Sound Business Development project is focusing on small business development in wood processing industry to increase the efficiency of the production process by reducing timber use, waste products, and energy consumption. In addition, as part of an alternative energy source program, the Ukrainian State Geology Committee and the Ministry of Coal--along with the United States Agency for International Development, Ukrainian coal companies, and the U.S. coal bed methane industry--are working to identify opportunities to develop coal bed methane as a commercially viable alternative energy source in Ukraine.

In addition, the Ukrainian parliament passed a bill in July 2001 that aims to develop alternative energy sources such as solar, and geothermal. Additionally, through the Wind Power Development Project, Ukraine seeks to establish wind power as a significant source of electricity generation by 2020.

The difficult transition to capitalism and a market economy presents Ukraine with many environmental challenges. Chief among these is the need to decouple environmental pollution from economic output. The country's current decrease in environmental pollution is essentially linked to the collapse in industrial output.

Public awareness of threats to Ukraine's environment sprouted from the Chernobyl accident, and independence has brought greater public participation in decisions affecting the environment, but more is needed. The Ecological Television Center (ECO-TV) in Ukraine was established to do both. At the request of the Ukrainian Ministry of the Environment, ECO-TV produces programs providing up-to-date global, national, and regional environmental information to the Ukrainian public. The primary focus has been on community-based projects and increasing public awareness.

The accident at Chernobyl and its lingering environmental effects will serve as a constant reminder for Ukraine of the need to protect the environment. The challenge in the years ahead will be to find a balance between Ukraine's energy needs and strengthening the country's commitment to environmental protection.

IMPACT OF RESOURCES LIMITATION ON ENTERPRISE ACTIVITY

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In the development process the system faced with some phenomena, actions which violate the process of its development folded before it. We will name such phenomena, actions, factors as limitations.

The processes of the socio-economic systems development are indissolubly related with the concept «limitations». The problem of limitations was a key problem during the history of society development, especially to its ecological and economic constituent. It is necessary to specify, what we will understand under the limitation concept.

Foremost, it is necessary to bring some definiteness and clarity in interpretation of such terms which are frequently put in one row. There are no clear differentiations between such terms when we analysed the resources limitation problem: insufficiency (scarcity is the term which is often used in western scientific literature), limitations, inaccessibility (accessibility), impermissibility (permissibility). For more complete reflection of our approaches it is possible to represent all these terms in a logical chain (figure 1).

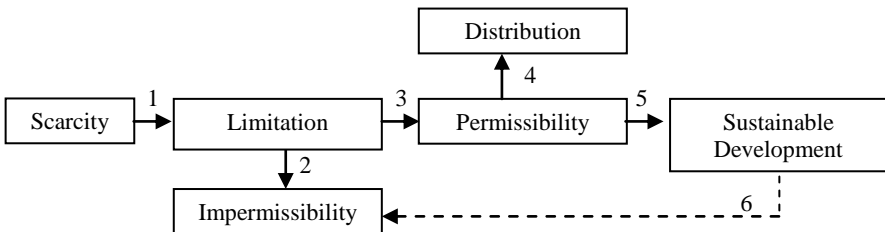


Figure 1: Chain of terms logical intercommunication

Limitations are the obstacles (phenomena, actions, factors, characteristics, signs, qualities) in the system or in a its environment, in case of which occurring the system slows, halts, stops or changes the parameters of the development.

On the sphere of origin it is possible to select economic, political, social, ecological, information, administrative, legislative limitations and self-restrictions.

Ecological limitations are natural character limitations on the use of ecosystem global resources. First of all it is limitation of natural resources volumes (fertile earths, minerals, fresh water, etc). Secondary it is limitation of resources reproduction rates, of its quantity and quality.

Ecological limitations can be classified on objective and subjective.

Objective limitations are the limitations conditioned by the reasons of natural character, or such, which arise up regardless of mankind wishes or stage of present socio-economic development. Subjective limitations are the limitations conditioned by reasons depending on mankind wishes or stage of present socio-economic development.

In the case of limitations origin the system reflects on it definitely. The reaction of the system on limitations activity can be different and mainly depends on the volume of internal energetic reserves of the system or ability of the system to attract additional energy for realisation of changes in the system (adaptations to them or transition on principally new stage of vital functions).

Beside these, limitations analysis allows to select some potential possibilities in the practical using of research methods of such limitations. It is possible to name such methods:

1. Analysis of limitations motivational component (or degrees of its influencing). It is possible to select limitations which have stimulant and repressing influence on development process (in addition, it is possible to speak about limitations of neutral character).

2. Prognostication of development directions. An account and analysis of existent and potential limitations allows forecasting the possible ways of enterprise development and limitations which can arise up in future.

3. Determination of limitations degree. Practical meaningfulness of such method consists in the calculation of limitation indexes which allow to analyse a current and perspective situation, and also more effectively manage the socio-ecology-economic systems.

4. Determination of the limited resources using efficiency. It is necessary to take into account not only an effect and expenses of resource using. Determination of dynamic efficiency coefficient of resources using is more expedient.

Experience of Ukrainian enterprises activity shows the ambiguousness of enterprises reaction on such limitations. On the stage of Ukraine origin many enterprises outlived the heaviest economic crisis, and many of them did not get up until now or feel the considerable consequences. At the same time, such limitations forced enterprises as far as possible to appeal to the innovative, intellectual reserves. Domestic enterprises experience shows that many of them work in the «passive» mode until they faced with some obstacles. That is related to the national features of business not in the last turn. That's why, many enterprises which did not know problems and being under permanent defence from external influence, farther more (after their restructuring or reorganisation) appeared in a difficult situation. Enterprises which faced with different barriers of national economy from the beginning reacted quite othergates.

Influence of limitations factors on enterprises activity can carry both retentive and stimulant character. The further fate of enterprise depends on ability to choose correct development strategy at the collision with certain limitations.

Analysis of such limitations: division of them on internal and external, classification on factors, determination of reserves of its overcoming or planning of development strategy in the conditions of its influencing allow to the enterprise not only to survive but also be successful in future.

PROBLEMS WITH THE MANAGEMENT OF SOLID WASTE

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The following problems and issues are being faced manage solid wastes in the city:

Absence of Waste Management Documentation: The municipal administration is working without a properly documented waste management plan, which may provide guidelines to the officials for the exact estimation of the generation, collection, transportation and disposal methods, and resource recovery of waste.

Spatial Disparities and Ineffective Resource Management: The equipment, machinery and labor allocated are not based on the calculated population characteristics and the area requirements. Hence, collection remains inadequate and consequently further activities are affected. Mostly waste remains uncollected in the inner city as streets are narrow and it becomes difficult for vehicles to enter there. Further, the vehicles available are open body vehicles, and normally the solid waste gets scattered along the way.

Making Multiple Problems: Waste at one time does not portray one kind of problem but the whole management process sometimes creates other unmanageable problems. For example, as there is no sanitary landfill site available for waste disposal, the Department is forced to dump the waste in the depressed areas within and outside the city limits making another environmental problem for the nearby residents. Burning of the waste at landfills and in residential areas is a constant source of nuisance for the nearby inhabitants as well a permanent hazard for the urban environment. The stench emanating from the open dumps is another problem that is unbearable for the local communities.

Operation and Maintenance: The Solid Waste Management Department (SWM) has no mobile workshop to repair the vehicles if vehicles get punctured or face some other mechanical failures during their operation. The Department has insufficient parking space. So it always becomes a problem for the department to park the vehicles in different places of the city.

Dangerous Work Environment: The lives of the workers of the SWM Department of the municipal administration face risks in the absence of precautionary measures dealing with the waste. For example, the filth transit depots are the most risky workspaces for the personnel of the department,

scavengers, and for the general public. Scavenging is done in an unsafe way. There is no policy restriction or facility to the scavengers for resource recovery.

Waste Mixing: Medical waste is being treated with the municipal solid waste and its resource recovery is done in the most dangerous way. The mixing of some of hazardous wastes such as chemical waste in the SWM is another serious issue, which needs careful attention by the civic agencies.

Wasteful Use of Waste: The city presents a gloomy picture of the deteriorating urban environment of the world's historical city. The willing dumping of waste on private lands is a serious environmental problem as the dumping sites of the municipal administration are privately owned.

The SWM Department lacks professional staff such as environmental planners, environmental engineers, and professional solid waste managers. The present solid waste management is based on unplanned and haphazard service delivery mechanisms due to the absence of managerial and planning skills in the concerned people and the city government. No professional waste manager is working in the department in order to link various activities from generation to disposal through proper utilization of available sufficient resources.

The SWM Department of municipal administration lacks adequate data in order to provide facilities according to the needs of the city. The existing collection is without proper route designing. The present transfer stations and disposal sites are not designed on a scientific basis due to the lack of technical know-how in the officials of the Department. The Department has no plans to keep pace with a modern world. The elements of community participation are missing in the present solid waste management hierarchy of the department. It appears that the officials are lacking adequate training for future vision and insight in the specialized field of solid waste management.

TRADE BY QUOTAS ON CO₂ AS BASIS OF MODERNIZATION OF INDUSTRY

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Kyoto protocol is an international program on the fight against the global rising of temperature, in which 157 countries participate in. A scientific theory lies in the basis of protocol. In obedience to this theory the industrial emissions of dioxide of carbon, monoxide of carbon, methane, nitric oxides and lead hydrofluorits lead to that an earthly atmosphere becomes opaque for infra-red rays and begins to be heated. Such heating is named a hotbed effect and can cause irreversible changes of climate of Earth. Ukraine joined to Kyoto protocol in 1999 year and ratified it in February, 4, 2004.

Ukraine has to reduce to 2008 year emissions in the atmosphere of hotbed gases to 5,2% on comparison with 1990. And as a result of the lengthy industrial slump emissions in Ukraine grew short by itself, thus not on 5,2%, and on 28,4%, the obligations on itself do not need to be taken almost no. Vice versa, superfluous 23,2% (that is 300 million of tons of the unproduced hotbed gases in the equivalent CO₂) it is possible to sell. An income from trade by this volume of quotas can attain one and a half milliards of dollars, and at definite terms — and in once or twice anymore. This sum can underlie technical rearmament of industry, above all iron metallurgy as most polluter of environment.

In opinion of specialists, the Ukrainian metallurgical enterprises have considerable potential of energy saving due to the use of machineries of Kyoto protocol. On the stake of metallurgy there is fifth part of all harmful emissions in Ukraine. Expense of energy on production of ton of metal in three times exceeds average indexes in the world. And the quantity of the emissions of equivalent is the CO₂ factories found in direct proportion with energy expense. Black metallurgy uses the equipment wearing of which out makes 65–70%. In the conditions of sharply rising power mediums in price the decline of power intensity of metallurgical enterprises is critically an important factor for further existence of industry.

However Ukraine has the method of the use of benefits of Kyoto protocol, not implying their direct sales. A home economy can get much more from building on the Ukrainian enterprises of cleansing building with participation of foreign investors. As payment our country will share with the surplus of quotas.

Principle is simple: in European Union the level of technologies ecologically dirty productions is such, that cost of their modernization is much higher, than in developing countries. By estimation of the World bank, on every ton of decline of the troop landing CO₂ in Ukraine it is necessary to expend 7 dollars only, in Russia — 20, the USA — 190, European Union — 270, Japan — 600 dollars.

Rising of the temperature of climate is the global phenomenon; it means that anywhere in the planet the decline of the emissions happened in, it will give a general effect. If that or other country contracted to shorten the emissions, not nearly necessarily, that it is under an obligation to do it on the territory in harm to the economy.

For Ukraine the economy growing is provided above all things by getting up in base branches of industry. From data of Ministry of fuel and energy, to a 2025 year the emissions of carbon dioxide on Ukrainian power-stations will measure up base 1990 year. The limit on the emissions of the equivalent CO₂ we can recover on a few years before even on condition that we will not succeed to sell none ton of surpluses of national quota. If by that time energy saving technologies will not be got in the country of due development, a government will have to resort to the policy of fines.

From point of financial viability, a fine for exceeding of quota on a ton must be in once or twice higher, than market value of surplus of the same ton. In

European Union such fine — forty euro for the ton CO₂ to a 2008 year and one hundred euro — after 2008 year. After a 2012 year the fines can exceed the one hundred euro for a ton. Then metallurgical combines not able or not having time to complete technical modernization will get in a difficult financial situation. The use of quotas that do not have a special purpose can put Ukraine before the necessity of their purchase in the third countries, what facilities scarcely will be found on. Another way is to stop production that is quite unacceptable.

Thesis about inevitability of the sharp rising in price of power resources is no more than stereotype. Prices on such unrenewable resources, as petroleum, gas, coked coal will constantly rise. But it does not relay to electric power anyway. In France the giant accelerating of elementary particles is built. It is an international project on creation of industrial thermonuclear reactors. Supplies of ocean heavy hydrogen and lunar tritium world thermonuclear energy is enough per the million of years taking into account any imaginable rates of growth of energy consumption by industry, transport, communal economy. Therefore application of electric-arc stoves in metallurgy is the most optimum decision. For example, the owners of the Donetsk metallurgical plant foresee its complete retooling to a 2010 year. Martin production fully will be replaced by electric steelmaking process, for abbreviation of the emissions by blast-furnaces the systems of aspiration and gas-cleaning will be introduced into practice. As a result profitability of enterprise will succeed to be retained at the level of 8–10%, true, on condition that the electric power will not rise in price in earnest. Enormous expenditures on modernization at reasonable approach can be compensated by «money from Kyoto». And only in course of time, since a government will manage all list of hard requirements for an output on world exchanges on trade by quotas (creation of single national register of emissions, ecological audit and so on), enterprises, having surpluses of quotas which they created as a result of energy saving, will be able to sell them.

WORLD PERMANENT OIL CRISES: PATHWAYS FOR CHANGE TO SOLAR-HYDROGEN ECONOMY

Igor Katyukha

Tavria State Agrotechnical Academy, Ukraine

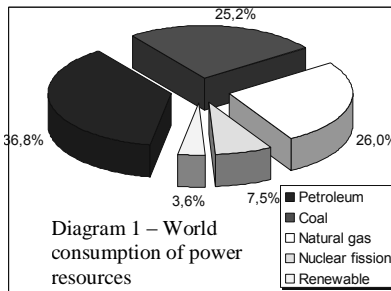
In Chinese, the word "crisis" or "wei-chi" translates into "danger + opportunity". We are living in "revolutionary" times, which provide many opportunities. Today's energy systems did not arise just through the hidden hand of market forces; although, markets played an important role. There are three concerns that compel us to rethink world energy strategy—our environment, our economy and our security.

The urgency of global pollution and health effects requires that in 10-20 years, we must move to a level of 50-70% replacement of fossil fuel by solar energy to avert human and ecological disaster.

We see the signs of this stress on the ecosystem due to our large fossil energy consumption. We have rising temperatures, more destructive storms, eroding soils, and disappearing species.

In 2005, the world produced 425 quad BTU (10^{15} BTU) from petroleum (primary level), coal, natural gas, nuclear fission, and renewable sources (*diagram 1*).

The best way to completely deny of our reliance on foreign oil is to create a solar-hydrogen economy (also known as liquid-hydrogen economy). Green plants use a similar process for over 3 billion years, so let me give you the scheme of transitioning from an oil-based economy to a liquid hydrogen-based one.



Similar to green plants, we would utilize the sun instead of letting its energy go to waste. Although absorbing sunlight can produce electricity, a liquid hydrogen economy would rely on sun's key byproducts.

New fuel economy is based on hydrogen because it has *many advantages*:

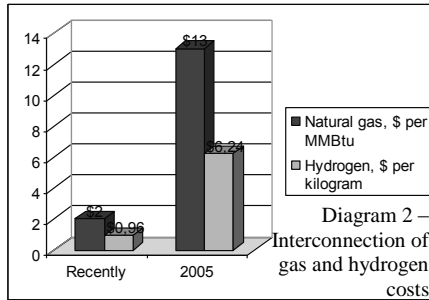
The first. It is the most abundant element in the universe, so we'll never run it out.

The second. It can be economically competitive with gasoline or diesel. The price on Hydrogen depends on how we make it. Until recently, the most inexpensive production method was using steam reformation of natural gas. When the cost of natural gas was about \$2 per MMBtu (Million Btu), hydrogen was produced for about \$1 per kilogram. In 2005, the cost of natural gas rose above \$13 per MMBtu, with the cost of hydrogen rose proportionally (*diagram 2*). Other method is producing hydrogen from wind and solar farms. This is the cheapest way to produce hydrogen. Because this sources are free and completely renewable; again, we'll never run it out).

The third. The only emission from a liquid hydrogen engine is water vapor; no carbon, no pollution; just water.

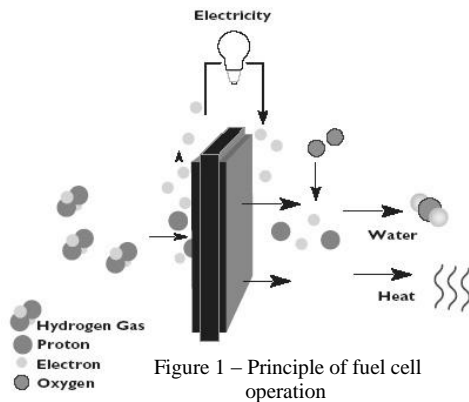
And the last. Despite conflicting opinions, it's safe. Even NASA uses it to power the Shuttle engines from the middle of the XX century.

People, having a conflicting interest, sometimes say - how unsafe hydrogen is. For example, they site the burning of the Hindenburg, because it was filled with hydrogen. But outside it was the highly flammable paint that causes to airship disaster.



Many technologies convert chemical energy of hydrogen to electricity. But we interest to use a device that is quiet, compact, flexible, highly efficient and exceptionally clean. It's called fuel cell (*figure 1*).

A single fuel cell is generates about 0.7 volts of electricity, so hundreds of fuel cells are combined in a "stack" that generates enough electricity to power the electric motors.



At the anode molecule of hydrogen flows in. You see a thin layer of catalyst (its precious metal – platinum or palladium) that accelerates chemical reaction. It coats the proton exchange membrane. It looks like plastic wrap. At the cathode oxygen from air flows in and the water flows out as exhaust.

Today many visionary companies, such as Shell, BP, GM and BMW, see the remarkable possibilities of hydrogen as a clean fuel, and take business opportunities that go along with the evolution to the hydrogen economy. As such, those “petroleum companies” are becoming “energy companies.”

Having done technical and economic survey, it is obvious why we need a Solar-Hydrogen Economy *now* due to the following factors:

The first. The use of fossil fuel creates global warming and air pollution

The second. Air pollution creates degradation of forests, agricultural and human health and mortality

The third. Due to the rapidly increasing imported oil costs, it is necessary for the world energy market to convert from fossil sources to Solar-hydrogen sources to maintain a viable economy.

THE BASIC DIRECTIONS OF PERFECTION OF LOGISTIC MANAGEMENT TAKING INTO ACCOUNT AN ECOLOGICAL FACTOR

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All in a greater degree before modern society gets up problem of necessity of translation of economy in an ecological direction, that, in final analysis, conduces to inevitability of transformation of production to the “human - nature” system.

The necessity of estimation of influence of public production on surrounding a natural environment and its components conduces to enhancement of methods of conduct of economic activity, analysis of its efficiency and approaches of the management, in particular, by the logistic systems.

Thus, the traditional tasks of logistic, associated with engineering output of the set quality and its delivery to the customer, are complemented by the requirement of minimization of ecodestructive influence on the surrounding environment and health of human.

The traditional objects of logistical research acquire new ecological character traits.

It visualizes in the deep analysis of the financial streams associated with compensation or prevention of ecodestructive influence of economic activity on the surrounding environment, and adjustment of the reached economic results (creation of «green» national accounts, estimation of costs of nature protection measures and benefits from their introduction and other.).

Transformation of informative streams, in same queue, is related to appearance of requirements of ecological legislation, standards and norms and necessity of information of society about the status of environment and its changes.

The traditional chart of forming and analysis of material streams also suffers the certain changes in connection with the necessity of recirculation and utilization of wastes (introduction of low-emission and zero-emission technologies of production).

During transformation of logistics taking into account an ecological factor it is possible to talk about the necessity of selection of ecological logistic subsystem as an independent unit, which is closely associated with traditional logistics: supply, production, sale, ware-house, transport.

Utilization of wastes is the basic function of the given subsystem, but at the same time, the indicated intercommunication stipulates the possibility of transference of the given problem in other levels, for example:

- at the level of supply subsystem – reduction of wastes as reserve of production of additional volume of products;
- at the level of production subsystem – processing and (or) realization of wastes, etc.

Along with the indicated intercommunication, there are certain contradictions between ecological and other logistic subsystems.

First of all, they visualize in distributing of facilities: traditionally economic interest of basic economic link is the criterion of distributing, during the selection of facilities on development of ecological subsystem follow social principles.

It is possible to put an ecological constituent at one row with other subsystems using of government control economic and organizational instruments.

On the whole, the inclusion of ecological factor in the traditional questions examined logistic will allow forming the effective explained approach of the management with the purpose of decline of costs of production and harm caused to the environment.

There are such principal directions of realization of the given approach:

- development and deployment of methods of synthesis economically optimal nature-conservative measures;
- development and deployment of methods of the optimal scheduling and agency of inventory holdings and needs of goods and raw materials for making production;
- regular execution of accurate analysis of impact of flow process and all of components of logistic circuitry to the natural environment;
- usage of alternative technologies and systems, which allow to multiply the degree of treatment of raw material, lower or fully remove the emissions and wastes injuring natural environment;
- assurance of operational dependability and safety of manufacturing equipment to prevention emergency and related to them emission to the natural environment;
- decreasing of consumption of dangerous and adverse raw material components, partly or completely exchange them to the innocuous, etc.

EKOLOGIZATION OF INDUSTRIAL PRODUCTION AS THE OBJECT OF FINANCIAL MANAGEMENT

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The financial management system of ecologization processes is made to work by economic mechanism of rational natural using, which is called to provide the effective results of enterprise nature protection activity.

There are different points of view concerning determination of essence and structure of economic mechanism. Many scientists have been engaging in research of his nature for a long time and continue to do it now. It is necessary to note such names as Abalkin L.I., Bynich P.G., Gysarov A.S., Osipov Y.M., Raisberg Y.A., Mochernui V.S. and others.

In whole, economic mechanism of rational natural using can be defined as combination of economic, ecological and social system elements which help to provide sustainable development.

The basic elements of all economic mechanisms are:

1. methods (planning, prediction and programming);
2. organizational management system;
3. standards and norms;
4. economic instruments and stimulus;
5. mechanisms (price, tax and financial-credit).

Environment contamination has a negative influence on economic position of regions, ecological safety of population and requires the considerable expenses increase on liquidation consequences of this contamination and on conducting of nature protection measures. That's why, development of operating financial-economic mechanism, which will provide mobilization of financial resources, their effective distributing and create conditions for normal circulation of capital, is needed.

In forming of effectively operating financial-economic ecologization mechanism of industrial production (FEEMIP) should be taken into account an ecological constituent and factors of negative affecting on natural environment (NE) on all life cycle stages of commodity (LCC) on the basis of the ecologically oriented instruments, affecting producers and users which will provide the redistribution of ecological costs burden directly on the contamination culprits.

A FEEMIP is a major constituent of economic mechanism of rational natural using, reflecting the aggregate of financial and economic methods, forms, instruments and levers by means of which is carried the adjusting of ecological-economic processes and relations, which effectively influence on eventual results of enterprise nature protection activity.

The goal of FEEMIP is a concordance of interests between society and NE by introduction of the proper ecological elements of rational natural using mechanism

for providing ecologization stages of LCC, that will guarantee long-term sustainable economic development.

The object of FEEMIP are financial relations concerning forming, distributing and control of financial resources for realization ecologization processes on industrial enterprises.

The subjects of FEEMIP are:

- industrial enterprises, carrying out from one side payment of ecological taxes in the state budget, and from other side - heat-sink financial resources for realization of nature protection measures;
- household subjects (juridical and physical persons) which in the process of activity influence on the ecologization processes of industrial enterprises;
- budgetary and unbudgetary funds, forming and redistributing financial resources for providing ecologization processes;
- public authorities, carrying out the control after the movement of financial nature protection resources;
- bank institutions, insurance and investment companies, auditing firms and other subjects of financial market, which are involved in the process of the financial providing of ecologization processes.

In the conditions of passing to the market there can be marked the followings elements of financial-economic mechanism of natural using: payment for natural using; economic stimulation system of nature protection activity; payment for NE contamination; creation of natural resources market; perfection of pricing taking into account an ecological factor; sale of rights to contamination; system a "mortgage is a return"; ecological insurance.

All structural elements of financial-economic mechanism are formed from the ecologization stages of LCC, so it is possible to develop the proper tool, providing adjusting and control of possible influence on NE on all stages of commodity existence. Due to the FEEMIP elements there can be created conditions forcing enterprises to take into account ecological consequences on all stages of LCC and in the case of violation of the set norms and nature protection norms legislation, to apply the proper financial approvals to contaminators.

RESOURCE SAVING TECHNOLOGY IN METALLURGY

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The main charge material for the steel production is liquid hot metal. Ukraine occupies the eighth place in the world by the steel production after China, Japan, USA, Russia, South Korea, Germany and India. The total amount of the world steel production in 2006 was 1239,5 mln.t, Ukraine had produced 40,8 mln.t. It is mainly produced in blast furnaces. The blast furnace operates according to the

counter-current principle. The process makes the blast furnace reliant on lumpy materials to maintain a gas-permeable stock column. The most important reducing agent is therefore the lumpy coke. Auxiliary reducing agents, such as coal or oil, are injected via the tuyeres.

The consumption of coal and coke in the blast furnace is met on the one hand by the market or on the other hand by the own production. It depends on the conditions of the market and the availability of production facilities. World-wide the production of hot metal and crude steel via the blast furnace/converter route is regarded as the dominant process line also in future. Consequently, after their successes in the past, the ironmaking and steelmaking industry have joined their efforts with the cokemaking industry to exploit still more development potentials for hot metal production.

Coke is very deficient, and its production leads to the great amount of harmful emissions to the environment. So it is necessary to find materials in blast furnace to substitute coke. Such auxiliary reducing agents are coal, oil, gas and old plastics, which are injected via the tuyeres to the blast furnace. In the past coke was replaced by oil and during the last decades more and more by coal.

The use of coal, oil or gas depends on the economical result of BF-operation.

The technology of pulverized coal injection (PCI) has reached a high standard. All high productivity BF are equipped with PCI-facilities.

Since 80th years in the countries of Europe and Asia a coal becomes the basic type of the blown fuel. Presently more than 100 pulverized coal complexes work in the countries of Europe, China, Japan, Korea, the USA and other countries. Perfection of technique and technology of dust coal fuel injection leads to achievement of stable charges him at the level of a 150-200 kg/t cast-iron.

At the given technology there is a lot of advantages: reducing of power intensity of cast-iron production, its prime costs, possibility of using cheap brands of coals, reduction of expense of coke (on 40-50%) and natural gas, improvement of ecological performance indicators of enterprises.

A coke is the major and irreplaceable component of blast-furnace charge, as it provides a process by a high temperature heat, gas-penetrability of charge on all height of stove, carbonization of cast-iron.

However simultaneously with the invention of cast-iron there was a no less intricate problem consisting in the reducing of specific expense (kg/t cast-iron) and gross production volume of coke. Actuality of this task is determined by the high cost of coke, continuously increasing scarceness and cost of the coked coals, by worsening of their quality, by extremely negative influence of coking process at the ecological situation in the industrial regions. So, at production of a 1 mln t coke in an atmosphere 7000-10000 t of harmful matters are thrown out, including 2,7000 t of dust; 3,4000 t of sulfur gases; 0,16000 t of nitrogen oxides and etc.; upcast in the water pools of 0,5-0,7 mln.m³ muddy waters (phenol, thiocyanates, benzol, weighed matters and etc).

At the same time the production of one million of t dust coal fuel is accompanied less amount of the harmful emissions to the atmosphere: dust coal – 32,0 t; carbon oxide - 93,6; nitrogen oxide - 37,6; sulphurous anhydride - 53,0 t, that at replacement of part of coke by PCI determines considerable reduction of contamination of environment by the harmful emissions.

It has to be noted that the blast furnace process produces its reducing gas inside the furnace itself. As the coke is the most expensive charge material of the blast furnace the operators replace coke partly by injection of carbon and hydrocarbon carries via the tuyeres using high blast temperatures and oxygen to guarantee a suitable flame temperature and a fully gasification rate of the injectants to reducing gas.

The injection of coal leads to an optimization of the process chain. The replacement ratio of coke to coal is in the range of 0.9 to 1.0; so it saves costs, as the injection of coal requires only 20 % of the specific investment costs for a coking plant and only 30 % of the processing costs. For the amount of coal injected the BF slag partly takes over the purpose of the coking plant by-product processing facility.

At individual blast furnaces coke rates of below 300 kg/t HM have been achieved by the injection of coal.

Nevertheless coke will remain the most important reductant in the future.

Coke plays a triple role in the blast furnace, namely a physical, thermal and chemical role but it is very deficient, and its production leads to the great amount of harmful emissions to the environment.

Thus, the technology of the blast-furnace melting with pulverized coal injection allows to reduce the rate of expensive and deficient coke, to bring down cost of cast-iron smelting, to decrease negative influence of the harmful emissions of coke production on environment.

THE INSTITUTIONAL ECOLOGY PRINCIPLE AND ITS ROLE FOR UNDERSTANDING INSTITUTIONAL SYSTEM FOR SUSTAINABLE DEVELOPMENT

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Nowadays, the problem to count the ecological component in economic development is becoming more urgent. The escalating degradation of the environment is the consequences of overusing the natural resources.

Exhaustion of a significant part of the natural resources and environmental pollution causes the necessity to search for the most rational forms, methods and ways of environmental management with the purpose to ensure ecologically safe sustainable development. A holistic ecological-economic approach to economic

growth is needed to reach sustainable ecological-economic development. And it is impossible to make a new policy without institutional changes.

The crisis in the environmental sector has also revealed the inherent limitations of today's institutions in dealing effectively with the new set of problems related to resource use, allocation and management. Nowadays we need new institutional system dealing with sustainability.

Kasper and Streit define institutions as rules of human interaction that constrain possibly opportunistic and erratic individual behavior, thereby making human behavior more predictable and thus facilitating the division of labor and wealth creation. North defines institutions as the rules of the game that limit and therefore predict behavior of individuals.

And it is important to mention that institutions do not have to be mixed with organizations, which are defined as groups of individuals bound by some common purpose to achieve objectives.

Neither are institutions synonyms to fundamental values such as freedom, justice and security, which are defined as high preferences by most of the people most of the time. Institutions, therefore, are the way these values can be applied; they might help to achieve such a type of human aspirations.

The main features that characterize institutions - interlinkages, malleability or adoptive flexibility, and hierarchical and embedded nature – are similar in principle to those that characterize an ecosystem. This commonality allows us to propose what we call the institutional ecology principle. It considers institutional structures at various levels as an interconnected ecosystem that evolves and coevolves with institutional environment as characterized by cultural, socioeconomic, political, environmental, and resource-related factors.

The institutional ecology principle provides the conceptual basis for institutional decomposition and linkage-mapping exercises. This fact enables us to evaluate both forward and backward linkages and synergetic and discordant effects among institutional aspects as well as embedded nature of institutions within the physical, social, economic, and political systems.

The institutional ecology principle also enables us to treat both institutional segments – that is, institutional environment and institutional structure – together as a system, and separates this system from its physical, socioeconomic, and political settings (see Figure 1). Here while talking about transaction costs we mean those resources utilized for the creation, maintenance, use, and change of institutions and organizations.

Therefore, the role of the institutional ecology principle and its underlying ecosystem perspective is crucial for understanding institutional system for sustainable development. We can treat the institutional system as a system with different linkages, interrelations and feedback between its parts (endogenous linkages), and also with synergetic principle. And at the same time it is a system having some outside linkages (exogenous linkages). This approach allows us to

separate institutional system for sustainable development from different other systems such as socio-economic, political system, etc.

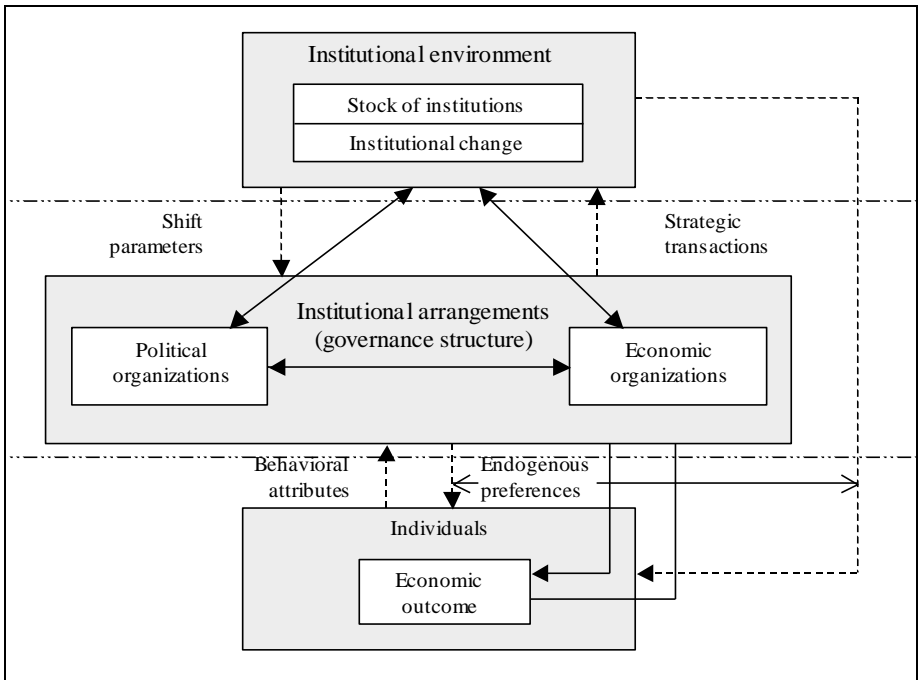


Figure 1 – Institutional environment and governance structure

THE ECONOMIC DIMENSIONS OF CULTURE AND THE CULTURAL CONTEXT OF ECONOMICS IN THE PROCESS OF EUROPEAN INTEGRATION

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1. In an increasingly globalised world, economic and cultural imperatives can be seen as two of the most powerful forces shaping human behaviour. Cultural economics can be defined as the study of the evolutionary influence of cultural differences on economic thought and behaviour. The impact of the Institutionalist tradition has contributed to a contemporary split between what can be called cultural economics and the economics of culture. Both are necessary for a complete economic appreciation of reality. Cultural economics is the study of the

evolutionary influence of cultural differences on economic thought and behaviour. Accordingly, cultural economics assumes economic behaviour varies according to cultural context. The economics of culture, on the other hand, is the study of the allocation of scarce resources within the cultural sector. It assumes objective laws apply to economic behaviour without regard to cultural differences. It places emphasis on the "scientific" or absolute nature of economics and application of abstract mathematical technique. The European integration is built on a foundation of value theory, developing the twin notions of economic and cultural value as underlying principles for integrating the two fields. Ideas of cultural capital and sustainability are discussed, especially as means of analyzing the particular problems of cultural heritage, drawing parallels with the treatment of natural capital in ecological economics. We can see the relationship between economic materialism and cultural identity in a globalised world.

2. In social evolution, economics, as a discipline of thought, emerged in the late 18th century (Smith 1776). The founding father of economics, Adam Smith, had a strong sense of the cultural matrix of economic phenomena. By the mid- to late 19th century, however, economics had split into two opposing camps based, at least in part, on conflicting views of the impact of culture, or stage of cultural development, on economic behaviour. The intensity of this schism between the reformed church of "the science of political economy" called Marxism, and the orthodox church of "Market Economics" is potentially as apocalyptic as the Religious Wars of 15th and 16th century Europe which gave birth to the "secular" sciences, including economics. The schism also caused political economics to fission into sociology, political science and what can be called Market Economics. This partially contributed to mainstream economics in the West losing its original sense of culture and becoming an abstract discipline pretending to be unaffected by culture. Not all schools of Western economic thought lost sight of the role of culture.

3. Europe is a political project and not simply an economic market. Culture is ideally positioned on the cusp between the economy and the political sphere. Compared to other sectors of the economy, culture has an additional dimension – it not only creates wealth but it also contributes to social inclusion, better education, self-confidence and the pride of belonging to an historic community. Culture is also a powerful tool to communicate values and to promote objectives of public interest that are broader than wealth creation. Culture has traditionally been considered from the point of view of "enlightenment". Culture performs multiple social and political functions. These have often served as justifications for cultural policies at national levels which have gained an increased relevance in a globalised and multicultural world. Indeed, culture can be regarded as an "ambassador" and as a vehicle for European "values" (tolerance, democracy, diversity and pluralism, etc.) and its "way-of-life". Europe has succeeded in establishing the principle of cultural diversity as a tenet of international law and in establishing that cultural products are not mere merchandises, but deserve specific treatment. But culture is

more than a banner for European “values”. It acts as a catalyst for intercultural dialogue within Europe, as well as with the rest of the world. Distributors of films, books or sound recordings give citizens the opportunity to experience the culture of others. Great artists are best positioned to deliver powerful messages. Culture is also a lever for territorial and social integration. Culture is powerful tool to re-integrating the socially excluded, providing them with the opportunity to set up and fulfil their own project, acquire new skills that can be transferred into other sectors of activities and recover self-confidence .

4. The European Union has historically been built through market forces and the economy. This has enabled Europe to create minimal economic solidarity amongst the European nations upon which they could build. The market prism remains prevalent in the valuation of activities and the attribution of EU competences. In this context it is particularly important to assess the value of culture and creative industries to Europe’s economy. The only pan-European source, Eurostat, relies on data provided by national States. Apart from the fact that the majority of the latter have an insufficient system to monitor the cultural sector and do not collect comprehensive data, they use different statistical systems, resulting in a lack of data harmonisation in this field. In addition, the statistical frameworks used at European and national levels are not tailored for the cultural sector. Relevant sub-sectors are scattered around within different categories, or they find themselves lost within categories that are too broad to permit the cultural dimension to be assessed. As a result Europe knows how much it invests in science and innovation, but it is unable to figure out the economic value of art and creation. Cultural organisations are sometimes reluctant to participate in an exercise aimed at giving an economic value to the world of art and culture. For these organisations, art has no price and investment in art does not require economic justification. A cultural activity should be disconnected from market reality so as to avoid economic pollution on the artistic minds. The act of creation should be independent from any lucrative thoughts. Moreover, the market may reject some artistic activities on the grounds that they are unprofitable – hence the need for public support to redress market inefficiencies in the world of art. Some trade organisations express reluctance in being considered as part of the cultural sector, preferring to be granted the status of industry. This is also driven by a fear of not being taken seriously by decision makers and of being excluded from EU programmes not focused on culture (the fear of the “cultural ghetto”). The contribution of culture to the economy has gradually been acknowledged, in particular with the development of the cultural industries. Culture contributes directly to the economy as it provides products for consumption, namely the cultural goods and services embodied in books, films, music sound recordings, concerts, etc. In addition, long-term structural changes in our societies give more importance to culture as a product of consumption. Some EU member States have been looking into ways of analysing the commercial value of creative industries

without necessarily attempting to capture their cultural and social values. Those countries are developing programmes to turn creativity into industrial successes.

5. The European Union is actively committed to enhancing the cultural landscape of the continent. The EU annually designates a “European City of Culture” not only to showcase a city’s heritage, but also to encourage innovation in all disciplines of culture. Starting in 2005, the program changed directions and was renamed the European Capital of Culture. In the new version, each member state nominates a city to exemplify its contributions to local or regional culture, with Cork in Ireland being the first city selected. (The 2006 European Capital of Culture is Patras, Greece.) This initiative is an effort to embrace Europe’s cultural heritage as well as address the diversification in cultural values that is taking place. Intergovernmental cultural cooperation should be understood not so much as what governments do amongst themselves, but as a sum of joint policies they articulate in order to ensure the best dynamics of European cultural diversity and its cultural resources. It should shift from the event-oriented, bilateral practice to a more strategic and multilateral level. Cultural diplomacy within Europe should become obsolete, as the logic of a common European cultural space increasingly prevails and cultural organisations integrate their international engagement, at least within Europe, in their daily work. The enhancement of European cultural diversity should be at the heart of cooperation initiatives, stressing the overall common context in which cultures are developing, their shared challenges and opportunities.

6. In the context of globalisation a link between economics and culture can be established through the concept of “culturally sustainable development”, definable in terms of a set of criteria relating to advancement of material and nonmaterial wellbeing, inter-and intra-generational equity, and recognition of interdependence. Conceptualising the interaction between the cultural and economic systems in these terms might provide a workable model for policy analysis. Culture is the total and distinctive way of life of a people in which the economy is also embedded. However, we know that in practice, and in terms of policies pursued by many governments and world financial institutions, it has often been assumed that they are distinct and separate. Culture changes, grows and develops. It is in a constant state of flux, influencing and being influenced by other cultures, either through voluntary exchange or through conflict, force and oppression. . A country's culture therefore reflects its history and attitudes, its conflicts and struggles, and its power relations, internally and in the world at large. Culture is dynamic and continually evolving. It is not a museum piece, and should not be given an excessively conservationist meaning. Culture is the fountain of our progress and creativity. It is not a means to material progress: it is the end aim of 'development' seen as the flourishing of human existence in all its forms and as a whole.

TRANSACTION COSTS AND THE CLEAN DEVELOPMENT MECHANISM

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On February 16, 2005, the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) came into effect with the support of 141 ratifying Parties. The Protocol seeks to reduce the quantity of anthropogenic greenhouse gas (GHG) emissions into the atmosphere by setting emissions reductions targets on 1990 baselines for all Parties between 2008 and 2012. The Protocol provides the participating Parties a significant degree of flexibility in meeting the reduction targets through the International Emissions Trading (IET), the *Clean Development Mechanism* (CDM) and Joint Implementation (JI).

CDM and the other flexibility mechanisms incur two categories of costs: those that can be attributed to the technical process of reducing GHG emissions, and those that do not contribute to GHG abatement directly, but are needed to establish project validity, to receive credit for GHGs removed, and to execute trades. It is this second category of costs that is also known as *transaction costs*. This transaction costs play a key role in the success or failure of emissions trading systems. Based on existing definitions in the literature, we define transaction costs in the context of this analysis as the *costs of producing or trading Certified Emissions Reductions* (CERs) that are not directly attributed to the technical process of reducing GHG emissions, and which are specific to the CDM process.

The literature and case studies of CDM projects reveal that total transaction costs can range between US\$20,000 up to US\$1 million, depending on the size and timeframe of the project (UNDP, 2004; CI, 2005). High transaction costs relative to total costs reduce the feasibility, value, and utilization of CDM projects (UNDP, 2003). As shown in *Figure 1*, transaction costs increase the cost of abatement and reduce the amount of CERs traded.

In order for a project to be worthwhile, the value of the CER must be significantly higher than the transaction costs incurred in its creation. High transaction costs increase investor wariness with respect to small-scale projects that yield low carbon emissions reductions. *Table 1* shows that transaction costs vary with project type and constitute a much larger portion of the overall cost within small-scale projects when compared to larger scale CDM initiatives (Michaelowa, 2003).

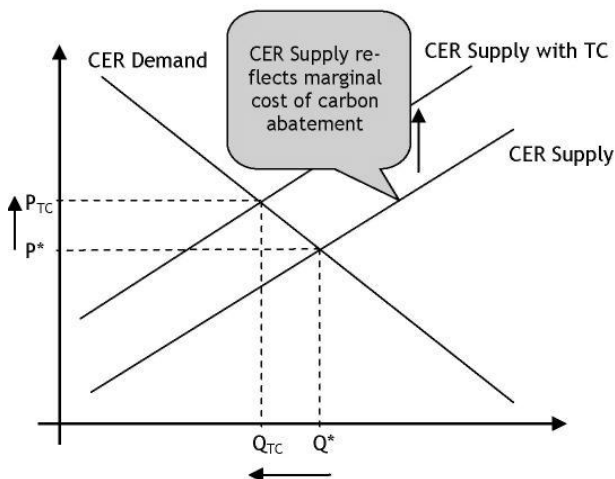


Figure 1 Impacts of Transaction Costs on price and quantity of CERs

The UNDP (2003) predicts that the implementation costs of CDM projects could decrease over time. This conjecture is presaged on learning-by-doing and general improvements in technology and infrastructures. Since the first reduction targets are due by 2012, there is increasing concern about reducing transaction costs in the early stages in order to generate a more stable and secure market, which can in turn generate sufficient reduction projects in the first crediting period. More importantly, certain transaction costs will have to be addressed directly in order to reduce them. It is therefore in the interest of Annex I and host countries to identify the most significant transaction costs and consider strategies to reduce them where possible.

Table 1: Transaction Costs by Project Scale and Type (adapted from Michaelowa, 2003)

| Size | Project Type | €/tCO ₂ e |
|------------|---|----------------------|
| Very large | Gas power plants, geothermal, landfill methane capture, afforestation | 0.1 |
| Large | Wind, solar, industry energy efficiency | 0.3-1 |
| Small | Boiler conversion, hydroelectric | 10 |
| Mini | Housing energy efficiency, hydroelectric | 100 |
| Micro | Photovoltaic | 1000 |

THE GREENHOUSE EFFECT AND GLOBAL WARMING

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Scientists predict that during global warming, the northern regions of the Northern Hemisphere will heat up more than other areas of the planet, northern and mountain glaciers will shrink, and less ice will float on northern oceans. Regions that now experience light winter snows may receive no snow at all. In temperate mountains, snowlines will be higher and snow packs will melt earlier. Growing seasons will be longer in some areas. Winter and night time temperatures will tend to raise more than summer and daytime ones.

The warmed world will be generally more humid as a result of more water evaporating from the oceans. Scientists are not sure whether a more humid atmosphere will encourage or discourage further warming. On the one hand, water vapour is a greenhouse gas, and its increased presence should add to the insulating effect. On the other hand, more vapour in the atmosphere will produce more clouds, which reflect sunlight back into space, which should slow the warming process.

Greater humidity will increase rainfall, on average, about 1 percent for each Fahrenheit degree of warming. (Rainfall over the continents has already increased by about 1 percent in the last 100 years.) Storms are expected to be more frequent and more intense. However, water will also evaporate more rapidly from soil, causing it to dry out faster between rains. Some regions might actually become drier than before. Winds will blow harder and perhaps in different patterns. Hurricanes, which gain their force from the evaporation of water, are likely to be more severe. Against the background of warming, some very cold periods will still occur. Weather patterns are expected to be less predictable and more extreme.

The total consumption of fossil fuels is increasing by about 1 percent per year. No steps currently being taken or under serious discussion will likely prevent global warming in the near future. The challenge today is managing the probable effects while taking steps to prevent detrimental climate changes in the future. Damage can be curbed locally in various ways. Coastlines can be armoured with dikes and barriers to block encroachments of the sea. Alternatively, governments can assist coastal populations in moving to higher ground. Some countries, such as the United States, still have the chance to help plant and animal species survive by preserving habitat corridors, strips of relatively undeveloped land running north and south. Species can gradually shift their ranges along these corridors, moving toward cooler habitats. There are two major approaches to slowing the build up of greenhouse gases. The first is to keep carbon dioxide out of the atmosphere by storing the gas or its carbon component somewhere else, a strategy called carbon sequestration. The second major approach is to reduce the production of greenhouse gases. For more than a century scientists have known that certain gases

in the atmosphere - most notably water vapour, carbon dioxide, and methane - contribute to atmospheric warming. These greenhouse gases, which also include nitrous oxide and chlorofluorocarbons, allow about half of the short-wave radiation in sunlight to pass through the earth's atmosphere, heating the earth's surface. At the same time, greenhouse gases absorb and reradiate most of the longer wavelengths of radiation, such as infrared radiation, which is emitted by the earth's warmed surface. This heat-trapping capacity of the atmosphere is popularly known as the "greenhouse effect."

Despite public controversy surrounding global warming, the natural greenhouse effect has been long established as fact in the scientific community. Indeed, were it not for the heat-trapping action of clouds, water vapour, carbon dioxide, and other gases, the earth's natural climate would be about 33° C (about 60° F) cooler than it is. Life would have evolved quite differently in such a climate.

Most scientists believe that the rapid expansion of agricultural and industrial activities over the last several hundred years have generated significant increases in carbon dioxide and methane in the atmosphere.

However, experts disagree about whether such changes have caused the increase of approximately 0,5°C (about 1° F) in the earth's surface temperature that has been documented over the past century.

Many scientists cite the fact that 1997 was the warmest year on record, following a decade in which 9 of the 11 hottest years this century were reported, as strong, but circumstantial, evidence that human activities have altered the earth's climate. Other experts, however, believe this temperature trend is a natural variation.

Also disputed is whether projected world population growth to more than 10 billion people by the year 2100 will result in a doubling or tripling of atmospheric concentrations of carbon dioxide. If such a build up occurs, as many scientists predict, global surface temperatures could increase by anywhere from about one Celsius degree (about two Fahrenheit degrees) to about four Celsius degrees (about seven Fahrenheit degrees) during the next century. The higher half of this range involves temperature changes outside of those experienced by human civilizations since the end of the last ice age some 10,000 years ago.

During the last ice age, average global temperatures were only about five Celsius degrees (about nine Fahrenheit degrees) cooler than the present period. The total consumption of fossil fuels is increasing by about 1 percent per year.

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ECOLOGICAL MANAGEMENT IN ECOLOGICAL TOURISM AND ITS ROLE FOR SUSTAINABLE DEVELOPMENT

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In the developed tourist region and in such, that develops quickly, a problem of environment pollution is one of the most anxious. Unfortunately, awareness of importance of environment for tourism development often takes place, when the consequences of urbanization acquire such scope, that cause dissatisfaction of tourists and waiver of visit of places that were popular among tourists earlier.

Ecological tourism in modern presentation is rest in attractive regions which are not damaged by human activity and keep the traditional way of life of local population. Appearance and development of ecological tourism are closely connected with natural territories, especially attractive from the aesthetically beautiful and scientific point of view closely associated with history, and by development of norms of their guard. Advantages of ecological tourism are sustainable development of territories, nature protection character of recreation technologies, use of market forming ecological world view mechanisms of population.

The important constituent of sustainable ecologically saved development of ecological tourism is an ecological management - management which in advance foresees forming ecologically saved production-territorial complex and provides optimal correlation between the ecological and economic indicators during all life cycle, both this complex and produced by them tourist product.

Ecological tourism - foremost an economic process, and all actions which will nurse from a process a decision-making about development of tourism have an alternative influence on expenses and benefits from economic, social points of view and from the point of view the account of influence on an environment.

To the expenses, to related to the change of surrounding environments can be delivered such:

- expenses on prevention of overpopulation or contamination in separate regions;
- expenses, related to the loss of inviolable civilization corners of nature or caused the inevitable loss of natural attractiveness;

- expenses on creation of the protected areas on territories, intended for rest;
- expenses, directed for development of additional projects on removing the unforeseeable and effects of sides in connection with realization of plans of development of certain region;
- expenses on cultural or historical places saving.

Some of the adopted expenses are related not only to ecological tourism development but also with all forms of development of settlements or cities. The carefully thought out planning can shorten or remove some charges, but exactly planning – are additional expenses also.

Development planning of destination is conducted with the help of account of advantages of the natural placing and natural resources, by the purpose of defense of natural beauty of territory and saving ecological balance which can be violated at the rash transmission of agricultural lands for their commercial use in development of tourism. It is an ability which proclaim to take into account biophysical scopes and ability adopts the certain number of tourists with the least possible negative influence on natural ecosystems.

Consequently, forming of the system of ecological management will enable to provide successful realization of economic policy of the state, will lead to forming of the ecologically oriented tourist business and assists effective steady and saved development of regions.

THE ALTERNATIVES OF SUB-NATIONAL VALUE ADDED TAX

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In recent years, the possibility for sub-national governments to operate a VAT has been largely discussed especially through the experiences of the European Union, dealing with the tax harmonization among states members. Possible models of VAT taxation and problems that may emerge from the operation of the tax are analyzed below.

From the political economy point of view, macroeconomic considerations, and the reluctance of central governments to admit “tax room” regarding sub-national governments in so important tax base, have contributed to the opposition to decentralize this tax. From the technical point of view, fraud incentives dealing with sales destination in cross border trade, within a geographical area with no border controls, and the consequent administration difficulties for the enforcement of the tax, have delayed the adoption of a Sub-national VAT design of general acceptance in most countries.

The great challenge is to design a sales tax, that guaranteeing sub-national autonomy to fix the tax rate will satisfactorily perform on efficiency and

enforcement grounds, in a common geographical space divided into several jurisdictions, states or provinces, without border controls of goods and services. Before analyzing this challenge, a sub-national VAT's taxonomy containing a brief characterization of each alternative is hereby presented.

“Pure” Origin VAT. Sales are taxed in the state or province where vendors reside. Fiscal credits recognized in each jurisdiction correspond exclusively to purchases inside the same jurisdiction. Whereas exports are taxed, imports from other jurisdictions do not generate fiscal credits.

In this case there are not incentives for fraud at destination but generates incentives to sub-national governments for tempting firms to locate within their territory manipulating the tax burden, allowing the possibility of “tax wars”. Exports are taxed while imports are not, generating an anti-export or pro-import bias.

“Restricted” Origin VAT. Sales inside the region or federation are taxed in origin, that is, where vendors reside, with an agreement to equalize tax rates in all jurisdictions. Sales outside the region are zero-rated. The clearinghouse is avoided; states revenues will depend on – and each state will win or lose revenues according to- the interstate commercial flow, that won't be affected by the rate regime, since the tax rate is the same in all states, provinces or jurisdictions.

“Hybrid” Origin-Destination VAT. Interstate transactions are taxed in origin with reduced rates (smaller than the intrastate ones) in order to transfer resources, or potential revenues, from the “producing” states to the “consumers” states. The system is operative in Brazil at a state level. It consists on the application of differential rates centrally regulated by the federal government – initially 7%, now 9% -, for sales from developed states to less developed states; and initially 12%, now 11%, to the rest. States have the obligation to tax intrastate sales with a tax rate higher than the one ruling interstate sales (usually 17%).

“Prepaid” VAT. The registered vendors in any state or province should apply the local tax rate to all sales, unless buyers residing in another state or province provide them with a certificate that corroborates the tax has been already paid in their jurisdiction. By this way, firms that want to buy goods from another province should make two payments before the exporter makes the shipment of goods. One payment to the exporter, in concept of “price before tax” of the goods, and another to the state of his or her residence for the destination tax of such purchases. On getting such a certificate, exporter will be able to burden his or her sale to other state with zero tax rate and justify that situation at his or her provincial revenue service.

This kind of VAT adds financial advantages for revenue services, but it doesn't solve the elimination of fraud at destination, in spite of the biggest bureaucracy that requires for tracking interstate sales. Any merchant can buy a prepaid certificate in the province with the lowest tax rate.

“Dual” VAT. It is used in the province of Quebec and in the European Union, but with the particularity in Canada of coexisting with the federal VAT. Both taxes

(federal and provincial) burden the same tax base; each government fixes its own rate and, administration of both taxes is assigned to one of the two revenue services.

The problem is that “Dual” VAT seems not applicable to countries with weak tax administrations.

As we can see, the performance of the VAT at sub-national level carries on problems that are not present in the case of national VAT. The basic reason is the uniformity of the national tax rate for all goods and services independently of sectors and places of origin and where such goods and services are used or consumed.

When the VAT is applied to domestic interstate transactions by the sub-national governments, the consequences with are resumed in the expression “cross border trade problem” emerge with different characteristics according to the Sub-national VAT alternative chosen.

The basic problem arises in all cases when tax rate differentials among states or provinces are relevant. In all alternatives, experts hope for narrow sub-national tax rates differentials. But if tax rates differentials were near zero, any kind of VAT would be viable though not necessarily recommended from the fiscal correspondence principle point of view. Anyhow, other difficulties have been found in national VAT performance that naturally will be present in the sub-national version of VAT.

As a concluding remark, the review of all the imaginable alternatives for a Sub-national VAT generate serious doubts on an efficiency of it. For some reason, very few countries have at present implemented the Sub-national VAT.: the Province of Quebec in Canada and Brazilian states (ICMS). Problems faces with ICMS are evidence of a bad tax design. It seems that Quebec BAT is the only successful experience.

ECOLOGY STATE WATER RESOURCES THE REGION OF SEVASTOPOL

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Water supply of the Sevastopol region is relized from numerouse ‘little rivers’ is suchas the Kacha river, the Belbek river, the Black river.

Common length of the Kacha river is 69 km. On river Kacha is situated the East and the

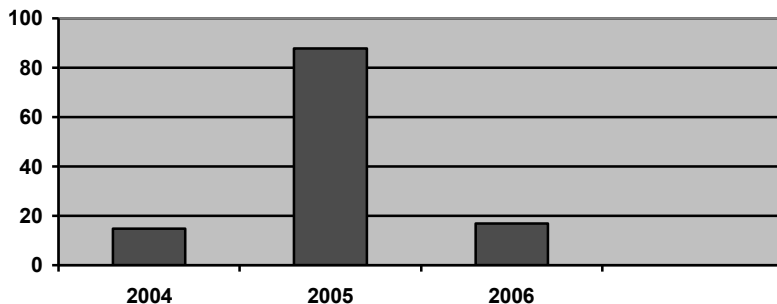
West water reservoir.

Common length the Belbek river is 63km.On river of Belbek is situated the ‘Sadovod’ water reservoir.

Common length of the Black river is 35 km. On the Black river are situated the 'Gosfortovskoe' and 'Urkusta' water reservoirs.

The main user of fresh water are communal economy-72% and industry-21%, agricultural-7% in Sevastopol

Water use in systems of turn, repeat-successive water-supply for 2004-2006 is presented in form of a diagram:



Total range of through off returned water in region is 40,79mln m/year and including 39,95mln m thrown off returned water in superficial water objects and the Black Sea, 81% is this kind of water insufficiently clean and without cleaning 60% of which was thrown off from water treatment plant mechanical cleaning. Construction water treatment plants of biological purification is not completed because of the storage of money.

The city sewage purification 19,51 mln m/year problem can be solved by means of commissioning of the biological purification unit, which will improve the ecological situation of the coastline and waters of the Black Sea in the area of the Blue bay. The developed program 'The program of urgent technical provisions on water-supply and water removal stabilization in Sevastopol and of the solution of ecological problems in 2005-2009, provides reconstruction, construction and KOS-1 commissioning in 2008 year. The sum of finance is 237,5 mln. hrn. On 2005 the local environment protection fund gave only 100000 hrn. for KOS-1 construction.

In 2005 year insufficiently treated sewage was thrown out from the water treatment plant to the surface of water objects 32,45 mln. m exceeding pollutant standards.

Because of the main sewerage collector on 2005 there were 4 breaks a result of which 10,581 m sewage were thrown into Black Sea. On the same year were 6 cases of aquatorium and coastline pollution. The damage was 131,08 hrn.

The results of analytic control showed that there were 0,3-1,0 mg/l oil products in the sewage and a great amount of heavy metals.

ENVIRONMENTAL AND CONSUMER SAFETY OF GOODS AND SERVICES

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The problem of safety is one of global human problems which directly concerns with survival of humanity. It has a system property and that is why it requires the examination from different sides of different sciences such as politics, economics, marketing, jurisdiction e.t.c. The scientific and technologic development on the one side satisfies people's needs, increases social and economic safety of society, but on the other side brings forward danger to the man's health and environment.

These include increased concerns about safety and security, environmental factors such as energy efficiency, resource scarcity and biodiversity, and the constant process of miniaturization. Advances in the science are enabling the industry to respond to these pressures and are helping to shape the future direction of the consumer and business markets it serves.

Environmental safety is a part of national safety which guarantees the protection of the most important interests of the men, the society, the environmental and the state from negative real or potential factors which appear after man-made or natural activity. Environmental safety is provided by the government.

Environmental safety is the union of actions, states and processes which directly or obliquely not lead the serious damage up to environment, individuals or mankind. It means such ecological balance in the Earth which is suitable for all people.

The objects of environmental safety are rights, material and spiritual individual needs, natural resources and environment. These are the material basics of the sustainable development

The subjects of environmental safety are the individual, society, the biosphere and the state.

We can inspect such phenomenon as environmental safety on the global, region and local level. Let's examine the market of goods and services and define the environmental safety of the products.

Environmental safety of goods and services means that production, usage and utilization of the product doesn't lead the negative damage upon environment, individual and mankind.

Consumer safety of goods and services means the ability of products to satisfy people's needs without any damage to the real or future generations.

To provide environmental and consumer safety of goods and services it is necessary to spread the ecological (environmental) products.

Nowadays the conception of ecological marketing is based on the orientation of the production and promotion upon the satisfaction ecologically oriented consumer needs, sales promotion for ecological products. Ecological products are economically effective and ecologically safe during production, using and utilization.

There are a lot of ways to define ecological goods and services, but there are no objective classification, no criteria which can define the level of ecologisation of the products and its ecological and consumer safety.

The notion of an environmental industry seems to be a misnomer against the background of a constant shift in the economic structure towards more sustainable practices. The industry is rapidly growing and changing, and it suffers from a lack of clear identity and poor representation as a sector in its own right.

So, we propose to separate goods and services by the level of ecologisation which means two factors: the damage to the environment and contribution to society development.

On the stage of production we can see mostly industrial products that have a great influence on the environment, because it usually concern natural resources. So, we define:

- ecologically destructive goods and services (cause huge damage to the environment);
- ecologically neutral goods and services (cause no damage to the environment);
- ecologically directed goods and services (directed to improve the environment);

On the stage of usage we examine consumer goods and services end their influence on consumer's health. So, we define:

- ecologically safety goods and services (cause no damage to the people health during the usage);
- ecologically dangerous goods and services (cause damage to the people health during the usage);
- ecologically directed goods and services (directed to improve people health);

On the stage of utilisation we concern both consumer and industrial goods and services and their influence on the environment on this stage. So, we define:

- ecologically perfect goods and services (utilization of such products without any damage to the environment);
- ecologically un-perfect goods and services (utilization of such products with huge damage to the environment).

So, the environmental and consumer safety both concern ecological goods and services. The offered classification of ecological goods and services by the level of ecologisation and the contribution to society development can be used for future investigations as a basis of definition environmental safety of the products. It will help to make the right choice about the priority of goods and services for the

national economy which can solve economical, ecological and social problems in the complex.

PROSPECTS OF SUSTAINABLE AGRICULTURE FOR DEVELOPING COUNTRIES

Juliana Linnik

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Agriculture is perhaps the most outstanding issue and challenge for sustainability. To attain the 'sustainable development' goal requires urgent actions on three fronts - the ecological, the social and the economic. There is a looming crisis and possible calamity developing in this all-important sector that must be urgently addressed, as it impacts on the livelihoods of most of the world's people and everyone else's food needs.

In the past, agriculture, forestry, and infrastructure in developing countries often have had negative impacts on the environment. It is estimated that in the next 20 years, farmers in developing countries will have to nearly double their productivity to provide sufficient food for a healthy and active population. This will require effective management of natural resources for agriculture and an understanding of the patterns and processes that influence resource availability. If not, we may do irreversible harm to the ecosystem and threaten the long-term economic viability of many countries.

Agriculture is facing three major problems and choices:

- Ecology/Technology: Which technology to base the future of world agriculture on? As the chemical-based model is faltering, the private sector and global establishment are looking to genetic engineering as the way ahead. But all the signs are that ecological farming is superior, not only for the environment, but also for gains in productivity and farmers' incomes. It has not been given the chance to prove itself. It should be.

- The global economic framework: The economic environment has turned extremely bad for developing countries' small farmers. International Monetary Fund (IMF)-World Bank structural adjustment has put pressure on poor countries to liberalise food imports and abandon subsidies and government marketing boards. The World Trade Organization (WTO) Agreement on Agriculture (AoA) enables rich countries to raise their subsidies and set up astonishingly high tariffs, while punishing developing countries (which cannot increase their subsidies, and which have to liberalise their imports further). Commodity prices have slumped. These three factors are threatening the survival of developing countries' farms and farmers. The entire framework of global and national economic policies for agriculture has to be thoroughly revamped.

- Land for the farmers: Many small farmers are poor and some are becoming poorer. A main reason is unequal land distribution, where small farmers have little land security or access and lose a large part of their income to landowners. Land reform is urgently required and landless farmers are fighting for their rights. But the landowners in most countries have political clout and are resisting change.

All three issues have to be resolved, and in an integrated way, if sustainable agriculture is to be realised. Otherwise there will be an absolute catastrophe, especially if the wrong choices are made.

Sustainable agriculture in the context of development efforts has to meet production efficiency, sensitivity of ecosystems, appropriate technology, maintenance of the environment, cultural diversity and satisfaction of the basic needs. The green revolution increased significantly the productivity in developing countries, but it had also several negative ecological consequences such as depletion of lands, decline soil fertility, soil salinisation, soil erosion, deterioration of environment, health hazards, poor sustainability of agricultural lands and degradation of biodiversity.

Today agricultural research seeks new management strategies and technologies to reorient the current and future needs and constraints. The new options should be productive and cost-effective, but furthermore must be particularly ecologically sustainable. Precision Farming identifies the critical factors in production systems by determining the limiting and controllable components. The components often decrease yields and system efficiency because of their spatial variability. The variations occurring in crop or soil properties within a field are noted or measured and mapped. Management actions within PF are then taken as a consequence of this assessment of the spatial variability within that field. Development of geomatics technology in the later part of the 20th century has aided in the adoption of site-specific management systems using remote sensing, global positioning systems and geographical information system. This approach is also called site specific management. Site specific management of spatial variability of a farm is developed to optimise crop production and to minimise environmental pollution and degradation, leading to a more sustainable development in general.

In the present context, maintenance of ecological balances through precise and site-specific management is highly desirable. The concept of Precision Farming may be appropriate to solve these problems, though it looks unsuitable to many local conditions. Agriculture in developing countries is often characterised by low usage and support for technologies. Precision Farming being a management approach not just a technology can equally be applied to developing countries as well as developed countries, but the implementation is different. If technology is needed they should be used to complement the traditional methods for enhancing productivity and quality, rather than to replace the local conventional methods.

Sustainable agriculture demands new efforts in research, development, and implementation. Dedicated stewardship is the first step toward sustainable agriculture. There must be a commitment at the highest levels of government, and this must be coupled with an action program that addresses the needs of farmers in the context of the environment.

THE DEVELOPMENT OF ECOLOGY IN CHINA

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The ecology is a new marginal discipline. In China it was emerged in the end of 70's to the beginning of the 80's of the 20th century. In 1980's august, renowned economist Xu Dixin initiated and convened symposium of ecology for the first time. Had opened the prelude of foundation for ecology in China.

In 1982's January, held the first national ecology - economic scientific symposium in Nanchang, this is the important meeting which union interdisciplinary discussed the ecology and economic develop in phase of China.

In 1984's February, in Beijing had been hold the national ecology - economic scientific symposium and the tenable conference of Chinese Ecology Economical Academy. At this meeting, Chinese economists, ecologists, environmental scientist, agronomists, forest scientists elaborated that the social – economy must to correspond to the ecology environment

In the late 1980s to early 1990s, The Chinese scholars proposed theory about the ecology and economical unisonous development, have become the mainstream of the ecology economic theory in contemporary China. Since 1990s intermediate stages, the most important, the most remarkable characteristic of development for the chinese ecology theory is turn into to the field about sustainable development.

In 1997 State Council Degree Committee of China adjusted the graduate student specialized catalogue, has set up the second level discipline – “Economics of population, resources and environment” under the frist level discipline “Theoretical economics”. Cut off in 2003, in China 8 Universities have doctor's program (People's University of China, Nankai University, Wuhan University, Fudan University, Jilin University, Liaoning University, Xinjiang University, Xiamen University)and 24 Universities have master's program. At present also has 34 universities to prepare for construction doctor's program and master's program of this specialized

After for several year development, this discipline not only has attracted large quantities of experts and the scholar, moreover has also obtained the very many extremely valuable research results. But took a new discipline, still was in the foundation and the start stage at present, so there are not mature in many aspects of

construction of this discipline that need the academic circles to take the widespread discussion. In order to cause this new discipline as soon as possible to form the scientific research frame and precise discipline's system.

In question about the researchful object of "Economics of population, resources and environment", even not forms accordant and mature viewpoint at present, has not suspended "board" research frame. Basically separates discussed relations of the population and the resources, the population and the environment, lacks union with economic. Therefore, development of this discipline should comply with following principle:

1. Emphasizes economic nature with this discipline. take the economical development and the economical process as analysis frame that has realized population, resources and environment organic synthesis, has formed the unified system of discipline.

2. Emphasizes main research content of this discipline - intrinsic relation of population, resources and environment in economy, and theirs effect for the development of Social economy.

3. Emphasizes arts and science intersectant characteristic in this discipline.

4. Strengthen utility of "Economics of population, resources and environment". Promotes this discipline to be able to achieve apply theory to reality.

FINANCIAL-ECONOMIC MECHANISM OF MANAGEMENT AN ENTERPRISE

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The economic system of Ukraine requires development and making scientifically grounded decisions which will be able to provide achieving the rates of steady development presently. In such context perfection of the control activity of enterprise system, its adaptation has a grate importance.

Any sensor-based system is started going with help of certain mechanisms. The system of enterprise's control started going economic mechanism which is called to provide the effective results of production-economic activity of enterprise.

An economic mechanism is an aggregate of organizational structures and concrete forms and methods of management, and also legal forms which with help the acting economic laws realized in concrete terms.

The structure of economic mechanism it is necessary to examine as an aggregate of mechanisms (economic, organizationally-administrative, legal, social), in basis of which lie the certain methods of management. Most value for providing of the effective management has an economic aspect.

In the period of functioning of the planned economy to the economic analysis the questions of financing were included. Category a financial mechanism gets a right separate existence with passing to the conditions of markets of management.

An economic mechanism of enterprise is an aggregate of economic methods, forms, instruments, affecting levers economic relations processes, which are going on the enterprise.

A financial mechanism is a component of economic mechanism, an aggregate of financial stimuli, levers, instruments, forms and methods of adjusting of economic processes and relations.

With the purpose of more rational and effective management an economy in the conditions of market these mechanisms it is necessary to reform to the single financial-economic mechanism of management an enterprise.

A financial-economic mechanism is a major constituent of economic mechanism, reflecting the aggregate of financial and economic methods, forms, instruments and levers by means of which realizes regulation of financial-economic processes and relations with the purpose of the effective affecting on the eventual results of activity of enterprise.

For the construction of structure of financial-economic mechanism it is necessary to take methodical approaches which justified itself in practice at development and introduction of the control an enterprise systems. They consist in the observance of the followings rules:

1. a financial-economic mechanism is built on the basis of optimum combination of having a special purpose and functional management at the single providing of management;
2. a purposeful management is built by formation of special purpose subsystems;
3. a functional management is built by formation of functional subsystems;
4. for providing of achieving aims providing subsystems and system of financial-economic levers are formed.

As a result of combination of the named subsystems and financial levers appears the functionally-having a special purpose flow-chart of construction of financial-economic mechanism of the enterprise. At the first time determined aims which must be attained an enterprise.

A tool which helps it is possible to provide achieving the named aims must serve functional under the systems, subsystems of providing and financial levers.

Functional subsystems include: planning, prognostication, investing, crediting, taxation, adjusting, pricing, system of remuneration of labour, analysis, accounting, insurance.

As subsystems of providing it is necessary to use the system of internal financial-economic relations, legal, normative and informative providing.

To the financial-economic levers take income, price, taxes, depreciation decrees, credits, securities, insurance payments, financial stimuli, privileges, approvals.

The construction of financial-economic mechanism of management an enterprise and it's practical using creates organizationally-methodical terms for conducting of purposeful work on the increase of efficiency of results of activity, to providing of competitiveness at the market, stability in the work, stability of financial position of enterprise and on the whole achievement the rates of steady development of economy.

DEVELOPMENT OF METHODICAL APPROACH TO ACCEPTANCE AND REALIZATION OF ADMINISTRATIVE DECISIONS IN THE CONDITIONS OF VAGUENESS

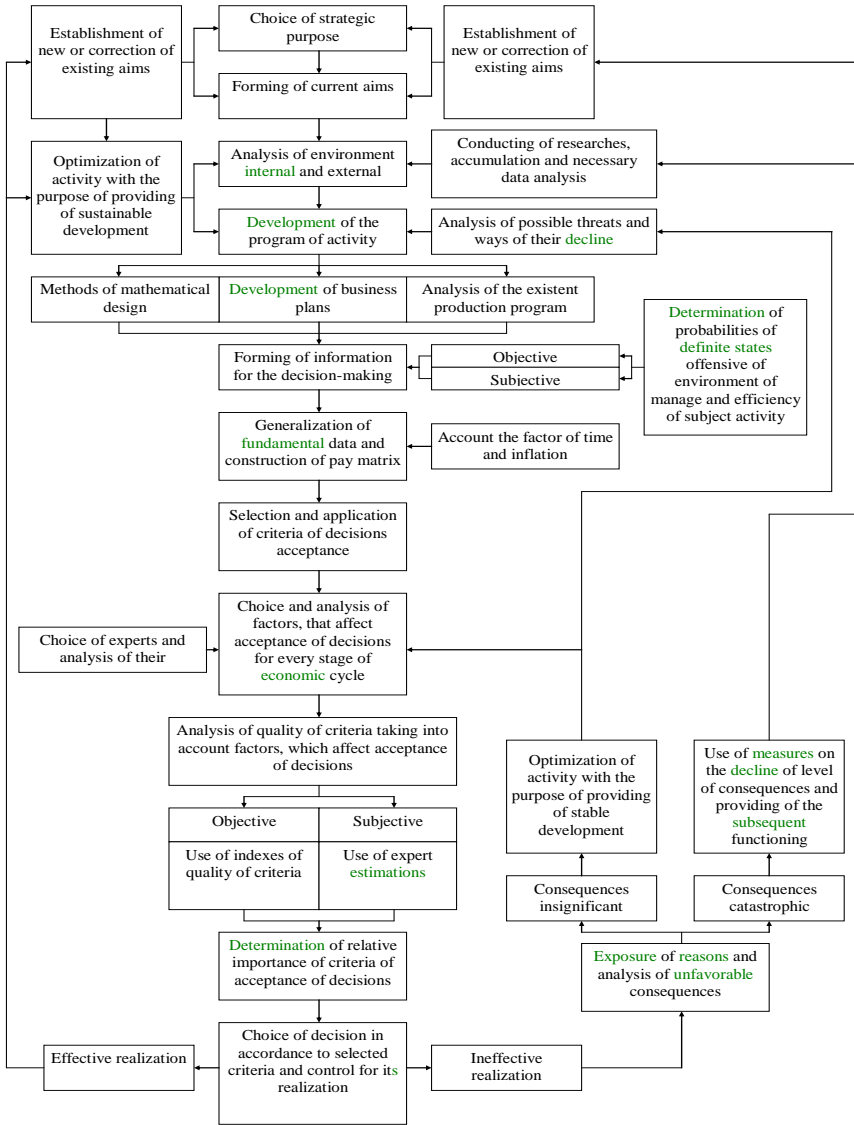
Alexej Makaryuk

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One of the issues of the day in activity of subjects of manage is acceptance of effective administrative decisions in the conditions of vagueness of environment of manage.

Taking into account the specific of situation, process of acceptance of decisions expediently, to our view, to decompose on stages. It will give possibility more detail to analyze the constituents of process of decision-making and carry out the choice of the most suitable alternative. Subject to the condition vagueness it is suggested to conduct the choice of alternative according to the utility of priorities of development of subject of manages. Coming from it, the algorithm of acceptance and realization of decision can be represented as bloc-scheme (picture1).

Examining the algorithm of acceptance of decisions in the conditions of vagueness of environment of manage it is needed to take into account circumstance that it has a cyclic character. The display to the factor of vagueness on activity of subject of manage takes place constantly and needs definite correction of strategic purpose, current aims, forms and methods of activity of subject. At the analysis of alternatives of administrative decisions it is suggested to conduct the choice by means the criteria of acceptance of decisions in the conditions of risk and vagueness taking into account priorities which are put before it by a person, who makes decision on every stage of economic cycle. After the choice of the best alternative and decision-making most attention must be spared to providing of its effective realization.



Picture 1 – Scheme of algorithm of acceptance and realization of administrative decisions in condition of situation of vagueness

During realization of administrative decisions two situations are possible: effective realization (when the attained results correspond planned ones or exceed

them) and ineffective realization (when the planned results did not succeed to be attained). In first case the subject of manage achieving planned objective looks over the aims of the activity or inculcates the complex of measures, directed on optimization of activity with the purpose of providing of sustainable development. In other case the process of realization of decision can provide, in dependence on the level of consequences, optimization of activity, with the repeated analysis of possible threats, or using of measures on the decline of degree of vagueness and revision of aims of activity and, as an farthest case, change of strategic purpose and type of enterprise.

Optimization of activity of subject of manage can include measures of more effective distributing of capital to the objects of investment, restructuring of assortment group, minimization of dispersion of price in a dynamics. All these measures, for providing of sustainable development, must be directed on achievement of sustainable level of relative indexes of production efficiency in a dynamics. The observance of execution sequence, foreseen by the given algorithm, will allow persons, who make administrative decisions and control their realization, to choose a maximally effective variant from the great number of alternatives and depending on the level of its realization provide achievement of steady development or paths of decline of possible negative consequences.

MARKETING POLLUTION CONTROL

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The problem of pollution control is an illuminating example of how governments in a market economy can harness the marketplace mechanisms of supply and demand to address a critical issue confronting the entire society.

When faced with pollution of the air, water or land, government has several alternatives to consider which balance the need for a cleaner environment against the economic costs of the cleanup.

As a first case, suppose a certain pollutant is found to be extremely toxic and impossible to eliminate by adopting new production processes or safeguards.

Under those conditions, it may be sensible for the government to issue direct regulations requiring its complete elimination or such sharp reductions in its discharge that is no longer poses a threat to human health or the environment. But such a course assumes the cost to the society of any emission is very high.

For less dangerous substances, while pollution levels should be cut, complete elimination may entail unreasonably high costs in terms of lost production, consumption and employment.

Under such circumstances, it might be more efficient to charge a tax on pollution rather than requiring a specified reduction at all production sites.

The reason is simply that the costs of cleanup will vary greatly at different production sites or companies.

By taxing polluters, the government causes firms that can reduce emissions at relatively low costs to do so, and thus not pay the pollution tax. Other firms will find it too expensive to reduce pollution (often those with older factories and equipment) and will rationally choose to continue to pollute and to pay the tax on what they release.

Another, more recent option is to reduce pollution through a system of pollution permits or credits that can be bought and sold. Under these programs, firms buy permits from the government, which allow the company to release specified amounts of pollutants into the environment. These permits can be traded with their price free to rise or fall, reflecting different environmental and economic conditions. Under this system, the government only has to determine the overall permissible pollution level for a certain area, then sell enough permits to release only that level of emissions. Any taxation scheme becomes unnecessary.

A company that wants to increase its pollution (and possibly its output) for a time can do so by buying permits from other firms. In effect, the company is paying these other firms to cut back on their pollution and production levels.

To protect environment it is necessary to implement flexible mechanisms of pollution prevention measures, which are reflected through a system of pollution permits and credits.

INVESTMENT PROJECTS AS A BASIS OF SUSTAINABLE ECONOMIC DEVELOPMENT

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Reproduction or reinvestment is the integral element of sustainable development of modern economy. There is a set of theories for the description of this process, but full understanding of development mechanisms of a separate branch or national economy as a whole does not exist.

The offered model allows describing dynamic development of economy (branch) as a result of investment activity.

$$\left\{ \begin{array}{l} \frac{dx}{dt} = \gamma_1(p - p_n)x - \gamma_2xy - \alpha x^2 \\ \frac{dy}{dt} = -\frac{y}{\tau_1} + \gamma_3xy + kx \\ \frac{dp}{dt} = p_r - \frac{p}{\tau_2} - \gamma_4x \end{array} \right. , \quad (1)$$

where x – number of “successful” investments per unit of capital;
 y – number of “unsuccessful” investments per unit of capital;
 p – average profitability of successful investments;
 p_n – natural rate of profitability;
 p_r – investment projects efficiency growth rate (without taking into account obsolescence and use in investments);

$\gamma_1(p-p_n)x$ – takes into account investments increase proportionally to the increase of average profitability of projects over natural rate of profitability;

$-\gamma_2xy$ – item, that takes into account the influence of risk on investments;

γ_3xy – takes into account the increase of “unsuccessful” investments as a result of interaction with “successful”;

$-\gamma_4x$ – takes into account the reduction of investments profitability as a result of perspective investment projects exhaustion;

α – competitive investments ratio;

τ_1 – average time of liquidation of unsuccessful investments;

τ_2 – average time of investment projects obsolescence;

k – ratio, that takes into account probability of transformation of “successful” investments into “unsuccessful”.

System’s evolution (1) under the following parameters: $p_n=0,05$; $p_r=0,04$; $\alpha=0$; $\gamma_1=10$; $\gamma_2=1$; $\gamma_3=5$; $\gamma_4=0,3$; $\tau_1=2,5$ years; $\tau_2=10$ years; $k=0,05$ and initial external impact is represented in figure 1.

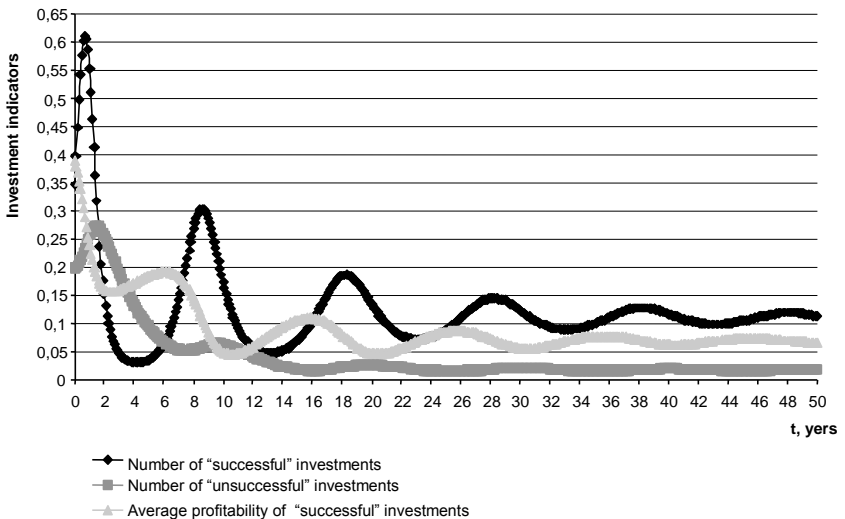


Figure 1 – Fluctuations of investments profitability, shares of “successful” and “unsuccessful” investments

The developed model well displays dynamics of investment development. It not only allows displaying investment fluctuations of economic development, but also shows the essence of the process.

It is clear from figure 1 that with the rise of investment activity, investments profitability begins to decrease because good ideas disappear. Simultaneously with the growth of investments the risk of investments also grows, therefore the share of «unsuccessful» investments grows with a certain delay. Then the inventions, new products etc., which were not introduced because of recession of investment activity, begin to accumulate. As a result, average profitability of investments grows.

The given model distinguishes between developed and developing economy. In a developed economy there is typically a small deviation of average profitability of successful investments from natural rate of profitability. Therefore, there is a low risk of investments. It is accompanied by an insignificant number «unsuccessful» investment. For advanced economy fluctuations quickly fade.

This is quite vice versa for developing economy. At the big deviation p from p_n there is a possibility of big profits, but, on the other hand, it is accompanied by a big risk (growth of “unsuccessful” investments) and respectively long fluctuations. As a result, in such societies superrich people appear and strongly influence national economy. This is an implicit consequence.

Competition of investments stabilizes developing economies.

THE IMPORTANCE OF UNMATERIAL RESOURCES IN CONDITION OF THE TRANSITION TO SUSTAIN DEVELOPMENT

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Before recent time it was spared not enough attention to questions of protection the surrounding nature in Ukraine in consequence of which appeared the crisis in this sphere. The deteriorating quality of the environment has served the stimulus for activation of the research progress in the sphere of ecological innovations. These new technologies are an important component part of each enterprise, which influences on the environment. The inventions, know-how, rationalizing proposals, directed on improvement of surrounding natural ambience quality, are an unmaterial resources, importance of which increases when turning to sustain development.

In the scientific literature notion "unmaterial resources" is interpreted by miscellaneous scientists differently. The most wide-spread is the following determination: unmaterial resources are a component part of enterprise potential, which is capable to provide the economic profit during long-lasting period.

On our opinion, it is possible to give the following determination of the notion "unmaterial resources in the sphere of nature using": they are a component part of nature using enterprise potential (industrial, agricultural enterprise), which is capable to provide the economic profit during long-lasting period.

The discriminating features of these resources are an absence of the material base and uncertainty of the future income sizes arrived from their use. The notion "unmaterial resources" is used for feature of the intellectual property objects.

For a long-lasting time attitude to intellectual property in the Soviet Union was rather inconsistent: the rights were confessed, but most often they were not kept. Since public property had legislative bolted advantage so this property was above interests of separate physical and juridical persons. In USSR, as a rule, the certificate about invention was given i.e. the document, which confirms the authorship of the inventor and possibility of the reception of the remuneration in severely specified by state size, rather than patent, which gives the author exclusive, "monopoly" rights. Only in 60-ties years of the XX century USSR has corrected a little the attitude to intellectual property, about than signing of Stockholm convention and participation in the Worldwide intellectual property organization witnesses. It is obviously that scientists were not interested in the results of their labour, and it did not promote the creation of ecological innovations.

Using of the software-target method helped to create leading for its time samples of military technology, be a leader in cosmic area, some other area, certainly, important, but such, which did not promote increasing of an environment quality and level of living populations. As a whole in USSR in spite of separate attempts they did not manage to create an efficient innovational oriented management mechanism, which was adapted to introduction innovations, which rendered the positive influence upon economy and environment of the country, provided the real growing to capacity of the work and well-being of soviet people.

In existing research and innovation activity system the old approaches and stereotypes in organization, stimulation and management of researches and institutions exist in spite of deep changes in Ukrainian society, realizable for the last 10-12 years.

Before this time in Ukrainian practice a socialist method of the planning and development of the science is used. Besides, it is not designed and is not introduced identical to market relations efficient economic mechanism to mutual interest and responsibility of the science and potential consumers for its product, technician-technological and organizing-economic developments etc. Also an effective, independent and objective expert operation of the research programs and technological developments is absent. This brings not only to shaping and organization of the performing the research functioning on outdated base, to continuation of the studies in directions, begun several groups of ten years ago and most weakly connected with modern social-economic development state priorities, structured realignment of the national facilities etc., but also to irrational,

inefficient spending of limited budgetary funds, which state selects on financing of the research institutions.

The specified defects, undoubtedly, are negatively reflected on efficient use and qualitative growth of the national scientifically-technological potential, but then - on progressive technician-technological development, rate of modernizations and structured reconstruction of the national economy, increasing to its competitiveness on internal and world market. Finally Ukraine more and more will lag behind from developed countries of the world at all points. Globalization, figuratively, "pops" on periphery of civilization development first of all that state, which is not capable neither to use rationally the most modern scientific achievements and innovations, nor to reconstruct structure and to consolidate constructively the own research potential.

ECO-TECHNOLOGICAL PROCEDURE OF THE WASTE WATER AND SLUDGE TREATMENT OF THE GALVANIC PROCESS

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The subject of the paper is eco-technological procedure of the waste water treatment of galvanic process with the following processing of sludge generated during the conventional purification (CN- oxidation, Cr₆₊ reduction, chemical precipitation of the other metals) of the waste water.

The galvanic industry includes degreasing, galvanizing, burnishing and pickling of materials. Depending on the kind and the size of the plant, not all steps are used in one company. The kind of waste water treatment depends on the specialization of the plant, the processes used and the amount of the processed water . Below, we introduce several waste water treatment methods in galvanic industries.

Galvanic waste water has to be treated in two ways: on one hand the used waters are reclaimed and recycled for reducing of water consumption, and on the other hand to get some useful substances contained in the waste water.

There are many treatment methods, which function by various chemical and physical means or in their combinations. All methods are sensitive to heavy metals, oil and grease in varying degrees. The methods such as ultrafiltration can handle suspended solids better than other methods such as reverse osmosis. Physical processes of suspended solids treatment either by means of their settling out (sedimentation) or by their floating are rather simple. Also we can use stirring or agitating to cause particles to contact each other and stick together without or with chemical additives (flocculation). Particle floating can be caused by dissolved air under pressure or under vacuum conditions (dissolved air flotation). Chemical

processes include precipitation, flocculation, neutralization and solidification. Membrane processes include reverse osmosis and ultrafiltration and other filtration systems.

The second trend of the paper is the recovery of various useful metals and the sludge treatment as the dangerous waste to get useful product (glass-ceramics), with eliminating of the generation of the dangerous and harmful materials in the environment. The second trend is also connected with transform chemical active matters (Cu^{2+} , Cr^{3+} , Cd^{2+} , Ni^{2+} , Pb^{2+} , Zn^{2+}) using the phase and chemical transformation into very stable structure where the pollutants can not be activated even under critical conditions such as high temperature, influence of acids and alkalies, etc. Among basic treating possibilities of galvanic sludge are: stabilisation, pyrometallurgical, hydrometallurgical, biohydrometallurgical and combined technologies.

Galvanic sludge is formed at electroplating plants as a result of precipitation of metals in waste water and from the electrolyte used. Galvanic sludge consists of metals used for surface treatment like Cu, Ni, Cr, Cd, Sn, Zn, Ag, Au, Pb and bearing metals like Al, Fe, Mn and substances used for precipitation process, as Ca and Na. The galvanic sludge besides heavy metals like copper, zinc and nickel in the form of hydroxides (oxihydroxides) contains also various impurities like CaSO_4 , SiO_2 , CaCO_3 , also cyanides, sulphides, fluorides, tenzides and oils. This complex sludge is considered to be hazardous waste, but on the other hand it is a valuable source of various metals like copper, zinc, nickel, cadmium, gold, silver etc. The amount of metals present in the sludge depends on with galvanising technology applied and on the surface area of the sludge. Total volume of the sludge depends on the composition of the galvanising baths, on wastewater concentration and on type of reagents used.

Stabilizing technologies provide an environmentally friendly solution, but without exploitation of the secondary raw materials potential. The purpose of the stabilisation process is the immobilisation of contaminants in the solid matrix of stabilised material. Hydrometallurgical method for treating galvanic sludge is based on leaching in acid or alkaline solutions followed by selective separation of metals from these solutions by means of solvent extraction methods, electrochemical methods as well as by appropriate precipitation processes. Biohydrometallurgical recovery of non-ferrous metals is based on utilisation of bacteria in bioleaching process. This method combines oxidation effect of trivalent Fe in sulphuric acid and biooxidation of bivalent Fe by the action of bacteria *Thiobacillus ferrooxidans* during leaching process.

The problem of galvanic sludge treatment is very actual and there is a tendency to find the most effective method for treating and utilising each valuable component from it.

ESTIMATION OF ENVIRONMENTAL SAFETY OF UKRAINE TERRITORY

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Nowadays in Ukraine, the threat of receipt of vast amounts of emissions from potentially dangerous manufactures (e.g. manufactures which malfunction is accompanied by hard socio-economic and ecological consequences, in result of their harmful effect on environment, people and economic objects) is kept. Therefore all accepted economic decisions should possess a high degree of ecological reliability and safety.

The use of indicative analysis for estimation of environmental safety guaranteeing enables to display effects of specific threats of safety, connected both with conditions of economic-geographical position and with miscalculations in ecological management.

Examination of the ecological factor of safety is carried out by calculating its actual components allowing quantitatively and qualitatively estimate imminent danger and apply a complex of ecological actions for conditions correction.

For environmental safety of territory a standard of threshold valuation of indicators is basic. Comparison of actual values of indicative parameters with threshold valuation allows determining of a corresponding (qualitative) condition of the country and its territory. The acceptable level of safety is achieved when all indicative parameters lie in limits of their threshold valuation.

When classifying the condition of territory on pollution level three basic scales are used: *normal* (n), *pre-critical* (p), *crisis* (c).

If acceptable values of all or nearly all indicative parameters, or insignificant divergence from normal values of these parameters, are guaranteed, so this level is called the *normal level*.

Pre-critical level (for the territory concerning to the pre-critical level, the emissions of pollutants in atmosphere come to 5-10 ton/km²; overflow raw water – 70-90 per cent; storage of toxic industrial wastes out of rules – 100-500 ton/ km²) is defined by condition when the threats for environmental safety start achieving essential importance, which is necessary to be considered.

Crisis level (for the territory concerning to the crisis level, the emissions of pollutants in atmosphere is more than 10 ton/km²; overflow raw water – more than 90 per cent; storage of toxic industrial wastes out of rules – more than 500 ton/ km²) is defined by rather essential negative trends, which already in initial stage of crisis cause great problems in safety achievements. It also means vast deterioration of parameters of quality of life of the population.

Also as a criterion of estimation of a degree of crisis situation in ecological sphere the relative share of population, living on the territory, which is subjected to

an action of natural accidents, or territories of ecological pollution (the threshold valuation is less than 1 per cent of a population of Ukraine) is applied.

All territory of Ukraine, which population lives on territories with critical level (exceeding threshold valuation of emissions of pollutants in atmosphere, equal to 10 ton/km²) of atmosphere pollution in 2003 was 9 per cent from total amount (tab. 1) and on most radioactive polluted territories – 6,75 per cent, can be concerned to the group with crisis level.

Table 1 Population of Ukraine, which lives on territories with high level of atmosphere pollution

| Year | less than 5 ton/km ² | | 5 - 10 ton/km ² | | more than 10 ton/km ² | |
|------|---------------------------------|----------------------------|----------------------------|----------------------------|----------------------------------|----------------------------|
| | million people | per cent from total amount | million people | per cent from total amount | million people | per cent from total amount |
| | 1985 | 0 | 0 | 3,9 | 7,6 | 47,6 |
| 1990 | 0 | 0 | 3,9 | 7,6 | 47,6 | 92,4 |
| 1995 | 15,2 | 29,4 | 11,4 | 22,2 | 24,9 | 48,4 |
| 1999 | 23,1 | 46,4 | 8,1 | 16,3 | 18,8 | 37,3 |
| 2003 | 40,5 | 81,4 | 4,7 | 9,5 | 4,5 | 9,1 |

Summary.

As is obvious from the foregoing, diagnostics of emergency level of territory on environmental safety with use of the specified approach allows forming of differential system of effective nature protection actions directed to achieving of environmental safety of the state and its territories.

SOCIAL CAPITAL AND ECONOMIC DEVELOPMENT

N.V. Mishenina, N.V. Oliynik

The concept of social capital is generally associated with social and civic participation and with networks of cooperation and solidarity. But other, more abstract, concepts are also associated with social capital, such as social cohesion, trust, reciprocity, and institutional effectiveness.

The macro-approach to social capital focuses on the value of integration and social cohesion. Like the theories of institutionalism, it emphasizes a community's environmental, social, and political structures that convey values and norms (primarily trust and reciprocity), which in turn create certain conditions for social engagement and civic and economic participation. According to this conception, social capital is analyzed as a product of these structures. As a result, the more these structures instill trust and reciprocity, the more individuals will want to get involved in civic life and the more social capital will flourish. As in the case of the micro-approach, proponents of a macro-approach are interested in social capital as

a collective benefit. The meso-approach is geared toward the more instrumental value of social capital. As such, it is akin to the resource mobilization theory, in that it links the concept to the potential of social networks to produce resources such as information and support.

Whereas physical capital refers to physical objects and human capital refers to the properties of individuals, social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them. In that sense social capital is closely related to what some have called civic virtue. The difference is that social capital calls attention to the fact that civic virtue is most powerful when embedded in a sense network of reciprocal social relations.

Social capital focuses on networks: the relationships within and between them, and the norms which govern these relationships. Although this does not necessarily entail a specific value position on the part of those who use it as an analytic device, it has strong normative connotations, implying that trusting relationships are good for social cohesion and for economic success. However strong ties can also be dysfunctional, excluding information and reducing the capacity for innovation.

The key distinction between human and social capital is that the former focuses on individual agents, and the latter on relationships between them and the networks they form. In an economic context, the inclusion of social capital draws attention to the obvious, but often underregarded fact, that individuals and their human capital are not discrete entities who exist separately from the rest of the organisation, or from other social units.

There is a need to devote greater attention to social capital's determinants. Social capital is viewed here as the result of investment decisions taken by individuals. Those investments bring both market and non-market returns. A simple social capital investment model is presented, suggesting that individuals are more likely to invest in social capital when they are likely to be in their communities for some time. Not surprisingly, homeownership increases the level of investment in social capital. The model also suggests that, over a lifetime, people first build up stocks of social capital and then let those stocks decline. Two other influences, not present in the model, are clearly very important for social capital. First, there is a very strong relationship between years of schooling and social capital. Second, community homogeneity strongly increases social capital investment.

The best way for an economist to think of community level social capital is as the set of social resources of a community that increases the welfare of that community. These social resources, of course, include norms and networks. Economists tend to think that these social resources have value because they solve common economic problems. For example, better social connections can help to solve the free-rider problem in providing public goods, or they can create trust

between individuals in the absence of explicit contracts (hence the frequent use of trust survey questions to capture social capital).

There are two main form of social capital: bonding social capital and bridging social capital. The former refers to the value assigned to social networks between homogeneous groups of people and the latter to that of social networks between socially heterogeneous groups. Typical examples are that criminal gangs create bonding social capital, while choirs and bowling clubs create bridging social capital. Bridging social capital is argued to have a host of other benefits for societies, governments, individuals, and communities; likes to note that joining an organization cuts in half an individual's chance of dying within the next year.

The World Bank has brought together a range of statistics to make the case for the social and economic benefits of social capital. For example they argue that there is evidence that schools are more effective when parents and local citizens are actively involved. Teachers are more committed, students achieve higher test scores, and better use is made of school facilities in those communities where parents and citizens take an active interest in children's educational well-being

The distinction is useful in highlighting how social capital may not always be beneficial for society as a whole (though it is always an asset for those individuals and groups involved).

Horizontal networks of individual citizens and groups that enhance community productivity and cohesion are said to be positive social capital assets whereas self-serving exclusive gangs and hierarchical patronage systems that operate at cross purposes to societal interests can be thought of as negative social capital burdens on society.

So, the necessity of social capital in the conditions of the transformation of social-economic relations into the market system are equal or greater importance than economic factors such as levels of inward investment, new floorspace provided, or even formal training qualifications. In other words, social capital and social development is as important to economic development as economic capital.

They are closely connected with economical and political mechanism functioning in the country.

SUSTAINABLE ECONOMIC DEVELOPMENT: HOW CAN BUSINESS COMMUNITY CONTRIBUTE?

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With the increasingly growing business involvement of enterprises worldwide, there has been a significant increase in environmental degradation and economic inequality. All of these being a well-known fact, there is major concern

that these features of the globalisation process may jeopardise its social and environmental sustainability. In order to clarify to what extent the recent process of globalisation may be considered as sustainable, this paper draws some hints from a critical assessment of the globalization in the context of ecological sustainability, while arguing that sustainability initiatives can be beneficial to business practices, and thus, to a certain extent the outlined negative implications of globalisation can be overcome by bringing out adequate business incentives to the global players.

Because of continuous growth propelled by improving technology, the modern human enterprise is already in a state of ecological overshoot. Globalization and trade exacerbate the situation by shuffling resources around and short-circuiting the negative feedback that would otherwise result from local resource degradation. This allows population and material growth within each individual trading region to exceed local biophysical limits. This, in turn, accelerates the depletion of natural capital everywhere and ensures that all now trade-dependent regions hit global limits simultaneously. Large-scale migration also worsens matters by reducing negative feedback and enabling increased resource consumption.

All these issues are partially inevitable, yet possible to deal with. One of the driving forces in striving to solve the above mentioned issues can be found in global business entities, since as global awareness and concern about the long-term health of the world's environment increase, some stakeholders and business leaders have begun to call on the business community to play a major role in moving the global economy toward "sustainability", which includes both environmental and social goals, recognizing that long-term environmental protection requires appropriate economic development, especially in developing countries.

Sustainability in the business context represents a progression beyond environmental regulatory compliance, eco-efficiency efforts such as energy efficiency and pollution prevention, and environmental risk management to a business model that gauges performance by a "triple bottom line." The "triple bottom line" adds environmental and social performance to traditional measures of economic performance. Companies attempting to create sustainable businesses are making fundamental changes not only in product design, production and distribution, but also in corporate philosophy and marketing strategies. Few companies are currently considered sustainable, and those that are tend to be small companies serving niche markets. A growing number of companies, however, are taking a leadership role in adopting some level of sustainable business practices as they move on a path towards sustainability.

Awareness of the business value of sustainability practices is growing. Whereas specific components of sustainability – pollution prevention, eco-efficiency (doing more with less), energy efficiency, and waste reduction – are seen by companies as providing "bottom line" cost savings, sustainability is also viewed as having the potential to expand the "top line" through the creation of new

products, enhanced market share, asset retention, and other means of value-creation.

Sustainability promotion initiatives can be beneficial to companies inasmuch as to create value for companies through such channels as: 1) access to capital: sustainability is increasingly viewed as proactive risk management, making companies with sustainability policies more attractive to investors and financiers; 2) new market development: sustainable business practices include a social as well as environmental element, in large part through meeting human needs in developing countries that multinational companies have largely overlooked in the past, and although these markets are less developed than those in the U.S., Europe, and parts of Asia, they can be profitable for companies; 3) asset retention: extending the productivity of resources is becoming a strategic business practice across diverse industry sectors; 4) brand image and customer retention: the marketplace is becoming more environmentally sophisticated. Appealing to the ecological and social as well as economic sensibility of consumers can improve a company's image and increase customer loyalty; 5) innovation: applying sustainability principles to the design and manufacture of products has helped several leadership companies bring entirely new product lines to market.

A growing number of companies, government agencies, academic institutions, non-governmental organizations and advocacy groups are exploring what sustainability means in terms of business practices, global issues and societal values. As an emerging area of study and practice, sustainability is attracting increasing attention on a number of fronts. Some recent developments include: i) increase in sustainability reports: many companies are publishing sustainability reports in addition to traditional annual and environmental performance reports. These reports not only present companies' efforts to integrate the environmental and social equity aspects of sustainability in their business practices, but also demonstrate the increased business value linked to these efforts. The Global Reporting Initiative is a collaborative effort to provide guidelines for sustainability reporting that is gaining increasing acceptance; ii) growth of markets concerned with sustainable products and services: in developed countries, markets for sustainable products and services are growing and are being linked to consumer health and safety; iii) strategic partnerships: increasingly, businesses are forming partnerships with nongovernmental organizations in order to understand emerging sustainability issues, create business opportunities, and in some cases avoid confrontation and negative publicity around environmental and social issues; iv) financial markets: financial markets increasingly recognize and reward companies exhibiting sustainable business practices, the number of socially responsible investors and funds is growing; sustainability is a key component of socially responsible companies. A reflection of the growth in socially responsible investing are the Dow Jones Sustainability Indexes, created in 1999 to track the financial performance of leading sustainability-driven companies worldwide. The indexes provide objective benchmarks for the financial products that are linked to

economic, environmental and social criteria; v) government-industry partnership initiatives: government agencies have launched programs in partnership with companies across many industries in areas related to sustainability.

Western Europe countries are among the leaders in sustainability programs at the local, national, and European Union level; EU regulations are in fact driving some corporate environmental policies for multinational companies. In the U.S., the Environmental Protection Agency runs numerous industry programs that can contribute to a company's sustainability efforts, from pollution prevention and climate change to product stewardship and green product design.

While many standards exist for key components of sustainability such as eco-efficiency, toxicity and green product design, relatively few standards exist for sustainability as a whole. Some organizations have begun to take a systemic view in order to develop broad standards and definitions, and reporting guidelines, for sustainable business practices: the majority of CSR-related standards produced in recent years ask companies to voluntarily develop and implement policies and practices and commit to specific performance standards on various CSR issues. More recently, a limited number of standards have been developed that, rather than providing substantive recommendations for implementation of specific CSR policies and practices, are designed to provide guidance for companies seeking to report on their social, environmental, and economic performance. In many cases, these performance standards and reporting standards are complementary.

While being a highly complex issue, sustainability initiatives in the business community range from specific eco-efficiency measures to comprehensive, company-wide efforts to integrate environmental, economic and social considerations into every aspect of the company's business practices. Possible tools and strategies for moving a business toward sustainability include the following:

- High degree of top management involvement: companies with successful sustainability initiatives usually have visionary leadership at the senior level. A sustainability champion can identify business opportunities, while inspiring others in the company to adapt sustainability measures. Many business leaders are still unaware of the issues, or do not yet understand the business value of sustainability.
- Mission statement and corporate goals in line with sustainable development worldwide: a statement articulating a company's sustainability goals can provide a foundation on which to build a program of initiatives.
- High degree of expert engagement and professional consultancy: the most innovative initiatives often come from experts and conceptual leaders in the field of sustainability. Creating partnerships with private consultants and/or non-profit organizations expands a company's breadth of understanding.
- Emphasising sustainability goals within the inner structure of the company: interdepartmental teams generate employee participation and ideas to reduce waste and save money. Education on a company-wide scale allows employees from various sectors to understand their role in the company's sustainability practices.

- Orientation on product development as a key indicator of possible contributions to sustainability: analyzing a product's life cycle - the entire process that includes design, production, distribution, end-use and ultimate disposal or recyclability - is a valuable way to identify opportunities to reduce material and resource costs. As the life cycle of a product is considered, companies can begin to understand the environmental, economic and social impacts of their products and move toward a more sustainable practice.

- All levels of supply chain have to be involved: many leadership companies work with their suppliers on design for environment projects and other initiatives to reduce environmental impacts. Some companies involve customers, analyzing their needs to eliminate waste or develop systems to take back and recycle used products.

- Sustainability initiatives need to be established as profitable and inherent to the core business line: linking sustainability to the company's core values -- such as quality, innovation, or time to market -- is important. For example, reducing the amount of material used in a product while maintaining or improving overall product quality provides greater value to customers while preserving resources.

- Benchmarks to assess the results, as well estimate possible deviations and prospects of improvement: develop targets by which to measure progress towards sustainability. These might include specific goals for reductions in emissions, waste and energy use or benchmarks for gauging company impact on disadvantaged regions or social groups and sensitive ecological areas.

CORPORATE ENTREPRENEURIAL BEHAVIOUR IN THE REGION AS THE BASIS FOR CARRYING OUT NATURE-CONSERVATIVE ACTIVITIES

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Many researches when working out practical recommendations for introduction of nature-conservative measures on enterprises to tackle the environmental issues or for environmental sanitation, agree that these measures have to be undertaken at the level of a region, but not a separate settlement or enterprise. It is stipulated by the location peculiarities of the enterprises in the country, overwhelmingly regional pollution, absence of strict boundaries within the poisonous substances, hereby altogether their regional localization etc.

Introduction of anti-pollution activities at each separate business requires substantial expenses, which can be avoided when implementing the anti-pollution activities at the regional level.

When regionally introduced, there is a list of all possible acts at all enterprises. Each entity is division of the quantity of polluter (re-calculated to universal equivalent) to the costs. The cheapest option is selected and introduced at enterprises of the region.

There are many problems which emerge when practically implementing the environmental sanitation activities. One of them is that shareholder might disagree on the scheme, but no separate enterprise is interested in major local expenses or even halt of the production activity.

Every enterprise, governed by uncorporate behaviour, and pursuing personal goals on the competitive market agrees on decisions which are optimal to the enterprise. Regional goals, which can be greatly different from that of an enterprise, are neglected.

This issue can be solved if the enterprises are governed by the corporate behaviour on the market and when conserving the nature. This can be reached via coordinating the decisions on the market and taking the optimal decisions for all enterprises of the region, but not for separate enterprises.

One can conclude the corporate culture at the regional or national level is the basis of effective nature-conservative activity, basis for introduction of nature-conservative acts.

This statement is true for other enterprises because the corporate behaviour of businesses in the World aims not at the decrease of competition, monopolization of the market, but concentration of financial, labour, material, information resources to reach the competitive advantages at the national or world markets, to reach common goals, which are unreachable for separate businesses.

Further there is consideration how businesses can utilize the corporate behaviour on the market and obey the antimonopoly law.

To utilize the behaviour on the market (i.e. to unite and coordinate acts) the businesses mainly use organizational and judicial union forms with low level of coordination of participants' acts, low control of participants, but with sufficient level of matching of initial decisions and final results. This allows to coordinate the activity of many businesses. Such forms can be associations, franchise unions, also functional agreements between enterprises to allow accordance without going into a union.

All these allow to coordinate the introduction of nature-conservative actions within the region, do joint scientific researches, embed edge-cutting technologies with no competition at the local level but with increment to competitiveness at the regional and international markets. Thus not regional but global targets can be achieved.

It is necessary to utilize the corporate behaviour of enterprises on the market in the process of the nature-conservative activity. Therefore resolution to the environmental issues will be impossible without the joint efforts of all enterprises.

ROLE AND IMPACT OF ENVIRONMENTAL EDUCATION ON ECOLOGICAL CONSUMPTION

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Environmental threats to the existence of human civilization are officially recognized at the highest international level: the historical development of humankind involves different natural resources that endanger the global environment. This prompts us to reconsider the priorities and values which we have previously developed. Simultaneously, it is very important to form an environmental culture for all citizens; especially for the youth. Without the creation of these culture citizens, their consumer choices, as well as their administrative and technological decisions, will continue to destroy our natural environment.

One of the elements of the creation of such a culture is environmental education.

Unfortunately, as research shows, the teachers who provide environmental education and insist on its necessity start with the following assumptions for the relationship of cause and effect: « economic activities - deterioration of environment - deterioration of health ». Such a generalization is wrong and has no convincing scientific basis because only separate cases are scientifically established. Nevertheless, this is the basis of environmental classes at schools. Ecology becomes a super science, incorporating our societies past, present and future knowledge of the natural. The result is a mechanical conglomerate of fractional information from different textbooks and mass media which support the idea of mankind's guilt for destroying nature and the ancient threat of doomsday; this time, in the form of «environmental crisis».

Environmental education actually provokes and encourages scientific intervention in nature by people who do not know much about the subject and do not take any responsibility for their decisions or actions. If an environmental crisis ever happens, it would result from similar uncontrolled behavior.

It is obvious that the person who considers himself an "expert" is in danger in other situations, especially in the one that is critical. Firstly, such a person will worsen the situation instead of improving it. Secondly, such a person can be a victim of real danger that he may be unaware. Thirdly, these people are constantly lobbying. Here are some examples.

In 1990 the environmental "specialists" who knew neither the economy, nor atomic engineering, initiated the "Greenpeace" movement in Armenia and closed the atomic power station in Octemberane. As a result, Armenia lost 40 % of their electric power production. It destroyed life-supporting infrastructures and has led to social crises in the cities. Urban plant life has been cut down and used for firewood. The rationale to close the Armenian atomic power station was that of its location in a seismic area. However, the station was constructed as an individual

project. The station designs have been improved as verified by the terrible Spitaks earthquakes which did not damage the station in the slightest. The decision to close the station was reversed, and in 1997, the atomic power station once again began operation.

The Chernobyl atomic power station accident that happened in the time of democratization has been transformed by "green" people into the greatest industrial accident of all times, and the concept of "radiation" has become a synonym for the concept of "death". From the point of view of the experts, this idea is completely erroneous.

Almost 90 % of the population considers that the operation of atomic power stations is harmful to the health of the population. According to the Ministry of Health of the Russian Federation, the contribution of anthropogenous radiation in medicine exceeds that of the atomic industry by a factor of 200. According to Dr. A.J.Bushmanov, the head of Radiation Medicine Clinic, during semi centennial history of atomic engineering (since 1946) about 3000 people developed chronic radiation sickness from internal or external irradiation, and 90 % of those cases occurred up until 1960. Only 71 cases (less than 13 %) resulted in fatalities (including Chernobyl accident). Nowadays, radiation sickness is only a possibility in the event of an accident.

It has been observed that in Japan, the longest life expectancy registered is at xibakusi. These people have been exposed to radiation through nuclear bombardment. Physicians constantly control their health.

From this history lesson, the main conclusion is that the destruction of the artificial environment always has a negative impact on the physical and mental health of the population. The ecological niche of the modern civilized society is not natural, rather it is the artificial environment for which the necessary conditions for peoples' lives were created.

PAYMENT FOR POLLUTION, AS ONE OF ECOLOGICAL MANAGEMENT TOOLS

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Under modern conditions ecological situation and tendencies of its change in many respects are caused by industrial production and economic activities.

The urgency of the problem consists in improvement of an ecological situation on the basis introduction of ecological management tools.

The aim of the paper is research of the theoretical questions concerning disclosing the essence and purpose of ecological management tools.

Under conditions of current system of national economy, now ecological management must give practical recommendations on various ways of natural resources use.

In a broad sense *ecological management* is a set of principles, forms, methods and ways of production and personnel management of the enterprise with the purpose to achieve high ecology-economic efficiency of production.

Due to the results of 2006 the parameters of impurity of atmosphere have worsened in 21 regions of Ukraine, and waters pollution increase by 70 %. Such data have been submitted at the session of Board of Ministry for Protection of the Environment and Natural Resources on February, 6, 2006. Participants of the Board have noted, that in Ukraine deterioration of parameters in all components of wildlife management is observed. In particular, in 2006 only got over 4,5 million tons of pollutants were discharged in to atmosphere from stationary sources. The significant amount underground waters of stocks were lost as sources of drinkable water. Household produced 35 billion tons and of industrial wastes.

Thus, effective means of improvement of ecological situation is the development of economic tools for ecological management, namely payment for environmental pollution.

Under the current legislation of Ukraine subjects of business should carry out the activity with account of protection of the natural environment. The enterprise is responsible for rational use of all natural resources and must compensate expenses for restoration and protection of natural resources. In this case one of economic tools of nature protection activity is the mechanism of payment for environmental pollution. This tool is considered in details by the decision of the Cabinet of Ukraine on March, 1, 1999 (№ 303 «About the order of an establishment of specifications of gathering for pollution of the surrounding natural environment and collecting of this gathering»). This document is characterized by simplification of system of payments for environmental pollution. Economic specifications of payment for emission of waste products in to water, atmospheric air are established. These specifications make a basis for calculations of the amount of payment for environmental pollution. Specifications of payment for excess of allowable emissions of pollutants are multiplied due to the payment for allowable emissions. The fines raised from customers go to the environmental protection fund. But actually the payment for environmental pollution does not take into account all ecological and social losses. Therefore it is necessary to raise authority of economic funds up to the level when the access to their resources would become a stimulus for participation and for payment of ecological charges accordingly. Besides, for the account of the means received from payment for pollution of natural environment, some forms of the state statistical reporting have been introduced (form № 1 for ecological expenses and form № 2 ecological for funds).

In conclusion we should note that tools of ecological management, ecological payments in particular can play an exclusive role for decision of environmental

problems under conditions of Ukraine coming out of social and economic crisis, with limited financial and material resources.

ECOLOGY AND ADVERTISEMENT. TENDENCIES, FACTS

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Abstracts:

Studying at National Mining University of Ukraine, Electrical Engineering Department, the notion of ecology did not appear on the curriculum radar screen. Nor do I suspect did it appear on the radar screen of most business schools for decades to come. My own awareness into the world of ecology is direct result of my interest at this field, and at the field of ecology-oriented photo advertisement, to be precise.

Last 10-20 years have shown real growth of eco-oriented projects, especially in European Union, USA and Japan. In the wake of this unrestricted manufacture-satellite advertisement programs growth businesses and politicians have chosen to join at the hip to take advantage of the “opportunities” this mammoth rise of co-production costs budget provides to them.

In my heart I want to believe that ecology can at some point have a place of honor in the World Wide business fabric. Contemporary business’s steadfast resolve to 5 seconds solutions to all the problems we face, coupled with our insatiable desire for the quick, the immediate, the cheapest, fastest, least painful serves only to acerbate business’ relationship with ecology.

Every problem, however, has its solution. Gradually, bit by bit, the mentality of thinking for everyone and for businessmen especially should be changed. Partially by means of advertisement. Kind of social, ecology advertisement, that is oriented to stop the audience on the move, make him think about his/her future. Future of his/her children. And make some particular movement, some contribution for that future.

How it works? What have been done already in that direction, what is going to be done in few years – you can find the answers on this questions by request on e-mail of the author – eklmnprst@gmail.com. The oral presentation will be held as well.

To sum up, the advertisement company that has the aim to make the Earth better by means of those who have already made it worse – is of paramount importance for now.

SOCIAL RESPONSIBILITY AND BUSINESS ETHICS

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Corporate social responsibility is the commitment of businesses to behave ethically and to contribute to sustainable economic development by working with all relevant stakeholders to improve their lives in ways that are good for business, the sustainable development agenda, and society at large.

Pressure from consumers, shareholders and activists has made corporate social responsibility a hot topic. Many businesses are proud that they meet specific employment and environmental standards and are keen to embed social responsibility compliance throughout the supply chain. But there are some who have been predicting — even wishing — for its demise for some time. Followers of such economists as Milton Friedman argue cynically that social responsibility is nothing better than a PR exercise and the only socially responsible thing a company should do is make money for its shareholders. Those advocating increased social responsibility come from a variety of perspectives. Some resent corporate power and influence in general. Others want business to take "greater account of its social and environmental - as well as its financial-footprints".

Over the past decade, corporate social responsibility has risen in global prominence and importance. Corporate governance scandals such as those at WorldCom, Enron, Parmalat, Daewoo, and Tyco profoundly affected major capital markets worldwide, and placed issues such as ethics, accountability, and transparency firmly on the business, regulation and policy agendas. Additionally, issues such as peace, sustainable development, security, poverty alleviation, environmental quality and human rights are becoming increasingly interlinked, and are having a profound effect on businesses and the business environment. Although not traditionally responsible for finding solutions to these challenges, it is in the private sector's best interest to be part of the solution rather than part of the problem.

The main part of the social responsibility is business ethics. The concept has come to mean various things to various people, but generally it's coming to know what is right or wrong in the workplace and doing what's right - this is in regard to effects of products and in relationships with stakeholders. Wallace and Pekel explain that attention to business ethics is critical during times of fundamental change - times much like those faced now by businesses, both nonprofit and for-profit. In times of fundamental change, values that were previously taken for granted are now strongly questioned. Many of these values are no longer followed. Consequently, there is no clear moral compass to guide leaders through complex dilemmas about what is right or wrong. Attention to ethics in the workplace sensitizes leaders and staff to how they should act.

While it would be wrong to confuse social responsibility with ethical business behavior — the two are different beasts with disparate processes and outcomes — they are symbiotic, with one feeding off the other. Business ethics is a tool to meet two important enterprise goals. It is a tool to help managers ensure that their employees and other agents comply with legal minimums. One must never lose sight of that goal. It is also a tool to help managers move beyond merely complying with rules and regulations. This allows them to set another, higher goal: to help lay the foundation for good business practices and functioning market economies for all.

There are two Broad Areas of Business Ethics:

1. Managerial mischief. Madsen and Shafritz, explain that "managerial mischief" includes "illegal, unethical, or questionable practices of individual managers or organizations, as well as the causes of such behaviors and remedies to eradicate them." There has been a great deal written about managerial mischief, leading many to believe that business ethics is merely a matter of preaching the basics of what is right and wrong. More often, though, business ethics is a matter of dealing with dilemmas that have no clear indication of what is right or wrong.

2. Moral mazes. The other broad area of business ethics is "moral mazes of management" and includes the numerous ethical problems that managers must deal with on a daily basis, such as potential conflicts of interest, wrongful use of resources, mismanagement of contracts and agreements.

Many people are used to hearing of the moral benefits of attention to business ethics. However, there are other types of benefits, as well. The following list describes various types of benefits from managing ethics in the workplace.

1. Attention to business ethics has substantially improved society.
2. Ethics programs help maintain a moral course in turbulent times.
3. Ethics programs cultivate strong teamwork and productivity.
4. Ethics programs support employee growth and meaning.
5. Ethics programs are an insurance policy -- they help ensure that policies are legal.
6. Ethics programs help avoid criminal acts "of omission" and can lower fines.
7. Ethics programs help manage values associated with quality management, strategic planning and diversity management -- this benefit needs far more attention.
8. Ethics programs promote a strong public image.

Unfortunately, few companies, particularly in Ukraine, have the skills or competencies to work in this new operating environment. Strategic capacity-building is imperative in educating these businesses about social responsibility, so they may access new markets and improve their competitiveness on a national, regional and global scale. Increasingly business is operating in complex, tangled environments with multiple stakeholders. And if they are to future-proof their

businesses, ensure happy workers, avoid negative publicity and brand damage and generally develop more profitable practices, then is not a choice but a necessity.

ESTIMATION OF DAMAGES AT THE DIFFERENT STAGES OF MAN-MADE DISASTER

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Man-made disaster is the result of problems in man-machine systems. These are caused by unpredictable infringements in work of technologic systems and also in realization of technologies used by human factor, errors, mistakes, checking of staff who works with complex technical equipment.

Let us examine stages of Man-made disasters origin:

1 stage – prognostication and prevention;

2 stage – beginning of catastrophe;

3 stage – rehabilitation and renovation.

Estimation of needs and resources is necessary with any type of catastrophe in spite of origin and duration. Estimation of damages and expenses is necessary at every stage of disaster vital cycle. The first stage could last for years. At this stage arise prevention expenses. These are expenses for working out and realization of negative events averting measures. Prevention measures are to avoid emergency situations resulting in complex damages with different characteristics. Thus the less costs are allotted for environment protection measures the more damage it brings. While estimating one should define the level of opportunity to protect their lives of those people who could suffer from this problem.

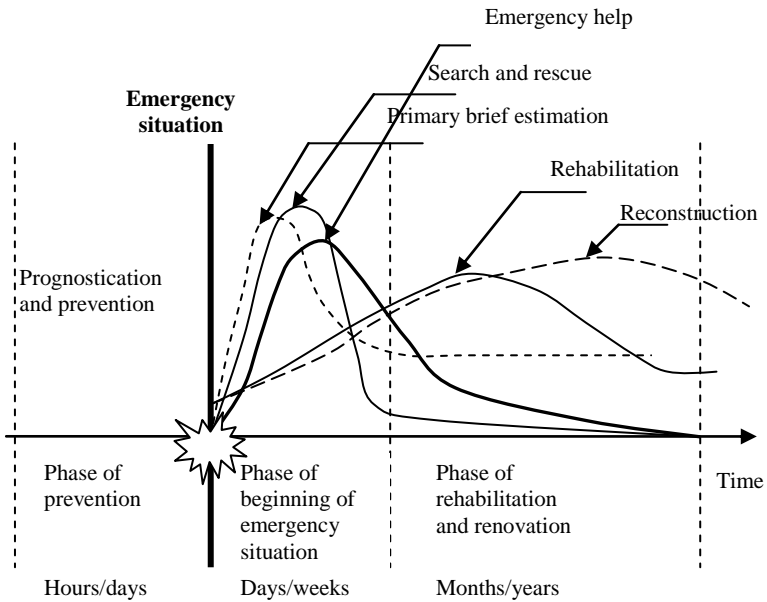
The second stage lasts from few days to few weeks. At this stage most weighty expenses are those that are spent on search and rescue of people suffered from catastrophe. At this stage number of people in disaster risk zone, resources needed to respond to catastrophe (organizational, material, material-technical resources) are defined.

The third stage is rehabilitation and renovation. It could last from few months to few years. At this stage most weighty expenses are intended to reconstruction of basic funds. This time damage caused by the catastrophe is estimated.

Let us construct a diagram of progress of basic expenses when catastrophe arises.

Expenses for search and rescue appear at the same time with catastrophe origin. It lasts few days as time for search and rescue of people suffered from the catastrophe is needed. After that expenses are extremely reduced.

Expenses for emergency first aid are needed at the phase of catastrophe origin and almost simultaneous to expenses for search as both of them are connected to each other.



Img. 1 - Emergency situation losses at the different phases of catastrophe

Expenses for emergency help. Number of victims of catastrophe becomes obvious in few days after the catastrophe. Then number of ill people comes down still even after few months (years) there are disable people who need medical treatment. Though these expenses appear at the phase of man-made disaster beginning. But even at the phase of rehabilitation they still are but in less amount and it is reduced by years.

Expenses for reconstruction appear in few days after the catastrophe. At the phase of rehabilitation they are maximum.

So according to the diagram damages are considered to become apparent unevenly at the different stages of catastrophe. Thus they are to be discounted while coming into being to be taken into account of time.

This point of view let assess expenses into special funds tended to liquidation of emergency situation and for planning and prognostication of future catastrophe of the same type.

BALANCE SCORECARD AS AN EFFECTIVE TOOL FOR A COMPANY MANAGING

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To manage companies scarce resources are the main task for modern companies, but there seems like there is no standardized formula for how to do it. Companies try their best to utilize their resources to create value for shareholders, its personnel, and other interest groups in order to stay competitive in the battle of the market. This is no easy task, and therefore several ideas of how to do this in the best possible way have been tried. Today there are many business school academics and consulting firms trying to sell new solutions to the problem of how to utilize the company resources in the best possible way. No one has tried to state that one model is applicable to all companies and all sets of conditions, but attempts have been made to adapt to the demands of the rapidly changing corporate environment.

Today's companies often find themselves unable to influence the environment surrounding them. Instead, the environment forces a rapid change within companies if they want to stay competitive. The last decades, national as well as international competition has stiffened and the pace of technical innovation has increased. In order for an enterprise to survive these tough conditions, great demands are placed upon the corporate strategies. In the short run, a company's competitiveness derives from the price/performance attributes of current products.

Competitiveness derives from an ability to build, at lower cost and more speedily than competitors. The real sources of advantage are to be found in management's ability to consolidate corporate-wide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities. To be able to do this, it is important for companies to utilize all of their resources. To consider only the financial resources will be a terrible waste, and might benefit competitors.

Another important task for every company is to follow-up completed processes.

By thoroughly examining the outcome of business processes, management encourages the desired degree of responsibility, and at the same time obtains an indication whether specific goals have been reached or not. Traditionally, financial control has been based on earning capacity such as ROCE, or return on capital employed. Managers focusing on a single financial measure often tend to manage for the short term, which may lead to a failure to invest in assets essential to long-term success.

Investing in employee motivation and skills and ensuring customer satisfaction often only pay off over the long term. By focusing on the long-term development, it is evident that a company must be interested in developing all of

its scarce resources and to use all of them to create future progress. A too narrow focus will benefit competitors wanting to pass them by.

These conditions thereby require new forms of managerial control. The purpose of these new management control methods is to increase efficiency within organizations, to include strategic goals, and to provide a better opportunity to evaluate and guide a business toward desirable results. These models provide the opportunity for managers to see the whole nature of their company.

The Balanced Scorecard provides a new way to manage more of a company's resources than just the financial. It was one of the first management control tools used with the aim to change management awareness into focusing on both strategy and long term success, and short-term financial earnings. The changed focus is achieved by a widened scope for essential management activities and processes for future competitiveness. The thesis will base on the knowledge management concept because it aims at increasing the effectiveness of a company's internal processes. Further, it provides insight into how to manage a company's intangible assets and its personnel, which are important parts when developing a company's competitive strengths. It does not mean that these two concepts could serve as the saviors for all companies in all kinds of businesses, but will focus on them since they contribute a sound idea for managing a company in a competitive way.

PROCESSING OF WASTE BANKS BY THE SINTERING

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Many types of wastes are not enough studied, for them the rational methods of utilization are not developed, potential users are not definite. To such wastes it is possible to deliver the waste banks of Donbass coal mines.

On Donbass territory the thousand of dumps of coal mines is counted more than 1.5, in each of them there are on the average 1144 m³ of rocks. Waste banks are sparse on all Donetsk territory on an area 8 mln m².

Confessedly, that maximal influence on surrounding an environment and, foremost, on composition to the atmosphere, coal dumps are rendered in the period of the flaming burning, which lasts to 30 years. From 111 Donbass dumps burn more than 60, contaminating air by the troop landing of dust, CO, H₂S and SO₂.

The executed researches of chemical composition of row of pedigree dumps of mines in Donetsk region give the pictures of chemical composition of waste banks. It turned out, that in waste banks are contained not only toxic, but also potentially valuable chemical elements. A breed contains the promoted quantity of coal - from 23 to 46%, and also raw material for production of aluminium - Al₂O₃ (to 15 %) and germanium (to 55 g/t). A bulk is made by the oxides of silicon and iron (SiO₂-47 %, Fe₂O₃-20 %), alkaline components - CaO and MgO do not exceed

5%. From these data it is possible to set the following directions of development of pedigree dumps:

1. Bauxites and aluminium alloys production.

There is economic feasibility of selection of bauxites, from the unburnt dumps with the simultaneous rise of their concentration from 14,9 to 40 – 50 % and subsequent transmission on an aluminium combine recipient bauxites from foreign distant.

However the way of direct production from the untraditional resources of aluminium alloys is more perspective. In this case smelting of directly dural alloys within the framework of production is carried out and the lowered power-cost expenditures. So, for example, at simultaneous reduction of ecological danger of production, labour productivity on such mini-plants in 2-3 times is higher, and specific capital investments in 3-4 times are below, than on the enterprises of traditional type. Estimations show that the equipment in this case is a model and small, that allows placing a technological complex with annual productivity a 20-25 thousand of t, the finished products in easy building by an area to 2000 m².

2. The chamber of magnetic ferrous containing connections from pedigree dumps.

Initial raw material contains over 20% oxides of iron in different connections. It is most simple to produce the initial selection of them by magnetic separators.

With the purpose of practical verification of electromagnetic separators possibility is the division of initial raw material at tension of the field about 900 ersted. Thus from 20,97% oxides of iron was at once withdrawn 14,4% or only 68,5% from all present. The sizes of extractive pieces achieved 31,4 mm, and mass – 19. Simultaneously there was similarly the rise of concentration of germanium in an initial product. Thus, keeping still a reserve on tension of the field in 3,9 times, it is possible to consider that in production the indicated task of some problems will not make.

3. Allocation germanium from pedigree dumps.

Extraction of germanium from containing him raw material can be carried out to one of three methods. First, most stand, consists of translation of raw material in solution with the subsequent use of oak concentrate. However the verification of the indicated method, executed at the coke plant having an of many years experience of a similar technology, as it applies to the given raw material, did not allow to get step of concentration of germanium in the processed product. By the second method providing the selection simultaneously, except for a germanium, other rare earth elements, there is application of electrostatic separations. The common quantity of extractive rare elements by such method makes the no less than six.

4. Allocation rare earth elements from pedigree dumps.

Judging on results the analysis of coals which the considered breed accompanies to, in the given array will be in a sufficient for extraction quantity the gallium (Ga), how a concomitant to the germanium element, yttrium (I), zirconium

(Zg) and scandium, is (Ss). Thus gallium is expected in a quantity approximately 100 g/t, (extraction expediently with 10 g

Utilization of them in sinter production is another method of utilization of wastes of the coal mining. As a result of sinterin(t), scandium is expected in quantities approximately 10-20 g/t (extraction expediently since 10 g/t). A common quantity in the breed of rare earth elements makes approximately 230-260 g/t).

5. Receipt of agloporite from pedigree dumps.g we get the porous matter – agloporite. Which in future can be used in building industry.

Thus, the offered technological chainlet will allow to get the following materials and components from pedigree dumps: iron ore, dural alloys and wares from them, germanium, rare earth elements, coal, silicate materials for build purposes.

The using of the offered complex technology of processing of pedigree dumps, besides an economic effect, will allow to decide the important ecological problem of elimination of pedigree dumps and rekultivatsii of the freed earth.

CULTURAL EMBEDDEDNESS OF PRODUCTION ACTIVITY

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Most scientists don't doubt the accepted in social explorations hypothesis that business relations influence ideas and outlook of people. However much less people state the reverse is also true – various cultural aspects form industrial institutions and processes. To the point of view of Amitai Etzion, a founder of the Society for the Advancement of Socio-Economics (SASE), this direction of scientific research is quite promising in terms of findings to explain numerous globalization and transformation processes.

Thus between 1980th and 1990th a number of sates were involved in post-socialist reformation processes. Nowadays we observe there are substantial disparities in these processes between western and eastern countries. The western Orthodox societies (both Pagan and Catholic) having reformed their economies more or less successfully, the eastern Orthodox societies are among those who failed. This observation is not bound to borders of the countries of the former USSA. Romania and Bulgaria should be mentioned here too. The fact that the Greece economy, the only Orthodox country of EU, does not have the best indicators of economic development has to be considered too.

In order to establish the market economy there should be harmonization between the development processes of external attributes (legislation, infrastructure etc) and awareness of population of market functioning knowledge and possessing skills i.e. the market culture. The smaller the difference between the

development constituent externalities and the internalities of any market the more efficiently it functions.

In our mind the inefficiency of the recipes on economy reformation from western scientists is that the peculiarities of genuine *business culture* are overlooked. At the same time slow growth of economic collaboration ratios of Ukrainian businesses with EU and the world economic union ones are linked with a lack of experience and culture of international collaboration.

Economic processes always have a definite “cultural” component. To the opinion of Mark Granovetter, a well-known leader in the field of the new economic sociology, economic behaviour is “embedded in the networks of interpersonal relations”. The famous cultural sociologist Paul DiMaggio considers that there are other types of *embeddedness*, and primarily the economic actions are embedded in the culture, i.e. *cultural embeddedness*. To DiMaggio’s opinion the culture influences business activities by means of “beliefs and ideology, convictions that are recognized by the majority or by the formal system of rules”.

Analysis of cultural influence on economy and organization of production in particular enables us to answer the question: why countries that have the richest natural resources live poorly and those with little resources flourish?

It seems a good geographical position and abundance of natural resources are sufficient factors for a state flourishing and wealth. Then why Ukraine, rich in and envied by many highly developed states resources, fails to achieve the levels of economic development like Austria, which is poorer in resources.

It appears the leading countries possess a resource that is more valuable than petroleum, gas and other natural resources. It allows to utilize available natural resources with a higher output and thus establish stability of economic and civil life in a country. One can draw a conclusion that there is not only material poorness but also social, that is a lack of certain traditions, habits, values that determine efficiency or inefficiency of human labour. Social poorness identifies material one not in a smaller degree and, maybe, even in a higher than reverse. If only we could change the business culture of most citizens – their attitude towards labour, themselves, each other, then we would solve other material issues more effectively.

The main aim of the research is to emphasize characterizing the categories of *corporate culture*, identifying issues and ways of its formation under the influence of dominant factors of cultural peculiarities of economic development in different countries (primarily EU ones), analysis of their effect on the efficiency of organization of the national production.

MULTISPHERE CARCINOGENIC RISK ESTIMATION

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Last years under aegis of such international organizations as the World Health Organization, the United Nations Environmental Program, the International Labor Organization, so-called risk estimation receives increasingly wide distribution indifferent countries of the world. It is understood as estimation of probability of adverse influence of the harmful substances polluting an inhabitancy or the industrial environment on human health.

Such risk estimation is applicable for any environment, more exact to any source of receipt of polluting substances into human organism. However, the greatest values have results of so-called multisphere risk estimation, i.e., risk for population health of the receipt of polluting substances from several or from all possible sources.

One of the basic difficulties of carrying out of multisphere risk estimation consists in gathering the necessary data coordinated about pollution of various environments. Frequently it is very difficult to obtain authentic data about pollution of all environments with which the person contacts with certain specific substances.

In the given work we had lead multisphere cancerogenic risk estimation for health of the population of the Odessa region from influence of the polluting substances coming in organism from atmospheric air, with potable water and from ground.

For carrying out of such estimation the data about concentration of various components of the emissions formed at manufacturing of smoked food stuffs in the traditional way, the information on process of water chlorination by water-preparation and background concentration of benz(a)pyrene in soils of various settlements of Ukraine were used. On these data various scenarios of influence of polluting substances have been marked for inhabitants of prospective area.

In view of values of concentration of various polyaromatic hydrocarbonic compounds in emissions of smoking chambers, and also in view of technical and technological parameters of emission, the field of concentrations has been calculated. It allowed to define value of risk (monosphere - atmospheric) on various distances from a source of emission (from 50 m up to 250 m). Thus, 5 groups of the population, and accordingly 5 scenarios of influence have been marked. The group of workers of the enterprise making smoked products for which the individual scenario of influence has been determined has been separately marked. Results of calculation have shown, that values of the total risk connected with air pollution by emissions of the smoking chamber, have the order 10^{-4} . For workers of the enterprise risk level is 5-6 times below, than for the population, living in zone of influence of a source of emission. It means that the level of air

pollution which is formed under action of the given concentration cancerogenic compounds, is very high, and the corresponding this level of risk for health - unacceptable.

Technological data about of water chlorination process have allowed to define concentration of chloroform and four-chloride carbon in potable water and, accordingly, to estimate a level of the cancerogenic risk caused by these concentrations. Such estimation has shown, that the total cancerogenic risk for health at consumption of the potable water polluted by examined chlorine-containing connections exceeds a acceptable level on three orders that testifies to the highest health hazard of the population.

For an estimation of probability of adverse influence on human health values of background concentrations of benz(a)pyrene in soil have been also used. Depending on this parameter 3 types of districts and scenarios corresponding them have been marked: large city, small city and countryside. For each of these types the risk for health has been calculated. Its maximal value (for large city) has amounted $4,35 \cdot 10^{-7}$, that more than in 2 times below a acceptable level.

At an estimation многосредового risk it has been revealed, that under the given conditions the level of soil pollution practically does not influence total risk for health of the population. Distinctions between values of risk at different scripts of influence small, that is caused by the smaller contribution of atmosphere pollution to the total risk in comparison with pollution of potable water.

Such results mean that frequently inhabitancy can be much harmful for human health, than the industrial environment. Distinctive feature of a technique of risk estimation consists in that it allows to allocate from the set of sources of pollution influencing the person in complex the most dangerous one.

STAGES OF PLANNING OF ECOLOGICAL AUDIT

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The question of organization and planning of ecological audit is an important part of ecological management. It is also necessary to clearly realize the procedure and stages of planning of ecological audit.

In accordance to an audit dictionary, «planning of audit is the stage of audit, consisting in development of general strategy, determination of measure of audit and choice of auditing procedures». The program of audit is part of working document of public accountant, made in development of general plan of audit which contains the detailed description of procedures (steps) a public accountant supposes to undertake in the process of audit.

In accordance to Ukrainian state standard 19011:2003 «Guidance on carrying out of audits of the quality management systems and (or) ecological management»

audit plan is the description of types of activity and procedures of audit, and program of audit is one or some audits planned on the certain period of time and directed on achievement of certain purpose. Thus the program of audit includes all activity, necessary for planning, organizations and conducting of audits.

Thus, while planning general audit plan must be made at the beginning, and then program is created. While planning of ecological audit the program of is a main document.

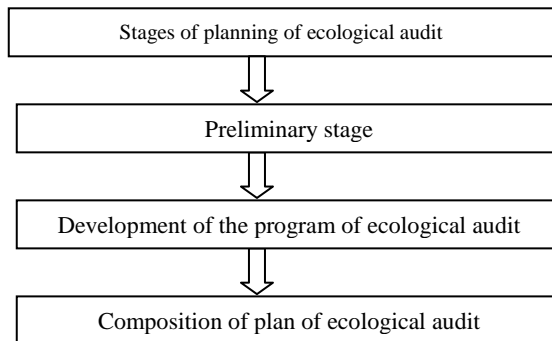
According to our opinion, planning of ecological audit means the development of general strategy and detailed approach to the expected character, time and measure of ecological audit. Ecological auditor must plan the work with the purpose of the effective conducting of audit examination.

The aim of planning of ecological audit must be to pay attention to major directions of ecological audit, to determine the problems which it is necessary to check most carefully. Planning will help the ecological auditor to correctly organize the work, and also co-ordinate the work carried out by other auditors and specialists of other professions.

The measure of planning depends on an organizational form, size and type of activity of enterprise, experience of work of the ecological auditor with the certain subject of economics, correct thought of public accountant about situation of businesses at an enterprise.

Therefore it is expediently to pick out the following basic stages of planning of ecological audit: preliminary; development and composition of the program of ecological audit; preparation and composition of plan of ecological audit (p.1).

On the preliminary stage of ecological audit possibility and expedience of conducting of ecological audit must be determined; at positive results aims, tasks and objects of ecological audit are set; reference budget and terms of realization of the program of ecological audit are set. The conclusion of agreement on conduction of ecological audit must become the result of preliminary stage of planning.



Picture 1. Stages of planning of ecological audit

On the stage of development of the program of ecological audit it is possible to select some steps:

- preliminary selection and summarizing of basic data (for the last 3-5 years of activity of object of audit);
- determination of basic objects of auditing, methods and criteria of estimations;
- forming of auditing group (groups);
- developing of the program of ecological audit.

The management of the program of audit in detail is examined in Ukrainian state standard 19011:2003 «Guidance on carrying out of audits of the quality management systems and (or) ecological management».

Composition of plan of ecological audit is examined as basis of providing of co-ordination between the customer of audit, auditing group and object of audit. Thus working out in detail of plan can be different for preliminary and subsequent audit, internal or external audit. It is expediently to develop the annual plan of audits, where the programs of certain examination will be made in accordance with the plan. At that rate, it is necessary to distinguish planning of activity of ecological auditor and planning auditing examination (ecological audit).

Research of theoretical bases of ecological audit is conducted by authors within the framework of project of «Problem of methodology of ecological audit» won the grant of Cabinet of Ministers of Ukraine for young scientists in accordance to the decision of Department of education from 28.04.2005, protocol 4/2-13 and decision of presidium of Committee of the State grants of Ukraine in area of science and technique from 24.06.05 № 2.

ECOLOGY AND BUSINESS

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Human life and industrial activity entail great amounts of organic wastes which can be found in dumps around big cities taking up huge areas. All these wastes are greatly responsible for contamination of natural environment (land, water and air). Nevertheless technologies that allow turning ordinary garbage into source of energy, make useful secondary materials from it such as glass, metals etc are already developed. So it is possible to apply these technologies and make money from waste utilization.

Due to different governmental programs aimed at gradual reduction of garbage dumps and increased investments in recycling of waste materials have created the situation where business is getting more and more interested in waste utilization

Nowadays there are two main generally accepted business schemes to dispose and recycle waste materials in the world: American and European. In the USA “waste producers” have to make a separate payment for waste collecting themselves, while in Europe this sum is already included in the product’s price. These two schemes have a different impact on companies which produce packages. The American system has a mere influence, because those are consumers who are to pay this tax. The European system especially German “Green Dot” acts differently. It prompts companies reduce their package volumes, because money allocations (licenses), which are included in the product’s prime cost are to be paid by companies. Consequently they are interested to reduce volume of packaging materials.

Owing to governmental support, activities with solid wastes in EU is rather profitable. For example, 2/3 of the price for waste disposal in landfills is covered by the local waste disposal tax and 1/3 is paid by goods producers. Waste recycling is a less profitable business. Its costs are covered by producers and consumers. Garbage incineration in Europe is extremely expensive and not profitable business because of strict limitation rules set by governments. Especially they concern emission of carbon dioxide and heavy metals which are emitted in the course of incineration. To encourage environment-friendly methods of waste utilization state encourages recycling by system of additional payments.

Unfortunately out of all elements of garbage utilization business only waste collection with further burial in landfills are extensively used in Ukraine. Currently there are two acting waste incinerating plants and one waste sorting factory in our country. Financial problems are inherent to almost all enterprises of this sphere.

Nowadays in Ukraine there are more than 35 billion tons of industrial and consumption wastes. The general area of dumps takes up 135 thousand hectares of land. Only 8% of all garbage in our country is recycled and used as secondary material. Though operating and resource costs have risen considerably, transportation and burial expenditures of solid wastes have been unchangeable for more than 6 years and do not allow enterprises to keep to the norms and rules of waste disposal sphere. As the result the enterprises are unprofitable and are balancing on the verge of collapse. If government sets up reasonable prices and conducts support policy, this will help enterprises reimburse funds into new equipment and work more efficiently. Ukrainian refuse tippers have less tonnage and a lower waste compression capability; this inevitably leads to greater fuel consumption per lower transportation volume. Organizational infrastructure needs modernization too.

Concerning polymer wastes the situation is comparatively good. China’s demand caused the rise up of prices on wastes of this kind. The business becomes even more profitable because polymer bottles are collected on unfairly low prices.

The situation with used paper is not as good due to purchase price for secondary materials.

Separate collecting of garbage its transportation, recycling or incinerating, production of bio gasses may be defined as profitable spheres for business. But like any undertaking in its initial stage all these will demand huge investments. But we also should keep in mind that these costs will not be compensated quickly because Ukraine lacks developed system of separate garbage collecting, collecting and recycling tariffs are low as well as percentage of useful secondary materials (5-9%).

There are already some foreign investors ready to create recycling enterprises in Ukraine but the main problems for implementation of their projects are high price and low profitability. Only in 10 – 15 years they will start getting profits. The problem may be solved in case if:

- tariff policy is changed;
- the Law about Package Materials is adopted. This would help business earn more money and introduce garbage tax;
- improve economic education, inform people on ecological issues and raise their consciousness, encourage activity of ecological organizations.

The main thing for today to remember is that garbage recycling is a much promising undertaking which is able to bring huge profits in the future.

GROUNDS AND MECHANISMS OF ECO-TOURISM DEVELOPMENT IN THE EU

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Intro. Tourism not only creates jobs and income, and promotes intercultural relations and mutual understanding. It also contributes to the increasingly well-known side effects on people and populations, nature and culture caused by the enormous amounts of transportation, the consumption of resources, inadequate preparation of travel and inappropriate behaviour at the destination. Sustainable tourism with equal-ranking ecological, social and economic goals is obviously more than just environment, jobs and profits. Economic prosperity and well-being, cultural diversity, and social peace are significant goals; but none is more important than the maintenance of the natural preconditions for life as “*conditio sine qua non*”. Without economies and trade, sustainable development cannot be expected within the natural limits of growth. The “*key to success*” in the long term for a “*tourism with future*” lies in conditional orientation along ecological limit values and figures.

The EU environmental laws help protect against water, air and noise pollution and control risks related to chemicals, biotechnology and nuclear energy within the Union. It refers to the EU 5th Environmental Action Program (1992-97) and the European Council's meanwhile approved “*European Strategy for*

Biological Diversity”, which also contains recommendations for environmentally-directed tourism and leisure activities.

The overall direction of EU environment policy is laid out in the latest action program – “*Environment 2010: Our Future, Our Choice*”. It concentrates on 4 priority areas: climate change; nature and biodiversity; environment and health; and natural resources and waste. Also, an Environment and Health Action Plan for 2004-2010 promotes a close relationship between health, environment and research policy. The EU treaty-based notion of “*sustainable development*” adheres to this practice by integrating environmental requirements into the definition and implementation of other EU policies and activities (i.e. tourism).

The ultimate goal of sustainable development is to achieve a form of development that meets the needs of the present without compromising the ability of future generations to meet their own needs. With the “*International Convention on Climatic Change*”, and the Berlin Declaration on “*Biodiversity and Sustainable Tourism*” made by the International Conference of Ministers of the Environment (1997) in Berlin should help to convert these general goals into more concrete and binding ones, and help to give a sense of direction to the growing worldwide economic sector of tourism.

The European Ecolabel was originally created to reward tourist accommodation services and tourists that respect the environment. In 2004, the European Commission also established criteria for camp site services. Since 2005, camp site services can apply for the European Ecolabel.

The European Ecolabel signals environmental good performance as it is an added quality value when consumers are choosing a resort. Enterprises bearing the Flower Logo have officially been distinguished as being amongst the most environmentally friendly in their area.

Tour operators are also being questioned about limiting the particularly serious environmental pollution caused by the rising and increasingly energy-intensive amounts of transport produced by tourism.

Today there are approximately 50 certificates and environmental management systems for “*green*” tourism in Europe. Within the European LIFE project published these certificates here on ECO-TIP.

In 2001 the leading European eco-labels for accommodation, situated in Austria, France, Italy, Latvia, Luxembourg, the Netherlands, Nordic Countries, Spain, Switzerland and United Kingdom and the Blue Flag International started to collaborate and built up a common platform for eco-labels called VISIT. In 2004 a milestone in the establishment of sustainable tourism in practice has been achieved: the VISIT Association, the European platform for partnerships and further progress, is launched.

Conclusion. Through increased cooperation in EU local networks and through joint marketing, tourism resorts and EU regions can make use of the synergies which they urgently need to survive and to write off or amortise their environmental investments. In tourism without frontiers, here above all European

policies with their aid programs are required, particularly if it is to do with reducing pollution and environmental pressures caused by the continual increase in tourism and goods traffic.

Besides the weak “soft” instruments such as voluntary commitments and environmental audits, ecological seals / ecolabels and environmental awards & prizes, networks and seminars “hard” instruments such as drinking water prices and refuse collection charges, the removal of tax exemptions on aviation fuel or a CO₂/energy tax to implement the “polluter pays principle” are indispensable. The sooner and the more clearly the policies on regional as well as at international (the EU) level impose the appropriate legal and tax regulations, the sooner binding environmental plans in the style of “*Sustainable Netherlands*” can be worked out and introduced in the form of a development framework at EU national level, the suppliers of tourism products will be able to better calculate and invest more securely.

THE PROBLEMS OF TRANSITION OF DOMESTIC ENTERPRISES TO ECONOMICALLY EFFECTIVE AND ECOLOGICALLY SAFE INNOVATION DEVELOPMENT

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The results of domestic researches and foreign experience made clear, an innovation development has not alternatives. It is known that innovations are noted from others products for the level of economic efficiency and environmental safety.

For the implementation of the goal of the sustainable development approved in The Report of the Roman Club we have to introduce only those innovations which have resources productivity twice as much and half resources costs; it is guarantee cost efficiency and environmental safety.

The transition of domestic enterprises to economically effective and ecologically safe way of development relates with many financial, organizational, informational and other problems.

We spend not enough money on governmental financing of priority directions of scientific and technical development in Ukraine (on average \$240 on one project). But it is not the main problem. Really introduction of innovation is the more important problem (only approximately 10% of innovations are really introduced).

Innovations exist (more than one thousand innovations a year are developed), we only have to introduce their. The main reasons of difficulty of innovation introduction are as follows:

- there are not support mechanisms of innovative activity in Ukraine, although their effectiveness is confirmed by many other country;
- there are not enough experienced experts in the field of technology commercialization and innovative management;
- there is a long term from innovation development to innovation introduction (for example, world patent of making an examination of invention in Ukraine is granted only in 4-5 years after handing an application; so invent newness and relevance of it introduction are lost).

The down level of introduction of ecological innovations relates to financial difficulties of domestic enterprises, which do not permit investing a lot of money in innovation projects, and also relates to imperfection of mechanism of government support of innovations introduction and mechanism of motivation of ecological innovations introduction. As a result – more than 90% of all Ukrainian products have not enough scientific and technological support nowadays.

Domestic enterprises also need informational support for making decisions about kinds of economically effective and ecologically safe ways of development. For this we have to create corresponding infrastructure.

On the whole, realization of conceptual model of sustainable (economically effective and ecologically safe) development may be only on conditions that system of administrative, organizational, technological, financial and juridical measures is introduced (Veklich O.):

1. qualitative transformation of technological mode of production, which must guarantee conservation of ecological systems and their ability to remain basis for further development;
2. changes in the branch structure of economics with accent for ecologically neutral development of economic branches and especially nature protection branch ("green" industry);
3. ecological modification of target priorities of macroeconomic policy; orientation of manufactures toward ecological investment and recourse-saving innovations, and orientation customers toward ecologically-clean products;
4. formation of sustainable development mechanism, ecologically safe model of market relations;
5. embodiment of sustainable development principals in international system of financial relations;
6. formation of socio-political structure of society, which guarantees citizen participations in decision making processes of environment protection;
7. transformation of mass stereotypes, which define ecological behavior of society.

Development of socio-economic tactics of transition to sustainable development model is adequate to process of improvement of national household mechanism of sustainable development. Such mechanism is set of forms and methods of functioning of social production as integral ecology-economic self-sustaining, balanced system.

In authors' opinion, transition of domestic enterprises to economically effective and ecologically safe way of development will assist to improvement of indexes of enterprise activities and whole Ukrainian economics, improvement of ecological situation, and increase of image of Ukraine in the world market.

INTERNATIONAL ECO-TOURISM WITHIN THE CONTEXT OF GLOBALIZATION

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Tourism is by some estimates the world's biggest industry; it's certainly among the fastest-growing, and few believe the events of Sept. 11 will cause anything more than a downward blip on a steep upward curve. In 1950 there were around 25 million international tourist visits. Currently there are around 700 million. By 2020 there will be around 1.6 billion. As it has grown, so have its destructive effects become manifest, and these are greater than most of us might suspect. Along with television, tourism is one of the most potent agents of globalization -- tourists are the shock troops of Western-style capitalism, distributing social and psychological viruses just as effectively as earlier colonists spread smallpox, measles and TB in their wake. And as with globalization, there are voices urging reform.

The year 2002 has been designated the International Year of Eco-tourism by the UN. Eco-tourism is, supposedly, the antidote to mass tourism -- small-scale, nature-based, environmentally-friendly. That's the theory, anyway. The reality is that no-one has properly defined eco-tourism, no-one really knows what it means, it's highly unlikely that anyone ever will define it in a way that will command assent from critics of the industry, and in this vacuum the marketing men, green washers, corporate developers and government spin doctors flourish. We have heard a casino in Laos described as eco-tourism -- because it was sited in untouched countryside.

According to Tourism Concern, the British-based non-governmental organization, much eco-tourism relies on places from which native people have been excluded, often forcibly, or which are being destroyed by the sheer number of tourists. A UNESCO report recently concluded that the World Heritage site of Macchu Picchu in Peru (where a cable car has been proposed to cater to the 350,000 "eco-tourists" who visit it each year) has reached saturation point. Villagers there who want a greater share of tourist revenues have protested by blocking access to the site. Can any phenomenon which so breaches ideas of carrying capacity justify the prefix "eco"?

The non - profit Eco - Tourism Society describes eco - tourism as "responsible travel to natural areas that conserves the environment and sustains the well - being of local people" .

"Environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy, study and appreciate nature and any accompanying cultural features that promote conservation, have a negative visitation impact and provide for substantial beneficial active socioeconomic involvement of local populations." — Hector Ceballos-Lascurian, International Consultancy on Ecotourism.

From these definitions, we have established that eco - tourism does not have the impacts of large scale development, is centered on the ecology of the site, is responsible travel that conserves nature and sustains local people, and is culturally and economically beneficial to local populations. With this more comprehensive definition of eco - tourism, my goal is to question the reality of eco - tourism as a sustainable development alternative within the broader context of globalization.

As the world has become smaller due to the effects of globalization and advances in travel information and technology, world wide travel has become open to the middle classes in most industrial societies. Due to this new found accessibility, tourism is one of the fastest growing spheres in the world today, generating \$416 billion world wide last year. Tourism is expected to increase 235% in the Middle East, 194% for the Pacific Island Nations, 141% for South East Asia and China, 106% for Eastern Europe, 75% for Africa, 60% for Latin America, 36% for the Caribbean, 33% for Australia, Japan, and New Zealand and 30% for the United States . Within the tourism industry, eco - tourism is expanding quickly, and is expected to increase 25% every year for the next ten years world wide (Herliczek, 1996). The prime eco - tourist destinations are located in developing countries that still possess unspoiled wildlife and hope to offer an exotic experience.

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Eco - tourism is a niche market within the tourism industry and exists as a sustainable alternative to large scale development. As a niche market, eco - tourism targets a very specific group, primarily the middle to upper middle classes of the

first world nations. Most eco - tourist participants have annual incomes between \$60,000 - \$130,000 per year per family and have completed at least one collegiate degree revealing that while eco - tourism may attract the well educated it is not an elitist market . Travel costs have opened up widely in the past few years making world travel open to the middle classes. The new found ability for the common man to travel almost anywhere in the world while staying within a pre - determined budget has caused the profit margins of the cruise lines and luxury hotels to decline as the market opened to more varied demand for alternative experiences.

More specifically, eco - tourism ideally can provide financial support to local communities in the form of jobs. This additional revenue can be then put back into the communities for the development of infrastructure and education. Another option is to put revenue back into preserving and conserving the resource base in order to sustain the eco - tourism venture. In addition, eco - tourism can add to the GNP of the country at the national level, by attracting foreign currency that holds more weight in international markets than national currency . By investing in tourism, the national government is getting more value for every tourist dollar spent in the country as compared to the same amount spent in local currency. Often, eco - tourism provides a more sustainable option when faced with traditional development models like deforestation.

Unfortunately, if eco - tourism ventures are not planned and managed with long term goals or the local community in mind, the resource base will soon be exploited putting an end to the eco - tourism project. Conflicting management objectives can lead to a lack of efficiency, inadequate funds can cause problems with enforcement capability, and badly organized programs often fail to reach a sustainable solution. In addition, the benefits of eco - tourism projects are seldom felt beyond the immediate community surrounding the tourist destination resulting in islands of affluence in a sea of poverty . While eco - tourism may increase the number of jobs, the number of well paying jobs is still relatively small due to language skill requirements. In most developing countries obtaining language capability requires high levels of education which is generally not available to the majority.

Like eco - tourism, globalization is an emerging phenomenon that is loaded with ambiguities in reference to its meaning and application. The debate is intensified when the significance and impact of globalization is considered. At the most general level, globalization has been defined as the multiplicity of linkages and interconnections between the states and societies which make up the modern world. The process by which events, decisions, and activities in one part of the world can come to have significant consequences for individuals and communities in quite distant parts of the globe . Economically, globalization refers to the viability of the world trading system, the apparent decline of national economic policy autonomy, the impact of the technological revolution, and the sources of long term and short term economic growth . The significance of the globalization process engenders a wide range of speculations as well. Reich argues that we are

living through a transformation that will rearrange the politics and economics of the coming century. There will be no national products for technologies, no national corporations, no national industries.

While globalization has opened the tourism market around the globe, the increased marginalization it has caused between the south and the north has also led to the creation of a more aware consumer. The impacts of globalization are beginning to be realized, and in some developing nations the impacts are not positive. Eco - tourism in its original sense is a direct response to this marginalization, attempting to take advantage of the opportunities globalization has offered the first world, while bringing previously unrealized benefits to the more marginalized third world as well. Eco - tourism offers a niche to attract private investors that will invest in infrastructure, technology, and labor training in order to realize greater profits in the long run. In addition, it offers an alternative to such destructive and further marginalizing development options as deforestation if done sustainably.

Eco - tourism is also highly related to the concepts of sustainable development and globalization. Globalization created a suitable international economic environment allowing the concept of eco - tourism to evolve. Made possible by the world wide advances in information technology, telecommunications and transportation, tourism in general became available to the middle classes. As more people began to take advantage of the new found accessibility to travel around the world, the environmental, cultural and economic impact began to take its toll. Eco - tourism arose as a sustainable development alternative to the detrimental environmental, economic, and cultural impacts being felt by developing nations.

FEATURES OF STRUCTURE AND REGULATION OF THE INFORMATION MARKET

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In conditions of an information society stresses of attention and the importance are displaced from traditional kinds of resources on information. Though information resources of a society exist basically so much, as long as a mankind, they were never considered as an economic category. Transition to market relations has caused occurrence of system of the markets within the limits of which the significant place should belong to the information market.

Development of market relations during an epoch of prompt growth of information of economic relations allows to speak about occurrence of the new subject of the global market - the market of information services. The specificity of modern market relations assuming interaction of various on structure, interests and

the pursuing purposes of subjects, causes presence of the following part providing availability to all information resources. Information market is used as such link.

The information market - set of the economic, legal and organizational relations arising during manufacture, an exchange, consumption and protection of the information in the commodity form. Thus the information market is characterized by the certain nomenclature of goods and services, quotations of prices, influence of a conjuncture, conditions and the mechanism of their sale and purchase.

As the basic elements of the information market it is necessary to allocate the following:

- Information products;
- Manufacturers of information products;
- Intermediaries in the exchange of information products;
- Consumers of information products.

Now, anyhow, to the information market we refer: manufacture and the exchange of knowledge and innovations, including usage and development; distribution of information products and creation of modern communication systems; the industry of processing and transfer of information products; the industry of advertising and advertising service; help and information service; bank activity and insurance.

It would be incorrect to identify the information market with the market of electronic information products. Traditional data carriers, such as books, newspapers, films do not lose their value. Development of modern computer technologies, having no consumption of information products, as a matter of fact, changes only a degree of availability and the form of consumption and purchase.

Strategic character of the information as resource of economic and social development causes a high degree of state regulation, a significant level of concentration and monopolization of information manufacture.

Tendencies existing today in this area are brightly illustrated by the situation in the market of communications. So, among 13 developed countries of the world only in the USA, Great Britain and Japan the monopoly for traditional communication means is not present.

Many products of an information work under the status are the public blessings (fundamental scientific researches, the government, national networks of communications, etc.). They possess properties of indivisibility and non-exception from consumption. As the world experience shows, on the basis of only one market principles it is impossible to reveal and satisfy requirements for such blessings.

As a rule, the state incurs regulation of process of manufacture and distribution of information products without which the society cannot develop normally. It creates more or less equal opportunities in the sphere of consumption of information products. In fact interests of a society demand, significant part of the information to be accessible, that is why the state and the profitless organizations incur a covering of charges on providing of access to the

information. In some cases private business is also interested in simple and cheap access to the information, for example at carrying out advertising campaigns.

Non-profitable information services in difference from state follow laws of the market in a greater degree. But their activity is directed not to replacement of created by private business and the state of the goods and services, but to the opportunity of their alternative granting to a consumer.

One of the kinds of income formation of non-profitable sector is a paid realization of information products alongside with budgetary appropriations, charitable payments, operations with securities.

As the practice shows, the rules of law of regulation of the problems connected with intellectual property, are still insufficiently developed even in the developed countries. According to estimations of experts, in the beginning of 90th years loss from "piracy" in the market of the information goods and services only for the USA made up about 17 billion dollars annually.

Also there are disputable questions of a monetary estimation in book keeping non-material actives which include objects of intellectual property (the right to invent, the rights to industrial samples, trade marks, the rights to "know-how", that is technical experience and know-how, copyrights, business reputation of firm and etc.).

So, we see, that, on the one hand, regulation of the information markets in many cases submits to the common tendencies, on the other hand, features of the information as goods demand development of essentially new approaches at the estimation of efficiency of its manufacture and opportunities of its use.

SYSTEM APPROACHES TO MODELING OF SUSTAINABLE REGIONAL DEVELOPMENT APPLIED THE DIRECTED GRAPHS

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The mankind has got into extremely complicated and very dangerous situation at the beginning of third millennium. The most people don't realize fully the level of threat of man's activity and destructive consequences of this activity for environment. In fact, it has brought our planet to global ecocatastrophe. This situation has made world community look for new ways of humanity evolution. The well-known document entitled "The agenda for XXI century" accepted by International environmental conference of OUN in 1992 is one of such kind of ways. A new model of social development named sustainable development has been offered by this document. Sustainable development approach combined next ideas: harmonious interaction and unity of ecological, economic and social

development. For transition to a new model of ecologically safe and energy saving development, it is necessary to seek the accordance of three above-mentioned constituents of development both at world level and at the regional level.

One of the methods of modeling of sustainable development is Method of System Dynamics. System dynamics is one of the most challenging directions of management consulting in the developed countries. Despite the fact that system dynamics spreads so fast in the world, this area of systems analysis and management consulting is still called “terra incognita” in Ukraine. Among the scientists that investigated the problems of sustainable development it is possible to distinguish such as Vernadskiy V., Daylami M., Dobrovolskiy V., Melnik L., Stunslar G., Tomas V. at alias. The investigations of such scientists as Gabor D., Leontiev V., Medouse D., Messarovich M., Novosselov A., Pestel E., Forrester G., Tchepurnyh N. at alias are dedicated to research of system dynamics. In spite of an important contribution of the above-mentioned scientists to investigation of these problems, regional problems of system dynamics of sustainable development keep being slightly investigated.

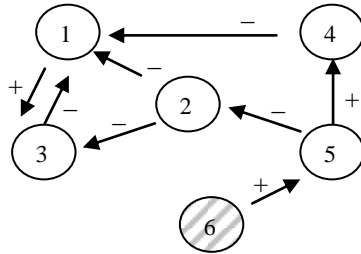
Founder of system dynamics is Professor G. Forrester from Massachusetts Technical Institute. The mathematical model of worldwide system described world dynamics was created by him on basis of the investigations of economic processes. The world dynamics is a new direction of mathematical modeling that is applied to solving the vitalest problems concerned with analysis and forecast of the basic world tendencies. In this model, the world is considered as integrated system of varied interactive factors. This model represent development of the world by means of the five main interdependent variables which grow fast and permanently, such as population, capital investment, use of unrenewable resources, environmental pollution and production of foodstuff. Forrester considered that systems analysis of dynamic trend of these variables would enable to forecast the behavior of the whole system in different conditions.

The scientists including Forrester used the system approaches to modeling of sustainable development at world level or at the state level. Nevertheless, every state consists of the regions, and the region is the same system consisted of indices of economy, ecology and society. Therefore, it is necessary to extend the investigations in the area of system modeling of sustainable regional development. Toward this end, it is offered by us to forecast using directed graphs the model of regional system.

The directed graph represents the convenient tools for representation of mechanism of multi-component system components interaction. The activities are used as vertices, and the arcs show the influence of activities on each other. The signs mean favorable or unfavorable influence of the components on each other. On the Picture 1, we can see the directed graph demonstrated the problem of energy saving development and environment in big industrial centre.

The method of using directed graphs for construction of model of sustainable regional development allows representing visually interaction of considered

activities, to measure mathematically dependence of one activities from the others, to forecast ecological and social consequences of regional economic development. Eventually, the main point of this method is search of the opportunities of management of such complicate multi-component system.



Picture 1. The directed graph investigated energy saving development and environment in big industrial centre

1 – state of environment, 2 – emissions, 3 – population, 4 – power (energy) generation, 5 – assets of the fuel and energy complex, 6 – capital investment, as “managerial” vertex

THE BASIC APPROACHES TO ECOLOGICAL CONFLICT DETERMINATION

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Ecological conflicts (EC) as a social phenomenon arise up during all the history of «society – environment – economics» system existence and it has such personal characteristics:

- on the one hand, EC has the same essence characteristics and development mechanism as any social conflict has;
- on the other hand, EC has specific features inherent only for EC: subject and object; origin process, EC development and solving; EC consequences.

As for EC its subject is the problem of natural resource (ecological value) possession or controlling it, that can cause certain benefits (not obligatory financial) to one or more individuals. EC object is a natural resource or ecological value which due to certain circumstances are on the interests crossing of different social or economical individuals which aspire to possession or controlling it. Thus, *ecological conflict* is opposition on governmental and/or intergovernmental levels, caused by incompatible or hostile interests of one or more individuals and by their fight for the natural resources ownership, use (distributing) or their controlling right, accompanied by possible using of violent methods for the aim achievement.

EC socio-economic nature, its subject, object and development dynamics research shows that: 1) both resource deficit and surplus can be potential EC sources; 2) EC can be provoked (or can be the result) by the unequal natural resource access possibilities, its distributing and quality. Process of EC origin and development, caused by a resource deficit (limitation), is presented on the figure 1.

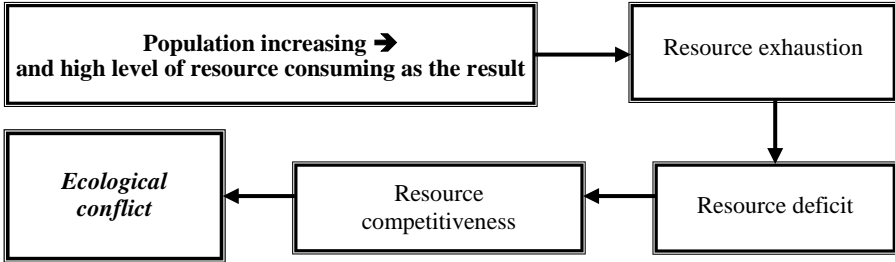


Figure 1. EC origin and development, caused by resource deficit

Capacity for EC solving, guided by resource deficit, is presented on the figure 2. As it is shown, due to the sustainable development (SD) achievement aim the basic role in the EC solving mechanism offered is given to the market instruments (using the market prices on resources) and innovations (technologies and using of resources substitutes).

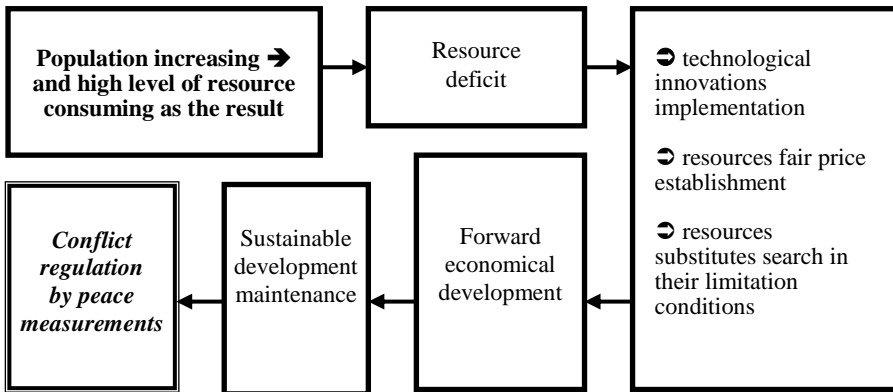


Figure 2. EC solving mechanism, guided by resources deficit, due to the SD achievement aim

Ecological and economical analysis guided by EC surplus allows to allocate such basic factors of its origin:

- *motivation* – aspiration due to the conflict to get complete (or partial) control on the payments for the natural resources sale or using;

- *financial means* – conflict financing due to the controlled payments for the natural resources using;
- *indirect effects* – natural resources surplus can provoke negative economic and political effects, for example, non-effective management, slow economy growth, political instability, weak state institutes, social inequality, etc.

ECOLOGICAL-DEMOGRAPHIC PROBLEMS OF UKRAINE

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Nowadays demographic situation in Ukraine is characterized by negative natural population increase that leads to the human capital losses, what can adversely affect the economy.

Demographic problems of Ukraine are very largely connected with negative external effects of economic activity, in particular industrial and radioactive environment pollution as a result of contaminant emission, accumulation of toxic waste and nuclear materials. Today the loading increases at the urban ecosystems and at the main recipient of such influence – urban population. Also in Ukraine the threat of substantial quantity of emission entrance from the potential dangerous manufactures is retaining; it includes productions, which malfunction is accompanied by serious social-economic and ecological consequences, as a result of negative influence on the environment, individual and economic objects.

The reduction of environment quality leads not only to the health hazard, but also to the increase of losses in economy and deceleration of the social-economic development of the state.

Thus using the methods of estimation of the health capital losses, taking into consideration cost of not lived years, we have determined, that ecosocial damage (i.e. unjustified and premature losses of the population health capital as a result of environmental deterioration) in Ukraine during the year on average is 0,35-0,40% GDP (table1), and taking into account losses of the future period the rate of this damage can be 12,6% GDP. At the same time share of government expenses on the conservation of the environment is about 0,03% GDP.

One of the main reasons of ecological-demographic trouble of the country is hastiness in strategy of technosphere development, especially using in economic activity the main efficacy criterion – economic, that proposes the development of cheaper, but often ecological dirty and dangerous technologies.

Hence for Ukraine the problem of increasing or at least conservation health capital as important constituent of human capital has to become one of the most important. Because of this we observe the actualization of the problem to determine the ecological and social-demographic constituents as priority during the economic problems solution.

Table 1. Ecosocial damage of population health damage

| Year | Ecosocial damage | | | | | |
|------|------------------|-------|---|-------|--------------|-------|
| | During the year | | Including future losses at the GDP increasing at: | | | |
| | | | 0 % | | 3% | |
| | million grn. | % GDP | million grn. | % GDP | million grn. | % GDP |
| 2002 | 795,10 | 0,35 | 18455,19 | 8,17 | 26866,10 | 11,90 |
| 2003 | 944,74 | 0,35 | 21882,97 | 8,18 | 32628,35 | 12,20 |
| 2004 | 1368,49 | 0,40 | 28120,28 | 8,15 | 43562,71 | 12,63 |

In the conditions of forming in Ukraine the new paradigm of social development of using, mainly, economic criterions of taking decisions efficacy becomes obviously insufficient. The using of the broad spectrum of ecological and social criterions of taking decisions efficacy is dictated both by difficult ecological-demographic atmosphere, and increasing difficulties in practice of technosphere prediction.

Consequently, ecological factors should constitute the basis of further transformation of Ukrainian economy in compliance with principles of sustainable development. The central place in the conception of sustainable development is occupied by the problem of responsiveness of long-term ecological consequences of making today economic decisions. Based on the conception of sustainable development all accepting ecological decisions should possess the high extent of ecological reliability and safety.

WIND POWER IN UKRAINE: CURRENT STATE AND PROSPECTS FOR THE FUTURE

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The total capacity of wind turbines in Ukraine today is approaching 30 Megawatt. According to available data, total capacity by the end of 1999 amounted to 11.4 MW, and by the end of 2000 it totalled 24.15 MW. Thus, the increase came to over 100 per cent. Ukraine remains the only country of the former Soviet Union, where wind energy is actively developing. Serial production of wind turbines has been established. So far these have been license installations USW56-100 with 107,5 kW rated output.

The country has adopted a Complex Wind Power Development Program, which was developed according to the President's of Ukraine Decree No. 159 of March 2, 1996 «On development of wind farms» and approved by the Cabinet of Ministers' resolution No. 137 of February 2, 1997.

In early 2000s the document entitled as «Alterations and Amendments to the Complex Wind Power Development Program» was developed. It specifies main

regulations of the Complex Program with consideration of 4-year experience of wind energy development in Ukraine.

Within the framework of the Danish-Ukrainian project for promoting NGOs' involvement in sustainable development, carried out by the Danish Organisation for Renewable Energy and the Ukrainian Future Age Energy group, we faced a task to find out why Ukrainian wind farms work with low efficiency, in fact two times less efficient than wind farms in Germany and Denmark. Presumably, in some cases wrong sites had been selected for wind farms. Besides, we assumed that the wind turbines might be situated on their sites in a non-optimal way: with no regard to the local relief or mutual impact of wind turbines at different wind directions.

We also aimed to determine whether the efficiency of Ukrainian wind turbines changed after the use of the WASP software package available due to the TACIS program.

It is known that the capacity of wind flow increases pro rata to cube of wind speed. Therefore the choice of site in respect to maximum wind speed is crucially important for subsequent efficient operation of a wind installation. We know also that the most suitable in Ukraine are the Crimea, the coastline and shallow shores of the Sea of Azov and Black Sea, as well as some sites in the Carpathians and other regions.

Considering the limited funding of the Complex Program, it is reputed that wind power construction today has to be focused in two regions: the Autonomous Republic of Crimea, and Donetsk oblast.

However in these regions, generally favourable for wind power development, the wind speed depends on a number of factors such as the surrounding ground relief, earth surface microstructure, and availability of natural and man-made objects on the surface.

The most promising wind sites were defined. The criteria applied were the following: (1) average wind speed, (2) earth surface incline, (3) extension of land, and (4) availability of infrastructure.

According to the TACIS program data, and the actual locations of wind farms, the most promising wind sites are found in the Crimea.

Analysis of operational efficiency of wind farms shows that economic parameters are better for larger farms (over 20-30 MW.) So, at least 200-300 wind turbines USW56-100 should be placed in a single site.

At all larger farms, turbines are arranged in rows. Distance between turbines in one row in Donuzlav, according to V. Bogma, is only 25-35 m, or 1.5 to 2 diameters of a rotor. Obviously under certain wind directions the turbines shield one another.

Similar cross-influence exists between separate rows of turbines. According to the analysis of operation of the Donuzlav wind farm in 2000 by Victor Shulga, Vice Director of the Interdisciplinary Scientific and Technical Centre (ISTC) for Wind Power of Ukraine, the rated power use factor for working (contactor) time

for different rows of turbines differs by a factor of one and a half (0.28-0.42). A possible explanation could be the relative position of the rows regarding the prevailing wind.

Experience shows that data of average annual wind speed collected by Ukrainian weather stations is unsuitable for electricity output forecast, as data error is sometimes 40-70%.

Hence, at the moment Ukraine is facing the same problems as were on the agenda in the wind power pioneer countries about 10-15 years ago. International cooperation in the framework of technical assistance programs with Denmark or Germany would substantially accelerate and facilitate the development of Ukrainian wind industry.

Ukraine has been, and ought to remain a pioneer of wind power among new independent countries of the former Soviet Union. There are all prerequisites for further development of wind power. There is sufficient wind potential on a considerable territory, scientific and technology potential, perennial experience, and industrial enterprises, which are capable to produce wind turbines.

SOME ASPECTS OF MOTOR TRANSPORT ENVIRONMENTAL POLLUTION REDUCING

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To provide an eco-balanced development it's necessary to solve a member of problems dealing with the growth and exploiting of motor transport. Nowadays motor transport is not only one of the main means of cargo and passengers mobility, but also the main source of environmental pollution. The specific graving of motor transport just in the aggregate balance of atmospheric pollution in some cities mount to 60%. Motor transport exhaust gases contain a huge amount of different chemical compounds that expose people's health to danger. Among such harmful substances, that have carcinogenic and mutagenic effects, there are: aromatic carbohydrates, formaldehydes, benzopiren, . the fact, that exhaust gases, getting into the atmospheric layer, can not be dispersed any longer and accumulate in breathing zone, aggravates the situation. In Ukraine the process of environmental problem solution, connected with the volume of the motor transport pollutants. The problem of the roads and road surfacing condition is ment. For example, in Sumy 70% of total road length is found to be in unsatisfactory condition. The condition of the roads influence sufficiently on gas pollution level of the air because of frequent changes in motor working conditions. It is known that carbon, hydrocarbon monoxide are thrown out when idling condition is used, and nitric oxide – when load condition is.

The quantity of motor transport means also influence on roads' condition and volume of harmful pollutants. In Ukraine, the quantity of private cars increased by 150500 and mounted 5260100. simultaneously, the motor transport pollutants increased, on the average, more than by 20000 a year and totalled in 2005 2056000 tonnes (table 1).

Table 1. Harmful motor transport pollutants, thousand tonnes

| | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|--------|--------|--------|--------|--------|
| Sum total of motor transport pollutants | 1949,2 | 1994,7 | 2026,9 | 2009,7 | 2076,9 |
| Quantity of private cars, thousand | 5109,6 | 5168,9 | 5159,1 | 4987,4 | 5125,9 |

Thus, the role and significance of motor-car roads I motor transport pollution level reducing cause the necessity of its high transport and exploiting condition providing.

ORGANIZATIONALLY-ECONOMIC GROUND OF NATURE RECREATION POTENTIAL OF THE TERRITORY

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In the conditions of difficult transformations processes which take place in Ukraine, the special actuality is acquired by the problem of development of recreation sphere, which is the base of realization of rights and necessities of man in the system of it life-support, specific sector of national economy, inalienable part of socio-economic policy of the state and regions.

To the questions of organization and features of development of the territorial recreation systems and recreation nature management, determination of recreation capacity and problems of economic evaluation of nature recreation potential of the territory devoted labours of many scientists.

Next to it reformation of tourism and recreation industry requires the proper scientific ground. Needs the theoretical comprehension the ponderability of recreation and tourism industry in the system of national economy. It is necessary the subsequent research of theoretical and methodical questions, related to the development of organizationally-economic ground of functioning of tourism and recreation complex.

As recreation activity will get organized on the basis of the territorial recreation systems, urgent there is the problem, related to the forming, development, reproduction and use of nature recreation potential of the territory. This problem requires the decision of the following tasks:

- conducting of analysis of scientifically-methodical approaches to determination of economic essence of category “nature recreation potential of the territory”;
- ground of the main directions of development of nature recreation activity at the territorial level in the conditions of transformation economy;
- conducting of analysis of pre-conditions of forming the market of recreation services in Ukraine;
- generalization of theoretical and methodological bases and improvement of scientifically-methodical approaches from the complex economic evaluation of nature recreation potential of the territory;
- conducting of analysis the market methods of optimization of intercommunications of recreation nature management industry;
- optimization of organizationally-economic mechanism of forming and use of nature recreation potential.

The decision of the indicated tasks will allow to form the scientifically-methodical base of recreation nature management at the level of separate territories, with the purpose of more effective bringing the internal and foreign investments to recreation sphere, rational use of nature recreation potential of the territory and on the whole will lead the tourism and recreation sphere on a new level.

PROBLEMS OF ECOLOGY BALANCED DEVELOPMENT OF FORESTY

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There are very hard economical – ecology situation in Ukraine. Forestry, as other branches, is found in crisis condition. Forest’s condition don’t conform to economical, forestry and ecological . For example, woody of Ukraine’s territory is 15,6 %, it’s lower than necessary meanings.

It’s imperfect settle accounts with economical-organizational, ecological and lawly mechanisms of development forestry on principles of steady development.

In the conditions of rapid scientific and technological progress and vigorous development of all the branches of national economy a special place takes the problem of the country timber supply equally with saving and rational use of forests as the most important component of nature complexes.

The constant growth of timber use and versatile importance of forests in people’s life predetermine the necessity to organize correct scientifically substantiated and well-balanced use of a forest in the country.

As now in the field of forest usage has been gained a great experience how to use forestry.

Versatile use of nature factors makes the use of forestry the most important sector of nature usage, increases its role in the system of environmental protection, taking care of rational use of natural resources and environment.

In the legal management relationship the forestry use is a system of measures how to realize and regulate nature usage to satisfy the requirements of national economy and population.

The state property of the land, water, natural resources and forests form the basis of nature use in Ukraine. The owner of the forests is the state, which has an exclusive right to use them. This right is given to different forests users according to the corresponding acts. The state determines the procedure and regulations how to use forests.

The forest use is regulated by the State Forest Code of Ukraine, enactments and orders of the Cabinet of Ministers of Ukraine.

While managing forestry in accordance with Forest Code of Ukraine the planning managerial organs must secure:

- strengthening of water protecting, securing, climate regulating, improvement and other useful natural qualities of forests which contribute to people's health care, environment and national economy development;
- constant inexhaustible forest usage;
- extended replanting, improving the quality of forests, increasing of their productivity;
- forest saving, their fire protection, protection from pests and illnesses;
- rational use of the State Forest Fund land;
- enhancing efficiency of forestry production.

Development forestry on principles of ecology-balanced development must provide for next stages

1 stage - overcoming crisis condition in branch, making normative-law base, restoration of economical connection, using production potential for satisfaction own needs..

2 stage – structural rebuilding branch, reform forms of property, economical mechanisms stimulation and regulation effective forest using.

3 stage – dishonor of steady development, creation ecological safed productions, satisfaction economic's needs in resources production of forest with talking into account ecological demand.

ECONOMIC ASPECTS OF SUSTAINABLE DESIGN IN CONCEPTION OF SUSTAINABLE DEVELOPMENT

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After the world energetic crisis of 1973-1974 in the world building and architectural practice a great attention has spared to the problem of fuel and energy

resources saving, expended on heat providing of buildings. It was an answer for criticizing of specialists of the International energetic conference (MIREC) of UNO that modern buildings possess enormous reserves of increasing thermal efficiency, but researchers haven't studied enough the features of forming their thermal conditions and designers don't use achievements of fundamental disciplines, possibilities of untraditional energy. These events became preconditions for development of sustainable concept.

Sustainable construction is defined as "the creation and responsible management of a healthy built environment based on resource efficient and ecological principles". It includes the following principles:

- minimising non-renewable resource consumption;
- enhancing the natural environment;
- eliminating or minimising the use of toxins.

"Sustainable building" can be defined as those buildings that have minimum adverse impacts on the built and natural environment, involves considering the entire life cycle of buildings, taking environmental quality, functional quality and future values into account. Accordingly, policies that contribute to the sustainability of building practices should be implemented, with recognition of the importance of existing market conditions. Both the environmental initiatives of the construction sector and the demands of users are key factors in the market. The OECD project has identified five objectives for sustainable buildings:

- Energy Efficiency (including Greenhouse Gas Emissions Reduction);
- Pollution Prevention;
- Harmonisation with Environment;
- Integrated and Systemic Approaches (including Environmental Management System).

Sustainable design is the thoughtful integration of architecture with electrical, mechanical, and structural engineering. The Rocky Mountain Institute outlines five elements for sustainable design:

- Planning and design should be thorough.
- Sustainable design is more of a philosophy of building than a prescriptive building style.
- Sustainable buildings don't have to cost more.
- Rejection from integrated design.
- Minimizing energy consumption and promoting human health.

Sustainable architecture foresee using one's imagination and technical knowledge to engage in a central aspect of the practice designing and building in harmony with our environment. The smart architect thinks rationally about a combination of issues including sustainability, durability, appropriate materials and sense of place. The challenge is finding the balance between environmental considerations and economic constraints.

THE PECULIARITIES OF CHOOSING THE MARKETING CHANNELS FOR ECOLOGICALLY ORIENTED COMMODITIES

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Our modern world requires the new approaches for bringing the commodities to their final consumers. The commodity way from its producer to its final consumer is called marketing channel. There are different forms and structures of marketing channels and the choice of each of them is influenced by enormous factors.

The marketing channel for ecologically oriented commodities is not quite different from the channels for other goods, but it has some specific characteristics.

And first of all, what does it mean: the ecologically oriented commodities? In this abstract, the notion "ecologically oriented commodity" includes:

1. ecologically pure products as final commodities for the final consumption;
2. the products of industrial appointment that serve to make pure final commodities and the environment.

For instance, it can be ecologically pure products of nourishment and air/water purifying equipment.

The specific characteristics that determine the choice of marketing channel for the ecologically pure products of nourishment are:

- the high prices of these goods (expensive products);
- the short period of storage.

These characteristics and some other compel producer to use short marketing channels, because the high price doesn't allow the intermediaries to earn enough for operating and the short period of storage requires the immediate delivery to consumer without any delay.

So, mostly the producer chooses one-level marketing channels with one intermediary that has exclusive rights for spreading these commodities on certain territory or that is represented by exclusive shops, which are specialized on this kind of goods or when the producer uses its own "firm" shops. The width of the channel is also limited and contains a certain number of members, that have the rights and opportunities to sell these commodities.

The products of industrial appointment, for example, the purifying systems are very specific and require individual approach in working out, making and mounting. That's why, the producers of such equipment prefer to work themselves directly with their customers. A zero-level marketing channel is the one right way of spreading the industrial appointment products.

So, the distinguish character of the marketing channels of the ecologically oriented commodities is that they have a tendency to be shorter and more narrow than the channels of the ordinary goods. Mostly, these channels are zero-level or one-level, represented by exclusive intermediates.

WATER POLLUTION

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The urbanization and industrialization create new problems of preservation of pure water. The crude or badly cleared drains of cities are dumped in reservoirs. Security clearing constructions still lags behind development of the industry. Unlike household sewage industrial drains considerably differ on the structure. They contain acids, alkalis, oils both other organic and inorganic connections. Poisons, synthetic and radioactive substances can contain a number of industrial drains.

It is known, that the natural water polluted by dumps of the industry and a municipal services, it is absolutely unacceptable for water supply of the population as a result of the maintenance in it of a lot of substances which negatively affect on health of the person and can serve as the reason of occurrence of a various sort of infectious diseases. Scientific judgements on this question have long history.

So, still Hippocrates on organoleptic data (the smell, taste, color, turbidity) distinguished "healthy" water from "unhealthy". The modern science about water is rather many-sided and complex. Are heaviest on the sanitary consequences of pollution of the reservoirs, arising at descent of the crude sewage. Their neutralization is the major not only hygienic, but also an economic problem. Now there are some methods of clearing:

1. A mechanical method. It is applied to branch of firm insoluble impurity. For this purpose use filtering, upholding, a filtration, removal of the weighed particles under action of centrifugal forces and pressing-up.

2. Chemical methods. Are used for removal from sewage of soluble impurity. Methods are connected with use of the reagents transforming harmful impurity either in less toxic, or in less soluble. Neutralization, oxidation and restoration, removal of ions of heavy metals concern to chemical methods

3. Physico-chemical methods. By means of them removal from sewage supported and emulsioned impurity, and also the dissolved organic and inorganic substances is made. The basic ways: coagulation and flotation, adsorption, an ionic exchange, extraction, return osmose and a ultrafiltration, desorbition, deodorization, decontamination and electron-chemical methods

4. A thermal method. It is used for removal from sewage of mineral salts (formed Ca, Mg and other metals) and organic substances. To them concern: concentrating sewage with the subsequent allocation of soluble substances, oxidation of organic substances at presence of catalysts at the atmospheric or raised pressure, liquidphase oxidation of organic substances and igneous neutralization

5. Biochemical methods. Are applied to sewage treatment from many dissolved organic and some inorganic substances. Process of clearing is based on

ability of microorganisms and some plants to use these substances for a feed during ability to live - organic substances for microorganisms are a source of carbon.

We should make our water, soils and souls pure and leave something for the future generations!

ECOLOGISTICS AS A DECISION OF WASTE PROBLEM

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The ecological problem has appeared not only in our country, but also all over the world.

Highly developed countries began to look for the decisions of this problem much earlier than Ukraine, that's why they have succeeded greatly.

The reasons why these processes have been slowed down in Ukraine are as follows:

1. The transition period of the economy.
2. Instability in development of all spheres of life.
3. Emphasizing economical problems at the expense of ecology.
4. Widely spread corruption.
5. Illegal aspects of ecological business.

As Ukraine is integrating into European Alliance it dictates Ukraine should decide economical problems more active.

Close connection between two sciences as economics and ecology is quite obvious now.

1. Decreasing natural resources involves: rise in goods prices → decrease of demand for costly goods → substitution them with cheap goods → income losses for producers → economical damage for country.

2. Ecological catastrophes and cataclysm → huge resources to restore and indemnification → huge material losses of economy.

3. Prevention of catastrophe → material expenses for decreasing subsequent damage.

4. Ecological management, ecobusiness → improving environment and economy, moral and physical recovery of nation.

Ecological logistics, as new scientific economical activity, deals with ecological management.

Reverse logistics acts within the enterprise as the part of ecological logistics. In many aspects they can cross. It deals with one of the most important tasks: organization of management ever increasing mass of wastes as a result of production and consumption sphere and their different kinds and modifications.

Waste problem is ecological one and requires economical control, as in order to minimize amount of the waste or to bring them to not (unfortunately that is

practically impossible), there is a need wasteless technologies, diagnostics of existent types of wastes and taking decisions on further treatment with them. All these involves great material expenses for both enterprises and state.

Reverse logistics deals with the following functions:

1. Planning of disposition of movable stations for taking wastes from people.
2. Prognoses of waste amount to be processed at the enterprises dealing with them, thorough analyses of situation at goods and service market. Determination of amount and kind of wastes, prognoses of enterprises dealing with this problem, energy.
3. Formation and coordination of connections on all stages of back material flows.
4. Investigation and determination of territory of enterprises dealing with different waste processing beginning from the barial places and finishing enterprises processing the waste.
5. Working out and interdiction of new techniques of gathering wastes from both people and enterprises.
6. Choosing the best ways of waste transporting and packing.
7. Working out the rood of the waste of producer to enterprise processing them and than in shape of new production back to consumer.
8. Working out basic norms for constructing new enterprises and waste grounds, and control of fulfilling these norms.
9. Working out new technologies to process and production of new equipment for transportation and loading/unloading.

All these functions are aimed to optimize processing and reduce expenses and income increasing for enterprises processing wastes, which is encouragement in waste and back material flows management, which in turns should effect introduction of these technologies and ability to control ecological situation.

Conceptions of reverse logistics:

1. The important concept that is used in reverse logistics is Back Supply Chain Management.

BSCM involves the following processes: gathering, assortment, transportation, processing, barial and information supply, financing, investments, low regulation and control of norm in the ecological sphere and dealing with wastes.

2. Involvement of different sections of the population:
 - Managerial staff;
 - Specialists and technologists;
 - The unemployed, tremps;
 - Pensioners.
3. Separate waste gathering at home:
 - The system of containers, designed for each kind of waste;
 - Separate utilization;

- Control of garbage remove and fines for failure to carry out these rules (population, workers involved in processing, workers involved in transporting ...)

Low base for ecological logistics:

1. International acts and agreements;
2. Laws and codes of Ukraine;
3. control.

Analyze of activity.

Prospect of development and maximum possible effect of development ecologistics.

CLIMATIC SYSTEM AS CONSTITUENT OF NATURALLY-RESOURCE POTENTIAL OF ECONOMY

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For realization of any economic activity three groups of different on the nature resources are needed in one or another degree:

- labour resources;
- artificially created capital goods (physical capital, including machines, equipment, brought energy etc.);
- natural resources.

Natural resources are called those elements of natural environment, which are realized as possessing an utility for vital functions and survival of man/humanity and are scarce and/or can become such as a result of vital functions of man.

The climatic system and actually climate and its services act important part in general resource potential of economy and in the complex of natural resources. The principle difference of these resources from the other types of resources is that they are created as a result of natural processes instead of activity of man. It brings to the certain problems at estimation values over and costs of these resources.

At the same time activity of man can render substantial influence (negative or positive) on the state of natural resources. Economic evaluation of damage and benefits from these state transitions and also the management and control after them represent complications. They arise up from problems with estimation of value of these resources and also from the often-nascent problem of account of external effects of change of their state with the proper benefits and damages.

Other important features of natural resources, characteristic and for climatic terms: heterogeneity of descriptions, impossibility to standardize and control natural reasons of narrow-mindedness etc.

The climatic system and climate (climatic terms) are vitally the necessary difficult complexes of natural resources. Its components are both global and

regional climate or climatic terms - become exhausted and/or not partly renewable under action of human activity.

Natural resources and climatic terms on the nature possess the following properties: renewable (basic descriptions are a temperature condition, fall of precipitations - small change from year to year); recurrence (annual and more long cycles up to the periods of freezing); dynamic changeability, but limited and slow; irreplaceable (critical natural capital) from the narrow scopes of terms of survival of man and biota; difference from other natural resources (multidimensional, complex, system character).

The major functions of the climatic system are related to ecosystem services, including providing of temperature and water and moisture, maintenance of stability of ecosystem and level of world ocean etc. Climatic terms influence and partly predetermine all three functions of natural capital: resource, regulative and even aesthetic.

Thus, obviously, that the change of climate in one or another degree will affect all three types of resources/capital and can be substantially reflected at work of many industries of economy. New illnesses brought by the change of climate negatively will tell on a human capital. New climatic terms substantially will change the environment of functioning of some types of physical capital, technique and technologies, above all things in agriculture, and also in the system of water-supplies. It will demand involving of different additional resources on softening of consequences of change of climate and adaptation to them.

At the same time it is necessary to understand that thrown out hotbed gases are examined as main originative factor of hotbed effect and global change of climate are not a resource or capital. They become the source of additional costs/expenses (by an antiresource or antiblessing) at introduction by the state of quotas and/or taxes on the troop landings. Free quotas or permissions on the troop landings at introduction of mechanisms of giving up of quotas at international and state level can possess a cost only.

Social and ecological and economic consequences and damage, related to the change of climate require making of taking measures on adaptation to these changes and softening of their consequences, that will allow economic to ground made decisions on the problems of global change of climate at global and regional levels.

FUEL ENERGY OF UKRAINE: NOWADAYS SITUATION, PROBLEMS AND DIRECTIONS OF THEIR SOLVING

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The level of the development of energetics influences on the economical situation, social sphere and living standards. Fuel energy complex of Ukraine is a

branch of economics which consists of that subjects the activity of which is connected with investigation, mining, production, conservation, transporting, transmission, distribution and sale of energetical products except that subjects the basic activity of which is to satisfy needs of central heating and hot water supply.

Nowadays the state fuel energy complex in Ukraine is characterized as critical. Ukraine belongs to those countries which suffer on the energetical deficit. Ukraine satisfies its own needs in energy consumption to 53 %. Besides, Ukraine has sizeable debts for energy resources, high level of aged fixed funds in fuel energy complex and inefficient taxation, amortizational policy. The material basis of energetic branches works on the bound of technical potential and the mechanisms of its reconstruction are absent. So, it leads to the decreasing of productive capacity and high expense of energy production in Ukraine. To confirm this fact it is possible to say that the absolute fuel energy resources consumption indexes of Ukraine can be compared with indexes of such high-developed countries as Great Britain and France. Energyintensity of Ukraine's GDP ten times exceeds the same index for France. This fact gives evidence about an extraordinary low efficiency of using fuel energy resources in Ukraine.

There is a great list of important unsolved problems which influence directly the consumption of energy resources. They are:

- national production energyintensity high level;
- irrational energy consumption in municipal sector;
- absence of energy saving technologies;
- inefficient structure of national economic activity.

The problems of fuel energy complex of Ukraine can be divided into four groups:

- insufficiency of own energy resources in Ukraine;
- dependence on the monopolies of Russia which supply energy resources to Ukraine;
- threadbare of fixed funds;
- insufficient using of unusual energy sources.

Taking into account these problems the introduction of energy and resource conservative measures should be an integral part of fuel energy complex reforming in Ukraine. However, the introduction of such measures stumbles on considerable obstacles such as a lack of investment, lack of monetary resources of equipment and insufficient motivation of energy saving among consumers and producers of energy resources.

Ukrainian government has worked out the Conception of fuel energy complex development till 2030 which defines the following tasks:

- maximal using of own energy resources and decreasing dependence on imported resources;
- decreasing of natural gas using for heating and hot water supply through the substitution of it by electrical energy;

- balancing between the producers' and consumers' interests concerning energy resources that means the providing of economically well-grounded level of price on energy resources;
- extending of international co-operation in energy complex;
- environmental pollution decreasing.

GDP capacity too times increase till 2030 is prognosed and the consumption of initial energy resources is going to be in 33,4 % increased because of the introduction of energy saving technologies. A great role in energy- and resource saving in Ukraine must be given to the economical mechanisms of stimulation and energy saving introduction measures. The experience of energy saving programs in high-developed countries of the world shows that the most popular economical instruments which are used for energy conservation achieving are taxes and tax privileges, subsidies and grants, credits and direct governmental financing of projects. Introduction of such measures will stimulate interest in energy saving both governmental power and subjects of economic activity. It is worth saying that taxation is successfully conducted in the countries of the European Union.

NATURAL RESOURCES: A CURSE OR A BLESSING? POLITICAL INCENTIVES IN THE RESOURCE ALLOCATION (EXAMPLE OF GAZPROM)

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In my presentation I will reflect on whether politicians (in particular Russian ones) tend to over-extract the natural resources, because of the boundaries to their short-term power and the willingness to satisfy the needs of the population during the period when they are in control; this strategy can contradict effective path in the medium, and long run. There is a model developed to answer to this questions by the scientists of Norwegian University of Science and Technology, James A. Robinson, Ragnar Torvik, and Thierry Verdier which can be applied to Russia as well, but interestingly there are major differences, and it seems to be that Russia's situation is distinct, what does not surprise much taking into account its position on the market.

Second question is the tight relationship between Russia's national income and natural resources export. Past successes and failures and current budgeting: the tendencies are changing, but they are not powerful enough to influence the "philosophy of the industry", and clientelism which is an existing challenge that in the long run reduces the profitability of export on the one hand, and results in exhaustion of natural resources on the other.

The effect of natural resources on the economy is closely dependent on accountability and competence of the government, which hare promoting effective

extraction and supply of natural resources. Is this principle applicable to Russia? Yes, it is, but it's quite interesting to examine the probable projects which both governmental and non-governmental organizations could run to change the industry approach (fundamentally). A deep gap between theory and practice appears on the stage. But there are movements to the positive change (for example the openness of Gazprom to the foreign ownership, and the sale of its stock on London Stock Exchange, upgrading its bonds, etc.).

One more aspect not to miss is the environmental policies of Gazprom and the SHELL case, when the company was refused by the Russian government to operate on the territory of the country because of the environmental issues. Again politics? Most analysts agree upon that. I would also like to explain the changes in the systems from Soviet times. It seems quite logical that bold investment into the protection of environment will result into the improving of the positive image of the organization and will prove that the principles mentioned in social responsibility report are not just cheap marketing, but a worthy argument to support the reputation of the company. But it's happening rather automatically: the company is switching to innovative technologies to increase the productivity, what still remains the priority for the company.

But overall the attitude to Gazprom and hence the government does not experience substantial changes, and the population is not rebelling against it. Maybe because it would not make too much sense: anyways it's a monopoly, but on the other hand do the theories about ineffective and exploiting Russia confirm themselves in the reality? At least inside of the country, it does not. Of course the situation is different with Ukraine, but the problems are purely of political nature. It's the same with Belarus.

And this problem is not beneficial for both sides, because in a long-run not prices but stability brings continuous development and success. (There is a theory that in a long run, price does not influence demand.)

I would like to conclude by summarizing the main points and question section, what will bring us to the new ideas on the topic.

MOTIVATION AS A FACTOR OF COMPETITIVENESS

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The question of creating of new market products is fundamental. But what actually is consumer looking for? Each good is a packed service for solving exact problem. Woman, who buies the lipstick, doesn't simply buy the colour for her lips. She buies the hope.

The task of a market agent is to show hidden within any good need for it and to sell not the qualitative characteristics of this good, but its benefits.

In a given work we suppose that motivation, which is the basis for consumer's choice, defines the potential of competitiveness of goods both on national and world markets.

Taking for the base the positive motivation of consumer we select main motives-determinants of consumer's choice:

- attitude to object, cognitive processes;
- emotions and pulsed purchasing;
- philia and altruism, social norms and motivation to please other people;
- the culture of personal behaviour and national culture.

A new product is accepted by exact national market and integrated into the culture of given country if possesses:

- a) utilitarian (practical) features for the countries of "low cultural context": Russia, Ukraine, anglo-saxon cultures;
- b) hedonic (sensual) features for the countries of "high cultural context": India, China, countries of Latin America.

Table 1. How cultural context impacts personal choice

| Characteristics of Higher Context Cultures | Characteristics of Lower Context Cultures |
|---|---|
| <ul style="list-style-type: none"> - Strong preference towards cultural traditions; placement of emphasis on the group (e.g., collectivism) - Desire for many close personal relationships with family, friends and clients - Tendency to use multiple forms of communication at once (e.g., tone of voice, timing, facial expressions and choice of words) - Focus on meaning that is implicit in relationships and situations | <ul style="list-style-type: none"> - Strong preference towards individual decisions and preferences; - Lack of strong cultural pressure to follow tradition - Tendency to use explicit straightforward communication (e.g. complete, accurate, and appropriate word choice) - Willingness to change cultural patterns |

The choice of consumer is mainly realized on emotional than cognitive background. Culture is capable to make somebody to laugh or to cry, extending the borders of emotional world. Only economy of desires is able to direct the creative energy on consumption, to transform forgotten culture in welcome and thereby to convert desire in money.

We represent the project of advancement to the world market of “Kroleveckiy Rushnyk” as a world brand following the prospects:

1. strong points of the project: unique handmade product, the value of rarity and technology, has no analogue among competitors as artistic value, has a history of the origin, carrier of the national folk culture as central attribute of social-cultural, religious and other traditions of ukrainians, forms the image of the country in the world;
2. development of the production complex in the north region of Sumy region (Krolevec, Putivl, Shostka) that will allow:

to increase the amount occupied on 2 thousand person (both in production and service);

to reduce caused by ecology damage to population without breaking the rational structure of food consumption;

to earn from tourism in sum of 700 000 \$ per year, including excursions and souvenirs;

to earn from the sale of shirts with elements of the embroidery through Internet: www.ebay.com for ukrainian in USA, Canada, Australia in sum of 40 000 \$ per year;

to provide the social infrastructure (repairing of the superhighways).

It is shown that the realization of competitive advantage project "Kroleveckiy Rushnyk " on basis of positive motivation gives to Sumy Region the sum of 76 mln. 320 thous.\$ profit per year.

We are sure that the most seminal way for the statement of the national identity lies through such interpretation of national culture, which will do it comprehensible and significant for the people of the whole world.

LOGISTICAL SUBSTANTIATION OF ZERO WASTE CONCEPT IMPLEMENTATION IN COUNTRYSIDE

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Now the urgency of optimization of movement of material streams and increasing interest to studying logistics are caused by potential opportunities of increase of efficiency of all economic systems which are opened with the use of logistical approach.

In the given work the logistical approach is applied to object which at the present stage of development of a society is not considered as goods or a product - to solid domestic waste (SDW). Nevertheless, this object demands not less attention of organizations, engaged in gathering, transportation and processing of waste. Mostly in our country collected SDW are transported by large-capacity lorries with greater consumption of fuel. It is especially important for them to choose such a route of transportation and filling, which could be carried out in as short time as possible, could provide the least run, hence, demanded for its performance the least amount of consumed fuel, i.e. reduced material inputs. Except of economical aspect this problem has still ecological one. Such optimization of movement of garbage trucks leads to decrease of motor transport influence on environment.

The purpose of the given work is definition of optimum routes of waste gathering and estimation of optimality of location of the enterprise for its processing.

The problem put by us was solved on an example of 18 settlements of Ovidiopol area of Odessa region which are included into zone of service of an enterprise planned to construction on processing SDW (namely sorting of fractions of secondary material resources and processing of easily decomposed organic part of waste with wormcultivation method).

Initial data for the decision of logistical problems on example of chosen settlements were the information on quantity of waste generated in them, received from local self-government institutions.

Considering positional relationship of the settlements we have determined optimal routes of sanitary cars moves during SDW collection. As results of calculations have shown, wastegathering from the whole area and their transportation them to one place is not rational as the garbage truck should gather waste from the same settlements for several times. Besides such settlements as Ovidopol and Velikodolinskoe are transport junctions, because of this a garbage truck, moving on a route, must pass repeatedly them with the filled body.

For liquidation of these lacks the researched of Ovidiopol area has been divided into 2 subdistricts. The opportunity of such division is caused by that in a southern subdistrict there is an object which can serve as point of waste gathering (an existing dump). For both subdistricts we had also define routes of movement. Lead logistical analysis has shown, that the developed variant of waste gathering is not more rational, than previous since the total of routes has increased up to 6 (in comparison with 5 at gathering from all researched territory).

For optimization of process of gathering and transportation of waste the decision to exclude from the southern subdistrict one settlement was accepted and to refer it to the northern. Under such conditions the quantity of routes is also equal 5, however their general extent is on 100 km less, than at a detour of not divided territory (275,1 km in comparison about 376,7 km). The organization of a place of waste gathering will make a product of SDW processing (compost and biohumus) accessible to inhabitants of the area. The optimum location of such point is as close as possible to a place of waste generation. It will provide also the least degree of decomposition of organic part of SDW by the moment of gathering and convenience for population.

Nevertheless, the last of examined variants of waste gathering in 18 settlements has a big lack. For realization of SDW transportation from settlements of the southern subdistrict on an existing dump near Ovidiopol it is necessary to organize there the local enterprise of processing or, at least, sorting of waste. The secondary materials received at sorting, will find the consumer on the market and a line on composting of easily decomposing organic part is organized on the spot the made product will be demanded in nearby settlements that is caused by mainly agricultural orientation of activity of the population in the given part of area Ovidiopol'skogo.

Definition of the optimal location of a waste processing factory has shown, that removing of waste from the whole territory to one place (planned factory in

area of Novaya Dolina) is the extremely irrational. At the same time, if dividing the territory into 2 subdistricts, the optimal locations of places of gathering of waste are close enough to Ovidiopol and the Novaya Dolina - the settlements which are planned as locations for organizing waste processing plants.

Thus, it is possible to track a regularity, that creation of powerful waste processing centers, serving large areas much less rationally, than organization of small enterprises on waste processing of local value.

ECOLOGICAL PROBLEMS OF WATER RESOURCES IN UKRAINE

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Ground water is widely utilized in the national economy of Ukraine and represents an important reserve in terms of the economic and social development of the country, and the stabilization of its economic situation. On the whole, the ground water resources are projected according to regional evaluations at a level of 61,690,000 m³ a day. Their distribution in the territory of the country is very uneven because of peculiarities of structural-geological and physical-geographical conditions of water resource formation and chemical composition of the underground hydrosphere in different regions. The bulk of the projected resources are located in the northern and north-western oblasts. The southern oblasts of Ukraine have limited ground water resources. Deterioration of the ecological-hydrogeological situation in the southern part of Ukraine prevents the standard use and protection of ground water, and has in a number of regions resulted in contamination and exhaustion of water resources. Ground water is utilized in different regions of Ukraine for various purposes. In 11 oblasts out of 25, ground waters provide more than 50% of potable water demand. Ground waters account for nearly the entire water supply in such oblast centres as Lugansk, Lviv, Poltava and Khmelnytskyi. In Ternopil, Kherson and Chernivtsi, ground waters account for more than 50% of the water supply. Many towns and villages (Glukhiv, Kovel, Mirgorod, Nizhin, Novololynsk, Sarny and others) in the southern and western oblasts of Ukraine fully depend on ground waters for their water supply.

The present ground water intake does not correspond to possibilities of maximal use in keeping with the availability of projected resources. In the largest part of the territory of Ukraine, except for the extreme south, there are favourable hydrogeological conditions for an increase of the ground water supply for the continuously growing needs of the national economy, with an obligatory rational regime of usage and necessary water protection measures. Besides, increased use of the protected ground waters for domestic and economical needs helps decrease the ecological risk conditioned by the consumption of contaminated surface water.

At the same time it is necessary to pay attention to the unfavourable conditions of exploitation of ground water resources in the southern part of Ukraine, first of all in Donetsk, Zaporizhzhia, Lugansk, Kherson, Dnipropetrovsk and in the Autonomous Republic of the Crimea. Water intake volumes in these regions exceed projected resources. At some water sites one can observe a decrease in ground water levels with the creation of depression funnels, and a deterioration of the hydrochemical situation, which may put some ground water sites out of operation. In the southern regions, complicated hydrochemical conditions make it necessary to prospect for new ground water resources. It is also necessary to continue to work on artificial replenishment of ground water resources, especially in Crimea and Donbas, with the aim of increasing productivity and preventing depletion of ground waters.

High population density and the focus of industrial and agricultural production on wasteful technologies requiring large amounts of water have conditioned a considerable technogenic impact on the environment of Ukraine, including the water environment. This impact is 10-15 times higher in Ukraine than in the neighbouring countries. Limited and uneven location of water resources in the territory of the country makes the problem of stable water supply with minimal ecological and economic losses extremely crucial. Scales and rates of changes in the ecogeological state of ground waters are particularly important in highly populated regions with an intensive economical activity. A large number of water intake systems in these territories work under conditions harmful to the natural regime. This is conditioned by a correlation of replenishment and consumption of ground waters under the impact of technogenic factors, which has resulted in a depletion of ground water resources, with the creation of large depression funnels as a result of intensive water intake and a lowering of the water level in the openings, penetration of salted waters through intensive pumping out of ground water, hydrostatic head of ground water related to hydraulic-engineering construction, flooding of the territories under the influence of natural technogenic factors, and increased or decreased levels in the reclamation systems.

As a result of intensive exploitation of ground waters, depression funnels have developed in the valley of Siverskyi Donets River and in Kyiv, Melitopol, Poltava and Kharkiv (decrease of the level in the centre of depression in Kyiv is 70 m, in Poltava 80 m, in Kharkiv 100 m). Deterioration of the ground water quality as a result of local contamination related to technogenic loads on aquifers (depression formation, intrusion of contaminated waters) and almost total contamination of landscapes and surface waters (entry of chemical substances into arable land, radionuclides, etc.) are some of the most pressing ecological problems. A sharp decrease in the use of pesticides and mineral fertilizers has been observed lately. Most contaminated are the ground waters in Donetsk and Odesa oblasts and in the Crimea. Unfortunately, lack of finance does not permit continued research of the impact of residues of agricultural chemicals on the ground water.

Summing up, the present situation with regard to ground water in Ukraine is satisfactory in most of the territory, with local exposure of technogenic impacts. However, there is a tendency of a correlated process of contamination of landscapes, and surface and ground waters in industrial, urban, agricultural and mining regions, which is a proof of an the excessive technogenic load on the environment, thus deteriorating the most protected water systems, the aquifers, which are the last ecological reserve of human water supply.

ORGANIC FOOD PRODUCTION: LESSONS LEARNT AND LOOMING PROSPECTS

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Organic food, which is grown without man-made pesticides and fertilisers, is generally assumed to be more environmentally friendly than conventional intensive farming, which is heavily reliant on chemical inputs. But it all depends on what is meant by "environmentally friendly".

There are three generally accepted principles about the Organic merchandise: no fertilizers, fairtrade and local production.

Farming is inherently bad for the environment: since humans took it up around 11,000 years ago, the result has been deforestation on a massive scale. But following the "green revolution" of the 1960s greater use of chemical fertiliser has tripled grain yields with very little increase in the area of land under cultivation. Organic methods, which rely on crop rotation, manure and compost in place of fertiliser, are far less intensive. So producing the world's current agricultural output organically would require several times as much land as is currently cultivated. There wouldn't be much room left for the rainforest.

Fairtrade food is designed to raise poor farmers' incomes. It is sold at a higher price than ordinary food, with a subsidy passed back to the farmer. But prices of agricultural commodities are low because of overproduction. By propping up the price, the Fairtrade system encourages farmers to produce more of these commodities rather than diversifying into other crops and so depresses prices—thus achieving, for most farmers, exactly the opposite of what the initiative is intended to do. And since only a small fraction of the mark-up on Fairtrade foods actually goes to the farmer - most goes to the retailer - the system gives rich consumers an inflated impression of their largesse and makes alleviating poverty seem too easy.

Surely the case for local food, produced as close as possible to the consumer in order to minimise "food miles" and, by extension, carbon emissions, is clear. Surprisingly, it is not. A study of Britain's food system found that nearly half of food-vehicle miles (i.e., miles travelled by vehicles carrying food) were driven by

cars going to and from the shops. Most people live closer to a supermarket than a farmer's market, so more local food could mean more food-vehicle miles. Moving food around in big, carefully packed lorries, as supermarkets do, may in fact be the most efficient way to transport the stuff.

What's more, once the energy used in production as well as transport is taken into account, local food may turn out to be even less green. Producing lamb in New Zealand and shipping it to Britain uses less energy than producing British lamb, because farming in New Zealand is less energy-intensive. And the local-food movement's aims, of course, contradict those of the Fairtrade movement, by discouraging rich-country consumers from buying poor-country produce. But since the local-food movement looks suspiciously like old-fashioned protectionism masquerading as concern for the environment, helping poor countries is presumably not the point.

The aims of much of the ethical-food movement—to protect the environment, to encourage development and to redress the distortions in global trade—are admirable. The problems lie in the means, not the ends. No amount of Fairtrade coffee will eliminate poverty, and all the organic asparagus in the world will not save the planet. Some of the stuff sold under an ethical label may even leave the world in a worse state and its poor farmers poorer than they otherwise would be.

So what should the ethically minded consumer do? Things that are less fun than shopping. Real change will require action by governments, in the form of a global carbon tax; reform of the world trade system; and the abolition of agricultural tariffs and subsidies, notably Europe's monstrous common agricultural policy, which coddles rich farmers and prices those in the poor world out of the European market. Proper free trade would be by far the best way to help poor farmers. Taxing carbon would price the cost of emissions into the price of goods, and retailers would then have an incentive to source locally if it saved energy. But these changes will come about only through difficult, international, political deals that the world's governments have so far failed to do.

The best thing about the spread of the ethical-food movement is that it offers grounds for hope. It sends a signal that there is an enormous appetite for change and widespread frustration that governments are not doing enough to preserve the environment, reform world trade or encourage development. Which suggests that, if politicians put these options on the political menu, people might support them.

THE ROLE OF ICT IN ASSURING ENVIRONMENTAL SUSTAINABILITY

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Information and Communication Technologies (ICT) affect the environment both positively and negatively at various levels. At the most direct level,

production, use and disposal of IT equipment is becoming a serious environmental concern. While by many measures the impacts of automobiles are much larger than those of computers, the short lifespan, chemically intensive production processes and content of toxic materials in a computer imply it has a significant environmental impact. There is much that is being done to deal with these issues, such as recently passed EU legislation mandating takeback and recycling systems for electronic goods. Much remains murky, however, about the scope and nature of the problems involved and what should be the appropriate response. There is thus much useful work to be done to realize environmentally friendly computers.

At the same time there is already ample evidence that a focused, micro-level application of ICT can contribute to individual development goals, including health, education, economic opportunity and protection of the environment. Digital lifestyles such as telecommuting to and from work or replacing phone books with websites can be good for the environment. Government and firm policies can act to encourage people to telecommute and thus use their cars less. To a certain extent these things are happening already, driven by cost and convenience, aside from any environmental benefits (or impacts) they have.

ICT, particularly, can make a valuable contribution to sustainable environmental management by improving monitoring and response systems, facilitating environmental activism and enabling more efficient resource use.

Scarcity of relevant and reliable information has always been a substantial obstacle to more effective environmental management. Used to collect, process and disseminate information, ICT enables a better understanding of issues such as climate change and biodiversity and helps to monitor ecological conditions so that prevention and mitigation measures can be activated. SIDSNet, for example, provides a medium for sharing information and good practices among the forty-three Small Island Developing States (SIDS) on common issues such as biodiversity, climate change, coastal and marine management and energy sources. In Nepal, computer imaging has been used to build a land resource database for the Arun River basin. This has generated the first ever basin-wide map of land use indicating forest degradation hotspots. The database, together with simulation models, was crucial to designing and implementing the land management program for the area.

ICT is also being deployed extensively to monitor and respond to environmental disasters in developing countries. This is demonstrated in Mexico, where fire emergency services are using satellite images to direct response teams to critical areas—resulting in significant reductions in casualties and property loss.

The power of ICT as an information and networking medium can also enable citizens to act as environmental enforcement agents, alerting decision makers to compliance infringements and leveraging the power of ICT to reach and influence public opinion. In Indonesia, officials discouraged by weak enforcement of water pollution standards created a public access database for rating the degree of factory compliance. Citizen groups have used the ratings to pressure under-performing

factories. Within the first 15 months of activism, one-third of non-complying factories had met regulations.

ICT applications can be used to reduce the consumption of energy, water and other essential natural resources through more efficient agriculture and industrial procedures. For example, precision agriculture techniques using GIS and GPS systems can facilitate weather and soil monitoring, crop forecasting and the ability to optimize farm return on investment ensuring, more efficient use of scarce resources.

Global Forest Watch (GFW) is one of the examples of ICT applications for environment improvement. Global Forest Watch is an international network of more than 90 local forest groups linked by the Internet. It aims to slow forest degradation around the world as well as infuse transparency and accountability into the industry. The initiative was started by the World Resources Institute in 1997 to give the general public a clearer picture of the threats to the world's forests. GFW uses a combination of satellite imagery, Geographic Information Systems (GIS), mapping software, the Internet and on-the-ground observation to record forest coverage and condition, including where and how forest product companies are cutting. GFW compares the activity to forest leases to identify illegal cutting. These maps are posted on the Internet, naming specific companies that fail to comply with environmental policies and agreements.

In the future, ICT may also play an important role in the fight against pollution—not only by providing more useful metrics and information, but also by enabling population decentralization and large-scale telecommuting. The key task is to identify the important aspects that we can affect through social response, and then act to maximize the positive applications of ICT while minimizing the negative ones.

SUPPORT SYSTEMS FOR ELECTRICITY PRODUCED FROM RENEWABLE ENERGY SOURCES IN THE EUROPEAN UNION

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Renewable energy sources are concerned solar, wind, water, waves, bio and geothermal energy. Each of these sources has unique characteristics which influence how and where they are used.

The mass production of electricity using renewable energy has become commonplace recently, because the major threats of climate change due to pollution and the environmental, social and political risks of fossil fuels and nuclear power. The one important reason to increase renewable energy is worldwide aspiration to decrease greenhouse gases.

The countries of the EU are currently the leading world power in the development and application of renewable energy. Promoting the use of renewable energy sources is important both to the reduction of the EU's dependence on foreign energy imports and in meeting targets to combat global warming. In the figure below are per cents of electricity produced from renewable sources of completely electric production in some of the European Union countries and in Ukraine in year 2004.

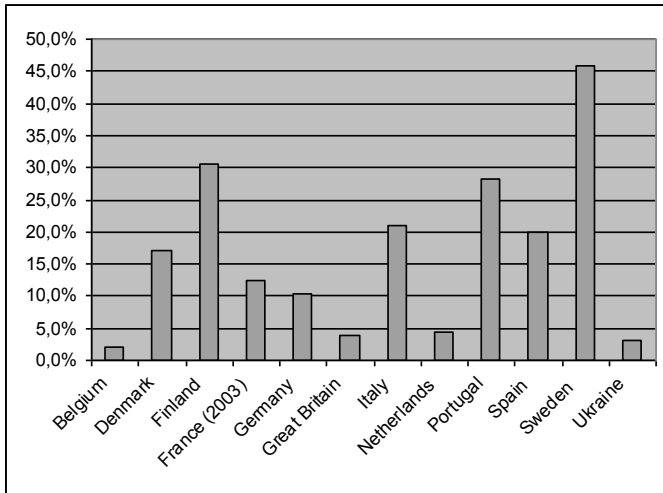


Figure 1. % of electricity produced from renewable sources of whole electric production in some of the European Union countries and in Ukraine in year 2004

The profitability of producing electricity from renewable energy sources is not very good at present. Therefore; there has been created many kinds of support systems to make business more interesting also for investors. Support systems are developed to increase renewable energy production, to take into account the technology development, to support new environmentally friendly technologies, to establish long-term and secure investment conditions, to fair conditions for different operators. There are following support schemes exist on EU electricity market: investment and tax support, fixed price system, green certificates, tendering, price premiums.

Feed-in tariffs are one of support scheme to involve obligation on the part of utility to purchase electricity generated by renewable energy producers in this serviced. Feed-in tariff determined by public authorities and guaranteed for a specific period. Electricity price is a fixed price stated in the legislation (regulations). Feed-in tariffs takes market risks away from investors, required

lower returns and provides usually long-term security, enhances bank ability and the quality of the project development. Different tariff can be defined for different technologies for different countries depending on resource conditions.

Green certificate support scheme is created by obligating consumers to purchase certain percentage of their electricity from renewable sources. RES-E generators get revenues by selling these renewable energy certificates in a separate certificate market. In liberalized electricity market, consumer can comply with the obligation by buying enough certificates. The buying obligation is defined as percentage of the total purchases and its increases annually. Competitive tendering based on the government decisions about the amount of new renewable capacity to invested, and publishes a request for tenders from interested producers. All interested parties can submit a proposal for the government in which technology, capacity and price they are willing to investing. If it a price premiums than RES-E generator receives a fixed premium in addition to the electricity price. The additional premium thus keeps constant, but the total revenues for producer change if electricity price changes.

Tax relief are practically has the same as price premium support mechanisms. The RES-E generator receives the decrease of tax on the energy production. Tax relieves may lead to complex tax planning including tax optimising ownership arrangements.

The certificate systems are more flexible, has a good cost efficiency level and they can increase the use of renewable energy sources in the most cost efficient way. The green certificate could cover different type of renewable energy sources as extensive as possible that encourage more investment in this.

Investment subsidy is non-market based mechanism, usually continuously available but discretionary (must be applied for). RES-E generators get a certain percentage of the eligible costs of the total investment form government. Usually the percentage is not exactly fixed, but is decided case-by-case based on the estimated need for support, the size of the project and state budget situation. After the investment and the received investment subsidy, the generator should do on its own at the electricity market. Investment subsidy is used in parallel with others.

For conclusion, it obvious that without support systems, the rate of electric produced from renewable sources would not be even as high as it is now. Nevertheless, there are still plenty of works to do and support systems have to be developed further.

INTELLIGENT RECYCLING DATABASE

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In my opinion all countries in the world do not make a proper use of the invention of recycling. Waste materials are not reused and people do not benefit from them. However, there is a hidden energy in scrap materials which is wasted.

That is why I would like to consider an idea of an intelligent recycling database which would deal with searching out and connecting demand and supply for recyclable materials from various companies. The project consists of

- logical databases (PRODUCTION NEEDS and RECYCLABLE MATERIALS)
- a special algorithm which would work out necessary calculations and estimations
- optimisation and simulation models
- global expert computer information systems which would coordinate transaction from many national systems from the whole world.

That is some scientific facts concerning recycling which prove its advantages:

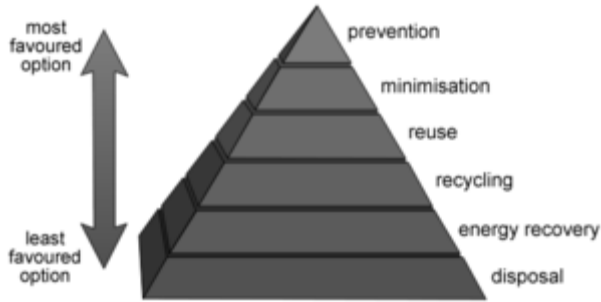
| | |
|------------------|---|
| Aluminium | <ul style="list-style-type: none">- Recycling 1 kg of aluminium saves up to 8 kg of bauxite, four kg of chemical products and 14 kW·h of electricity.- It takes 20 times more energy to make aluminum from bauxite ore than using recycled aluminum. |
| Glass | <ul style="list-style-type: none">- A 20% reduction in emissions from glass furnaces and up to 32% reduction in energy usage.- For every 1000 kg of recycled glass used, approx 315 kg of carbon dioxide and 1,200 kg of raw materials are spared. |
| Paper | <ul style="list-style-type: none">- 1000 kg of paper from recycled material conserves about 7,000 US gal (26,000 L) of water, 17-31 trees and 4,000 kW·h of electricity, and reduces the rate of virgin forests being cut to make tree farms.- Milling paper from recycled paper uses 20% less energy than it does to make paper from fresh paper trees grown on tree farms at the cost of more pollution caused by additional transportation and chemical cleaning treatment. |

I have hit upon an idea that if there was an effective computer information system which encompasses data from companies all over the whole world, people could take even better advantage of natural resources.

In the first place every company which uses in its production processes natural resources should create a special database where every used ingredient or substance will be catalogued.

Necessary data, for example: kind of material, its quality, quantity used up in the production process should be introduced obligatorily at the beginning. Then special computer system managed by algorithms will process these data. This

algorithm will be projected as a tool which will estimate how much recyclable materials come into being after production process.



The waste hierarchy

This algorithm will operate properly after implementing detailed, technical guidelines concerning production technologies.

The next step is that in every region (for example province, state or any kind of territory) there should be a collective database which will integrate data from all company databases and regional reports: "Home-made rubbish regained resources". In this regional databases a lot of important information will be gathered and consolidated from companies as well as city centres where rubbish are stored.

The structure of regional database consists of large data sets which will be divided into categories:

- PRODUCTION NEEDS
- RECYCLABLE MATERIALS

There will be two large databases: PRODUCTION NEEDS and RECYCLABLE MATERIALS. Every record in these databases consist of five elements.

- Then the special system should be projected which will deal with searching out suitable and adequate records in both databases which have the same kind of material.

- In the next stage the system checks if the time of appearance of reusable materials is possible to synchronize with the date of demand declared by individual company.

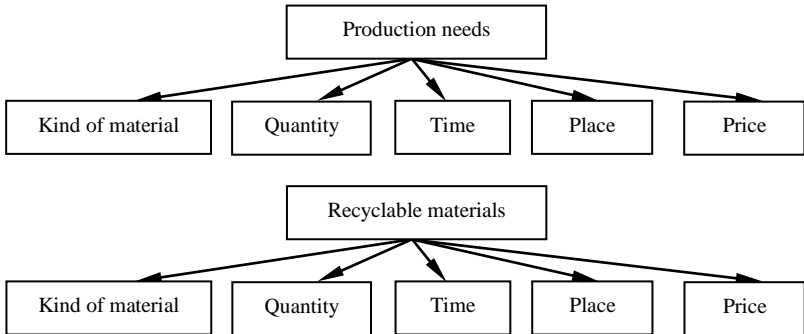
- The following step is that the system measures the distance between the place where waste materials are accumulated and the company which wants to reuse it.

- Then system uses simulating and optimisation methods and models in order to determine the best favourable supply path so as to minimize costs of transportation. The system considers also the time of delivery so as to avoid delays.

Then the ranking of the best connections is made as regards costs and time of delivery.

- And the system makes a first decision to send announcements to both companies about the opportunity to enter into agreement with each other. If one of them turns down the proposal, next decision from the list will be taken and the process starts from the beginning.

- If two partners come to arrangement, they will sign a contract and materials will be delivered from one company to another.



If the regional databases and systems function properly, it would be possible to broaden its range of operation on a large national or even international scale. It would require integrated, well-projected computer information systems which will be managed effectively and without stoppages. The introduction of such systems also would require an enormous sum of financial resources, however, long-term consequences may show that a lot of savings could be done by using recyclable materials and economizing on purchasing new raw materials, fuels and substances.

As far as international system is concerned, it would be particularly wise to exchange information about rare and expensive resources endangered by running low.

For example, one national system may six times per day send to all other national systems all around the world a message about up-to-date demand for natural resources, raw materials and stored recyclable materials. I think that a case when necessary resources may be accumulated as a matter of fact abroad, however, 50 km far away is quite possible. Without the system two companies situated in the border area would not know about a chance to cooperate with each other in this extraordinary way.

To tell the truth, contemporary companies try to be competitive at any price and cut costs of running the business as much as possible. They introduce just-in-time systems of delivery and my idea may be hard to reconcile with them. However, big concerns and corporations are able to allocate some of their profits

into such systems. In my opinion, they would be a great contribution to environmental protection.

THE FACTORS THAT INFLUENCE AN INTRODUCTION EFFICIENCY OF INFORMATION-COMMUNICATION TECHNOLOGIES (ICT)

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Opening new opportunities and increasing labor productivity, information-communication technologies (ICT) are widely used practically in all spheres of human activity:

- industry;
- medicine;
- trade;
- management;
- education, so on.

In all these cases, ICT application is directed on efficiency and profitability increasing within human resource cost reduction.

There is a threat of information outflow, distortion or loss that can result in economic damage and threaten all positive effects from ICT introduction.

Systems of computer systems safety, methods of attack and protection, spots and the means providing safety are described in the literature. However it is important to have the general system of an economic estimation of possible damage and to correlate it with application efficiency of different types of ICT-systems.

Received from ICT introduction effect appears as a result of workplace reduction and productivity increasing.

In general, the effect from ICT introduction can be presented as:

$$e = \frac{R}{Z}; \tag{1}$$

Where R - the result / effect received from ICT introduction for some period (term of analyzed ICT prospective use);

Z - The total costs connected to ICT introduction and service.

$$R = R_1 + R_2; \tag{2}$$

Where R_1 - decreasing of the costs connected to workplace reduction. Can include wage reduction, decreasing of necessary floor spaces, etc.;

R_2 - The effect received due to productivity increasing of production (as a rule, due to new opportunities caused by ICT introduction).

Costs Z can be presented as the sum of ICT purchase and service costs:

$$Z = \sum Z_i; \quad (3)$$

Where Z_i - costs by kinds of works and expenses.

Among the basic costs can be named:

- expenses for purchase, delivery and installation of computers and other equipment for network service (uninterrupted power supply devices, printers, scanners, servers, cable, etc.);
- expenses for the computer basic software (operational system, a package of office applications, etc.);
- expenses for development, installation and adjustment of the specialized software;
- expenses for periodic maintenance service of the equipment;
- expenses for personnel training;
- expenses for software service;
- expenses for information safety.

Two groups of factors can influence reliability of information system: the factors caused by failure of device electronic units, and the factors dependent on the person:

1. *The Hardware factor.* Each automated system consists of unit sets which have the limited resource of reliability. Failure of any unit can suspend work of system, result in loss of the data, etc.

2. *The Human factor* is connected to deliberate or unintentional influence of the person on the automated system which can damage the enterprise activity.

2.1. Unintentional harm. Threat of unintentional harm arises when the level of personnel knowledge and skills is insufficient for work with a necessary set of programs.

2.2. Deliberate harm. Speed of safety systems development is comparable to speed of their breaking techniques development, and globalization in ICT sphere promotes the development of malicious programming as well.

2.2.1. Piracy, i.e. non-authorized use, copying and distribution of software. In this case the loss of profit from non-realized products is directly reflected in company's incomes.

2.2.2. Malicious programming (viruses), i.e. creation of programs for damaging, destruction or non-authorized using of the data, resources, and equipment of ICT users.

2.2.3. Spam, or distribution of the advertising on e-mail channels.

2.2.4. Espionage, or regular appropriation of ICT users' confidential information (the protected web-pages breaking, e-mail interception, use of transit servers, etc.).

With the help of this classification of information safety threats it is possible to create a technique of expense estimation for a safety and reliability of information storage and processing systems for decision-making of ICT introduction at the enterprise.

THE INFLUENCE OF ECOLOGICAL ENVIRONMENT PROBLEM TO CHINESE MARKET ECONOMY DEVELOPEMT

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In recent years Chinese economy developed rapidly, but along with daily enhancement of the economical developmental degree, the environmental pollution problem is also seriously day by day, start from the 90's, China is also facing the similar environmental pollution problem with developed country, whether the government or non-government all realizes the importance of ecological environmental protection to the economical development.

Production of Environmental problem and its relations with economical development. Since the 50's of 20th century, the relations between human society's development and environment have displayed inharmonic condition obviously: The world economics development progresses rapidly, at the same time also produced a series of global questions, such as the excessive growth of population, the short of resources, the worsening of environment and so on that a series of "problems of the environmental destruction and its direct or indirect correlation" -- the environment problem. However, the final goal of the economical growth is to be a powerful nation, raises people's living standard, the environmental pollution and the ecological destruction counteracts the original intention that promote economical growth. in turn, the serious environmental pollution and the short of resources can restrict the economical growth, even restricts parts of industrial development, affects quality and benefit of economical growth and continuance of economical development. The environment problem is brought by the economical development which also can solve through the economical development only. The production and solution of environmental problem correlates with the phase of economical development and the degree of technical advancement closely.

On October 1992, China set the reform goal explicitly that established socialist market economy system. So far, the Chinese national economy already moved mainly according to the market economy rule. Our present stage's economical growth to a great extent is depends on the high investment, the high consumption, high discharges to realizes. The process of altitudinal industrialized

construct brings more stern environmental pollution problem. Announced and executed from December 26th, 1989 "People's Republic of China Environment Protection Law", the Chinese government took the environmental protection work in a very important place, who has constituted the law, has established the organization, increased the investment gradually, has enlarged the treat to key places, the work of environmental protection makes the progress. However, current environment problem still quite prominence, the situation is sternly.

At present China faced to the serious environmental pollution and the destroys of ecology brings to the economic society development the negative influence. First is the huge economic loss. According to the investigates of national environmental protection bureau in 2001, the west 9 provinces' ecological destruction creates the direct economic loss as high as 149.4 billion Yuan, occupies the 9 provinces' 13% of GDP. In 1997, the World Bank published the report, which China only created the loss on atmosphere and water pollution counted on approximately 54 billion US dollars (by 1995), occupied 8% of GDP at the same time. Until 2007, the comprehensive surveying of World Bank, Academia Sinica and environmental protection bureau, our country created the loss about 10% of GDP because of the environmental pollution every year. The 20 most serious polluted cities in the world our country occupies 16.

The serious environmental pollution in the certain significance also is a kind of resources waste, "the high consumption, the high cost of high growth economy which destruction environment, which was the suicidal development pattern". How goes out a new pathway, to realize development of environmental protection? First depends on the mechanism and the system innovation, second depends on the progress of science and technology. For the future technology advancement will be even more supposed to take the enhancement of the resources use factor, this both will be propitious to alleviates the insufficient resources, and also will be propitious to the environmental protection. While China persisted the market economy construction, should take important in the natural ecological environment protection, strengthens the ecological environment protection, realizes construction of the continuance development economic society diligently.

THE DEVELOPMENT OF ECONOMICS AND DUE LEVEL OF ENVIRONMENT. ARE THEY INCOMPATIBLE?

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There are several points of view about development of economics and its influence on ecology. Some people think that economics helps ecology to improve its natural resources, to increase the correlation between developing prosperity of people without abatement ecological level(state) of life on the Earth; but

considerable number of citizens in the world think that development of economics and due level of environment are incompatible.

The last few years have been the worst period on record for environmental disasters and experts are predicting far worse to come.

Here is how to become a disaster statistic. Move to a shanty town on an unstable hillside near a tropic coast. Crowd together as more and more people arrive. Wait for the world to get a little warmer. More evaporation means more rain, which means the slopes will get progressively more waterlogged. One day, the land will turn to mud, and the neighbourhood will begin to go downhill. Literally. And if the slope is steep enough, the landslide will accelerate to more than 200 miles an hour.

In the last decade, floods, droughts, windstorms, earthquakes, avalanches, volcanic eruptions and forests fires have become increasing common. There has been disastrous flooding in Asia, Africa, Central and South America and Oceania.

Even prosperous Europe has suffered and large areas of France, Britain and Germany have all been under water.

Storms have been getting worse everywhere too, with a growing number of hurricanes hitting the US, the Caribbean and Central America.

Drought has affected large areas of Sub-Saharan Africa for years and many other zones are becoming drier. A number of nations have already been in armed conflict over water, and drought in the West of the US has resulted in enormous forest fires.

So why is nature beginning to turn on us? One answer is overpopulation.

The population of the world is growing at the rate of 10000 people an hour, 240000 every day, nearly 90 million a year, with most of the growth in the developing world. People in agricultural areas, unemployed and sometimes undernourished, move to the cities, and then set up homes on poor soil, crowded into substandard buildings. This has mainly been caused by the mismanagement of the world's resources: carbon emissions from rich countries; the activities of the big multinational companies; the deforestation of the world's forests. As a result, a hotter ocean breeds fiercer cyclones and hurricanes. Atlantic hurricanes, for instance, are 40% more intense now than they were 30 years ago.

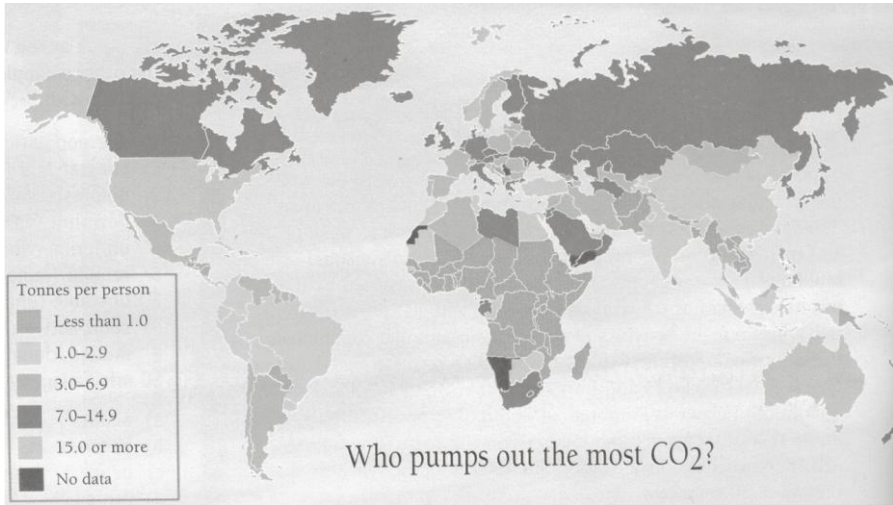
Volcanoes and earthquakes are even more dangerous than in the past as around half the world's population now lives in cities. An ever greater number live at risk, in some degree, from earthquakes which have taken a toll of more than 1,6 million lives in the last hundred years.

All the betting from the disaster professionals is that things will get worse.

Scientists warned that this would mean more pollution and a greater risk of disaster across the globe.

The globe problem of the development economics with its dreadful influence on environment is reducing emissions of carbon-based gases. The European Union agreed to cut emissions by 8%, Japan 6% and the USA 7%. Britain is one of the countries to have reduced its emissions, but critics asked if this was due to

government policy or the decline in the coal industry. The EU reminded the USA (the world's biggest polluter producing 24% of the world's emissions) that it had not met its targets. The USA firmly denied it was making excuses and asked why the targets were so unrealistic (Picture 1).



Picture 1 – The Emissions of CO₂ in different countries of the world

Some government ministers reluctantly admitted that they may need to cut global emissions by up to 60% in the long-term. However, many developing countries have refused to sign any pollution agreements. They say it would harm their economic growth and insist that the developed countries lead the way and show it is possible to break the link between economic growth and rising emissions.

But as the life shows that as more our general world economics increase as our nature lost more “valuable” natural resources such as, for instance, clean water and fresh air, beautiful wood, a lot of magnificent plants and rare animals.

There is a very important and actual principles of ecodevelopment: think globally – do locally. This means that every person on the globe must think about all people in the world, about his/her children's life, future generation and does things according these thoughts.

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