

Ministry of Education and Science of Ukraine
Sumy State University
Economic Research Centre
Youth NGO "ECO"

11th International Student Conference

***"Economics for Ecology"
ISCS'2005***

*Sumy, Ukraine,
May 5-9, 2005*



XI Міжнародна студентська
конференція

"Економіка для екології"

*м. Суми, Україна,
5-9 травня 2005 р.*



11th INTERNATIONAL STUDENT
CONFERENCE
**"ECONOMICS FOR ECOLOGY"
(ISCS'2005)**
May 5-9, 2005, Sumy, Ukraine

**The conference
organizers:**

Sumy State University
Economic Research Centre
Sumy Regional Youth NGO "ECO"

The official sponsors:

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Evgen Lapin, Ukrainian Parliament Deputy
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**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'2005)
May 5-9, 2005
Sumy, Ukraine**

Thursday, 5

8.00 – 17.00 Registration of the participants (Sumy State University)
14.00 – 16.00 Sightseeing tour (Sumy downtown)
17.00 Departure from Sumy to the recreation center "Zoryanyy" (15 km from Sumy)
18.00 – 19.00 Accommodation
19.00 – 20.00 Dinner
21.00 – 23.00 Welcome party

Friday, 6

8.00 – 8.45 Breakfast
9.00 Departure to the Sumy State University
10.00 - 11.00 Opening Ceremony. Lectures of invited speakers
11.30 – 12.00 Coffee Break
12.00 – 13.45 Plenary session
14.00 – 15.00 Lunch
15.00 – 17.45 Plenary session
18.00 Departure from the Sumy State University
19.00 – 20.00 Dinner
20.30 – 23.00 Ukrainian party

Saturday, 7

8.00 – 8.45 Breakfast
9.00 – 11.00 Workshops
11.00 – 11.30 Coffee break
11.30 – 14.00 Workshops
14.00 – 15.00 Lunch
15.00 – 17.30 Workshops
17.30 – 18.00 Coffee break
18.00 – 19.00 Conclusions of the workshops
19.00 – 20.00 Dinner
20.00 – 23.00 International party

Sunday, 8

6.30 – 7.00 Breakfast
7.00 – 20.00 Excursion
20.00 – 21.00 Dinner
21.00 – 23.00 Farewell party, Camp-fire party

Monday, 9

8.30 – 9.00 Breakfast
11.00 Departure to Sumy

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ENVIRONMENTAL COSTS OF PRODUCTION AS THE GROUND OF ECONOMIC DECISIONS MAKING

*Lenyd Melnyk, Dr., Professor,
Sumy State University, Ukraine*

In 1969 the first attempts of our compatriots to evaluate the man-caused influence upon the environment were undertaken. Exactly at that time the researches of economic damage due to air pollution as the consequence of ferrous metallurgy enterprises activity were started in Sumy. By the end of 1980-th the scientists have created the methodic groundwork of evaluating nature resources (particularly, water, land and forest resources) and damage due to negative impact upon the environment (including air, water, noise pollution and soil erosion). The introduction of ecological payments system (first approved in Sumy after the two-year experiment) was the one of the results of that scientific work. At the beginning of 1990-th the research work was stopped and then renewed only in 2001 in Russia. Exactly in 2001 the macroeconomic evaluations of population health level reduce caused by environment pollution were carried out by the initiative of the World Bank Institute. In Ukraine such researches were renewed in 2003. At that time the economic evaluation of environmental costs due to national production was carried out by the order of Ministry of Ecology of Ukraine.

The aim of the work was to form the scientific basis of determining environmental costs of production of national produce in Ukraine and estimation of corresponding indicators.

The following results of the work were obtained:

- the evaluations of environmental costs by the definite components at the level of national economy in 2001 and 2002 were carried out;
- the unit environmental losses due to the obtaining in 2001 and 2002 such macroeconomic results as gross domestic product, gross national income, gross value added were estimated;
- the dynamics (1985-2002) of the unit environmental costs (comparative appraisal) as the sum of definite components (connected with factors of impressment of water resources, air pollution; water pollution, waste formation, accomplishment of additional inputs aimed at prevention of negative impact upon the environment; ecological emergency situations; negative impact upon the ecosystems of country) was researched;
- the indicators of direct and materialized environmental costs per unit of gross domestic product by the definite sectors (kinds of economic activity) in accordance with the following factors of environmental costs: impressment of water; air pollution, water pollution; additional environmental expenditures; intraproductive environmental factors; ecological emergency situations – were evaluated;
- the evaluations of environmental costs due to production (gross value added) by the regions of the country were implemented;

- the analytical report and necessary recommendations concerning the possible directions of reducing the environmental losses were prepared;
- the concept of “greening” the economy on the basis of industrial complex of Ukraine specialization in producing environmentally intended goods was worked out.

These researches constitute the first (after the long stop since 1980-th) work concerning the methods of taking into consideration the environmental costs due to the impact upon the environment. This work makes it possible to apply the results carried out by previous researchers (including those, which were carried out in former Soviet Union) as well as to realize new opportunities, conditioned by using more systematized statistics, which has appeared during last years. In particular, in this work the mathematical model based on Leontieff’s method “Input-output” was for the first time applied in native practice. It has become possible due to publishing the experimental table “Input-output of Ukraine” in 2002.

The researches carried out should be regarded as experimental ones. These researches are directed at revelation of some problems of the environmental costs evaluation – on the one hand, and forming the additional scope for substantiation of decision-making at national and regional levels taking into consideration the environmental factors – on the other hand.

The calculation of environmental costs was carried out in nine directions. The table 1 (calculation in hryvnas) and the table 1 (calculation in US dollars) contain the results of considering the environmental costs at the national economy level. Taking into account the evaluative character of costs final result is given in two forms: the first one – without taking into consideration the damage due to intoxication of population, and the second one – taking into consideration the indicator mentioned.

The research carried out have demonstrated high ecology intensity of producing national income of Ukraine. According to our evaluations the annual environmental costs without taking into consideration the damage due to intoxication of population in 2001-2002 were equal to 39-54 billions of hryvnas, and the annual environmental costs taking into consideration the damage due to intoxication of population came to 50-68 billions of hryvnas.

The averaged structure of the environmental costs looks like (by the types of ecodestructive activity), %:

- impressment of water and land resources including	13–15
- water	8–9
- land	5–6
- environment pollution	22–24
- air	20–22
- water	1–2
- noise	<1
- electromagnetic	<1
- wastes disposa	1–2

- ruining the landscapes 23–26
- soil erosion 13–19
- overdamping of soil 5–7
- soil pollution
- ruining of soil
- impact upon biota 3–4
- emergency situations 1–2
- environmental expenditures 7–8
- intraproductive ecological factors <1–1
- intoxication of population 21–24

The environmental costs calculated at the level of national economy of Ukraine may be considered as the basis for evaluating the environmental price of national production, i.e. determining the unit ecological-economic indicators.

Table 1 – The structure of environmental costs at the level of national economy of Ukraine in 2001 and 2002, millions of USD.

	TType of costs	Type of evaluation							
		Expenditures based		Damage based		Damage based hypothetical		Loss of profit based	
		2001	2002	2001	2002	2001	2002	2001	2002
1	2	3	4	5	6	7	8	9	10
1	Impressment of nature resources, including	267	256	1267	1214	1786	1717	2054	1975
1.1	– water	163	152	801	747	1041	972	1197	1118
1.2	– land	104	104	466	467	745	745	857	857
2	Pollution of environment, including	85	77	2187	2172	2917	2897	3355	3331
2.1	air	80	72	2008	1997	2610	2596	3002	2985
2.2	water	5	5	171	167	256	250	295	288
2.3	noise	–	–	8	8	9	9	10	10
2.4	electromagnetic pollution	–	–	–	–	42	42	48	48
3	Wastes disposal	14	14	110	104	233	218	268	251
4	Ruining the landscapes, including	–	–	2677	2677	3180	3180	3528	3528
4.1	soil erosion and degradation	–	–	1689	1689	1801	1801	1942	1942
4.2	over-damping of soil	–	–	413	413	619	619	713	713
4.3	soil pollution	–	–	465	465	605	605	696	696
4.4	ruining of soil	–	–	110	110	155	155	177	177
5	Impact upon biological objects	17	18	332	382	499	573	574	659
6	Emergency situations	1	2	44	63	222	317	255	365
7	Expenses necessary for preventing the harmful impact due to production activity	694	743	694	743	1023	1161	1176	1335
8	Intraproductive factors	73	104	78	111	82	117	94	135
	Total	1151	1214	7389	7466	9941	10180	11303	11579
9	Intoxication of population	–	–	1905	1905	2540	2540	2921	2921
	Sum total	1151	1214	9294	9371	12481	12720	14224	14500

INFORMATIONAL SOCIETY AND CENTRAL ASIA: DIFFICULTIES AND PERSPECTIVES

The Central Asia is a geo - strategic region for the big states, which mainly are Russia, China, and USA. Being the buffer zone for the various traffics (human, drugs), and strategic place that divide Europe and Asia continents, it forces to be attractive to rule and manipulate these countries. The rural inhabitants of the Central Asia, that particularly were nomads. The politics leaded by Soviet Union changed the life style of the people. Rapid step from rural live to socialism, changed the people & ideas, but not totally.

Information plays important role in the world and it affects to Central Asia too. Being part of the world that physically situated between West and East makes Central Asia very unique. But this region is very amorph term. Even now, it doesn't unite the people so good as it use to be. People that are living on the land that begins in Altai and ends somewhere in flat of Afganistan. People that have one history, one customs, similar language doesn't communicate so effective as it use to be. Do the era of informational society change something in this issue?

But even now, we can see that information and informatisation going inside of the society. But slow. The lifestyle and processes taking part in Central Asia usually going slow. Probably it's coming from the history and deeps of tradition. When something going fast and in rush - it's only annoying, irritate the surroundings. Do information goes contrary the tradition and custom?

Turk and nomadic civilisation that had before rural, nomadic life style was turned up-side down. The Soviet regime changed mainly the life of nomades and forced them to settle in one place. Tradition was changed.

The new era of informatisation come in Central Asia somewhere in nineties, when one cultural and political revolution crushed the Soviet regime. The atmosphere of empty and disability were everywhere. The gates of Soviets regime were open to westernisation.

New era of informatisation came and it was hard for that time, to understand and sense it for people that were born in precious time. But every cultural, social, political changes usually change lives. People that lived about fifty years under the chronosphere of totalitarianism and censure became free. The lifestyle was changed.

The term "Informational society" appeared in Central Asia recently. It's hard to understand where it begins and where ends. And means abilities and skills to use new-technologies and communicate through them. According to this region, it can be said that in informational society involved mainly small social active part of the society, that have opportunities in access to high-technologies. It can be said that "informational society" is a some kind of elite club for people in Central Asia, that divides society who are inside and outside the informational system

The informatisation of the society goes slow. There are a lot of problems that connected as well as with high-technologies and lack of people to access and use it.

Situation with internet, that is a tool that helps shape the "informational society", also going slow.

Many people believe that the era of informatisation changes our lives. Ultimately, this may be true. As for Central Asia, this region has potential to be integrated in world informational society. In this way, new generation need to be open to new ideas, new technologies to use it in everyday live. This will help make social, economical processes effective and fast then ever.

ACCOUNTING OF THE ECOLOGICAL FACTOR IN THE INTERNATIONAL ECONOMIC RELATIONS IS ONE OF THE MAIN FUNDAMENTALS OF UKRAINIAN SUSTAINABLE ECONOMIC GROWING

Andrusenko, V. Hryshenko

Studying of modern conditions and ecologization possibilities of foreign economic activity are specified by need to optimize the ways of Ukrainian enabling to the word's global process and exclusive importance of this relations in maintenance of sustainable economic development in the market transformation conditions of the economy.

Among the variety of problems which need to be solved today in the international level it is reasonable to select the ecological problems and their influence on international economic relations.

From practical and scientific point of view it is not explored remains the problem of the optimal cooperation between managerial system of Ukrainian foreign economic activity and its ecological and economic potential that requires new approach to develop the new international economic strategies.

The ecological factor in the international economic relations is revealing itself under:

- joint international use of natural resources;
- international trade in services, industrial and agricultural products;
- trans-boundary flow of waste.

Today these economic relations are not regulated. There is no any economic management mechanism of compensation for environmental-economic damage of one country to another in the international level.

In our opinion, the major purpose of international ecological and economic policy of the state is creation of a basis for development of strong competitive industrial sector, guaranteeing the sustainable development of national economy.

Now globalization erases a line between internal and external spheres of economic activities, between internal and foreign policy. The development of the economic relations with other countries or regional groups can carries to country both advantages, and determined problems. On the one hand, participation of the country

in international division of labor allows for the country to distribute resources which it has more effectively, in production of which the country has a competitive advantage, in exchange on necessary goods and facilities, which country does not produce. On the other hand, world market could give critical dependency of the national economy from conjuncture of the foreign markets and irrational structure of the export with dominating of raw nature materials. Besides, countries with small competitive potential will have the great dependence from their trade partners and vastly decrease the possibility to dispose from status of provides raw materials and half-finished products on the world market. This is the contradiction of the open economy, but in modern conditions it is impossible to have the economy, which tried to develop only with its own resources, without regarding trends of the world development.

The analysis of the character and consequences of Ukrainian foreign policy during its movement to the open economic system gives some basis to confirm that main faults of the policy were:

- 1) absence timely actions of state in implementation of ecology and economic reforms and transformations process in foreign economic sphere;
- 2) foreign ecology and economy policy were realized without clear determination of its tactical and strategic goals.

Foreign economic activity of the Ukraine developed on the total negative background, when volumes of production of the most important types of progressive high effective industrial products are radically falling down.

The negative character of the foreign policy is dangerously low volumes of final products in the export activity, as well as import of the quite a number of power resources, which Ukraine basically uses for production of raw materials and half-finished products, realization of which is practically unprofitable for national economy. Today in structure of the Ukrainian export dominate relatively low-technological goods, first of all - products of black metallurgy, main chemistry, as well as raw materials and products of agriculture.

On our opinion, compatibility of the economic growing and environmental protection are possible only in case when all countries without exception will understand the mutual ecology-economic dependency, need to consensus of environmental priorities and economic growing, and building on these principles their own international economic relations, together prevent destruction of our planet. For this it is necessary to search the ecologization mechanisms of the international economic relations and transition relations.

The decision of this complex of problems in order to ecologize international economic relations and develop export production includes two directions - strategic and tactical.

The basic strategic direction of ecologization of international economic relations can be maintenance on integrity livelihood functions of natural systems in order to provide sustainable development of society and provide equal attention to its economic and social components, ecology-economic safety of the country and

recognition impossibility of the economic growing while it is degradation of the environment.

The tactical direction must includes the system of goal-directed and forced actions on the ecologization of the international economic relations with the provision of ecology-economic consequence of the received decisions.

In our opinion, the decision of the global ecological problems must be based on four environmental fundamentals of the international economic relations:

- promotion of the international environmental-economic agreements;
- active international cooperation in the prevention of illegal trans-boundary flow of natural resources;
- promotion of the environmental-economic laws in a sphere of international economic relations;
- prevention of international trade in technologies, products and services which could be the course of environmental damage.

The decision of the global ecological problems expects the changes in area of the consciousness of the people, without which it can't be scolded change in practice. The particularity of this approach consists in following: it pays attention to scolded reasons of the origin ecology-economic and social contradiction. In accordance with them are defined directions and ways, with the help of which these contradictions can be resolved. The analysis of the reasons of the arising the ecological problems on international level can help in development of the strategies further action in Ukraine. Only on base international cooperation in the field of ecologies mankind can hope on formation of the sustainable development without cargo the most serious ecology-economic problems. Accounting of the ecological factor in the international economic relations will promote, on our opinion, their successful permit.

IS SCARCITY A GOOD OR A BAD?

Basko E.A., Popovtseva T.S.

Our infinite wants, the finiteness of our resources and the bad job we too often make of allocating them efficiently and optimally - lead to mismatches between supply and demand. We are forever forced to choose between opportunities, between alternative uses of resources, painfully mindful of their costs. This is how the perennial textbook "Economics", authored by Nobel prizewinner Paul Samuelson and William Nordhaus, defines the dismal science: "Economics is the study of how societies use scarce resources to produce valuable commodities and distribute them among different people."

Scarcity of most natural resources (a type of "external scarcity") is only theoretical at present. Granted, many resources are unevenly distributed and badly managed. But this is man-made ("internal") scarcity and can be undone by Man. It is

truer to assume, for practical purposes, that most natural resources - when not egregiously abused and when freely priced - are infinite rather than scarce. The anthropologist Marshall Sahlins discovered that primitive peoples he has studied had no concept of "scarcity" - only of "satiety". He called them the first "affluent societies". This is because, fortunately, the number of people on Earth is finite - and manageable - while most resources can either be replenished or substituted. Equally, it is true that manufactured goods, agricultural produce, money, and services are scarce. The number of industrialists, service providers, or farmers is limited - as is their life span. The quantities of raw materials, machinery and plant are constrained. Contrary to classic economic teaching, human wants are limited - only so many people exist at any given time and not all them desire everything all the time. But, even so, the demand for man-made goods and services far exceeds the supply. Scarcity is the attribute of a "closed" economic universe. But it can be alleviated either by increasing the supply of goods and services (and human beings) - or by improving the efficiency of the allocation of economic resources. Technology and innovation are supposed to achieve the former - rational governance, free trade, and free markets the latter. Operations research, mathematical modeling, transparent decision making, free trade, and professional management - help better allocate these increased resources to yield optimal results.

To sum, though financial and human resources as well as content may have remained scarce - the quantity of intellectual property goods is potentially infinite because they are essentially cost-free to reproduce. It looked like a virtuous cycle. But the abolition of scarcity implied the abolition of value. Value and scarcity are two sides of the same coin. Prices reflect scarcity. Abundant products are cheap. Infinitely abundant products - however useful - are complimentary. Consider money. Abundant money - an intangible commodity - leads to depreciation against other currencies and inflation at home. The new economy caused a massive disorientation and dislocation of the market and the price mechanism. Reverting to an economy of scarcity is our only hope. If we don't do so deliberately - the markets will do it for us, mercilessly.

ECONOMIC VIABILITY OF COMMERCIAL COMPOSTING OF ORGANIC WASTES FROM MARKET BY PASSIVE AERATION

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Organic wastes from markets are very rich in a variety of nutrients, but Municipality from Government is usually faced with the problem of contamination, pathogens and the disposal that generally cause pollution that perturbs habitats and contributes to climate change affecting whole ecosystems.

Composting is offered as a method for a very efficient and environmental safe means for disposal of a large volume of waste market through a technology that is economically and environmentally sustainable: Passive Aeration Windrow System (PAWS) afford excellent pathogen containment. When a compost pile is constructed properly there is no odor of wastes, a good indications of this is that scavenging animals did not disturb the piles.

The total Volume of finished compost is about 40% less than the mass present at the beginning of the process but contains greater measurable units of nitrogen per unit weight.

The Commercial Composting of wastes by this technique requires low capital and operational costs and encourage waste reduction, improve the local ambience and ecosystem integration, create employment and enhance the environmental sustainability.

MODERN SOCIO-ECONOMIC METHODS OF REVEALING INDIVIDUALS' PERCEPTIONS REGARDING THE ENVIRONMENT

A. Belyakova

In the transitive economics conditions the most significant role have such decisions that have an evident influence on quality of the environment, because the market prices do not reflect real values and originality of natural resources. Decisions concerning their management play a very important role, because natural systems are inert, their influence on the environment is significant and public preference

rences often stay unrevealed because of the absence of market of nature systems' services.

For the well-grounded decision making it is necessary to use value assessment. Methods that can help to determine an economic value of natural resources do not take into consideration all elements of economic value or they have another essential methodology disadvantages. There is no universal method for determining the total economic value.

Methods of revealed preferences evaluate use value and do not take into consideration existence value. Methods of stated preferences embrace existence value, but they have restriction concerning adequacy and interpretation of the results.

These methods are widely used and effective as well. But they do not pay enough attention to the individuals' behaviour features and to the subjectivity of their responses to certain questions. In the contrary, Q-method, which was invented in 1935 by British physicist-psychologist William Stephenson (1953). Q-method combines the strength of both qualitative and quantitative research methods.

Q-method is often associated with quantitative analysis due to its involvement with factor analysis. Stephenson was interested in providing was a way to reveal the subjectivity involved in any situation. Q methodology allows researchers to examine the subjective perceptions of individuals on any number of topics. It also helps to identify commonalities and differences in subjective perceptions across a sample group.

Q methodology is a research technique that allows a researcher to 1) identify, understand, and categorize individual perceptions and opinions, and 2) cluster groups based on their perceptions.

Він є основою для системного вивчення суб'єктивності і дає змогу дослідникам перевірити суб'єктивні уподобання індивідуумів у будь-якій галузі знань. Крім того, він уможливорює визначення загальних рис в уподобаннях груп та відмінності між уподобаннями цих груп.

The real utility of Q methodology lies in uncovering these opinion/perception clusters. Once identified, they can be targeted for follow-up activities such as further research or programmatic activities. It is the combination of qualitative and quantitative research techniques that allows researchers to identify individuals who share common opinions. Q methodology is often used for the following:

- identifying important internal and external constituencies
- defining participant viewpoints and perceptions
- providing sharper insight into preferred management directions
- identifying criteria that are important to clusters of individuals
- examining areas of friction, consensus, and conflict
- isolating gaps in shared understanding

The qualitative aspect of Q methodology is grounded in its ability to emphasize the how and why people think the way they do. The primary goal is to uncover different patterns of thought—not to count how many people think the way they do.

The quantitative aspect involves using factor analytic techniques (specifically, principle components analysis [PCA]) as a means for grouping like-minded individuals.

Q-methodology uncovers and identifies the range of opinions regarding a specific topic under investigation. The methodology involves three stages:

- 1) Developing a set of statements to be sorted;
- 2) Participants are to sort the statements along a continuum of preference;
- 3) Analyzes the data and its interpret.

Q methodology, like many research methods, can be used to observe perceptions from the context of an individual or from the context of a group of individuals. In Q methodology, intrasubjective studies gather data from an individual on multiple issues of interest. The individual's opinions are then clustered based on similarity of opinion. The purpose is to determine whether the various opinions of the individual give rise to a greater thematic understanding of the issues at hand. Typically, an individual may be asked to reveal his/her perceptions on a variety of different constructs. When examined in total, the findings may reveal similarity patterns. For example, a programmer may be studied to determine his/her preferences for different software programming methodologies under various conditions. In this case, the study is intrasubjective because the researcher is studying a single individual to determine if preferences cluster around one or more common themes.

Conversely, intersubjective studies focus on how perceptions of groups of people cluster on one issue or more. The issue may be single or multidimensional. The point being, if one was only concerned about how various traits clustered together, they would be employing traditional factor analysis methods. Alternatively, Q methodology is concerned with clustering like-minded perceptions. It is a means for identifying the presence of patterns of opinions. Whether it is single dimensional or multidimensional, the study is always framed around finding patterns of subjective perceptions.

PROSPECTS OF ENVIRONMENTAL INSURANCE IN UKRAINE

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Economic reforms throughout the period of Ukraine's independence have greatly influenced the environmental situation in the country. The damage caused by industrial and domestic wastes has been occupying a leading position among the urgent environmental problems for a long time. The real loss connected with human-caused disasters and chronic diseases from environmental pollution come up to 4-6% of Ukraine's GNP.

Environmental insurance should become one of the mechanism elements in the process of reformations in Ukraine. It is a system of relationship in production

between an insurer and insured to prevent the harm and its reimbursement in the case of emergency pollution.

The purpose of environmental insurance is formation of insurance funds to prevent ecological disasters and catastrophes; reimbursements losses caused to the natural and juridical entities as a result of environmental pollution; providing the terms of living conditions and business functioning in the regions of increased pollution.

This insurance can carry out the several important functions.

First of all, as well as any other class of insurance, it helps insured to overcome those financial pressures which can take place after insured accident comes. That means that insurance organizations undertake the obligations concerning insurance compensation payments to injured third persons in result environmental pollution by insured. These payments are taken off insured.

Secondly, the presence of insurance coverage increases the guarantees to injured third persons. They will get the appropriate insurance compensations for caused damage without taking into account any subjective circumstances.

Thirdly, this insurance should provide the control for environmental protection made by insured. An insurer analyses ensured activity from the point of ecological safety. After that he decides whether to have insurance relationships with such an insured. And he determines the rate of insurance contributions according to the extent of insurance risk. This stimulates insured to provide appropriate natural-protecting activities get the possibility to make an insurance agreement and to reduce the expenses on insurance contributions.

And fourthly, insurance organizations which carry out environmental insurance can take part in financing measures to provide ecological safety. Such a financing can be realized from the reserve assets, which are created due to deductions from insurance payments and also from temporal use of insurance reserves for crediting natural-protecting measures. The last provides decreasing volumes of harmful wastes and their consequences.

Experience of the industrialized developed countries in environmental policy indicates the effective integration of state government and economic methods of management allows getting the best result. Thus, there is a necessity to abandon the states funding resource and waste intensive industries and fining pollution.

The main methodological problem of this issue is how to identify an insurance base for insurance tariffs (losses to natural and juridical entities, methodology of calculation, ratio calculation). The fact of exploiting, old technologies in Ukraine has to be taken into consideration. To our points of view tariff diversification has significant importance as damages caused by enterprises very much.

Banks, state and region budgets, field organizations and population that inhabits in regions of increased pollution can give a start to insurance funds.

Nowadays Ukraine is making the first steps in introducing fundamentals of environmental insurance. The appropriation bill on environmental insurance has been prepared and is being processed in state agencies.

ECOLOGY COMMUNICATIONS, INC.

Cristina Bojko

THE ECOLOGY CABLE SERVICE

It certainly isn't a new word. In Greek ("oikos"), it means the home, the place where we live. And *ecology* means the science of how all living creatures interact within our home - our environment on this fascinating, complex Spaceship Earth.

Yet, "environment" and "ecology" are extended to encompass the inseparable universe. Mankind was not the first organism to leave the Earth's atmosphere. Mankind, plants and animals are now living in space for extended periods. The Earth, and survival of all species, is reliant upon the harmony of its existence among billions of other planets and space objects. With mankind's entry and enterprises in space since the early 1960s, there is valid and increasing reason to extend environmental and ecological concerns to the farthest regions of our home in space.

Environmental unity exists everywhere, and the survival of all species on Earth depends on its continuance. One of our objectives is to connect space science, exploration and its discoveries with Earth, its immediate environment and ecology, by using the media to connect people.

It isn't surprising that while the interest of Americans on many other issues tends to fluctuate, public interest in our environment remains constantly high. Today, over three-quarters of all adult Americans pay attention to a company's environmental reputation before they buy its products and services. Two-thirds of us recycle the waste from our homes, schools, or offices; and 70% say they would be willing to pay higher taxes to make our air and water cleaner.

Ecology Communications presents the highest level of commitment to the environment, to personal and community ecology, and to a sustainable way of life for ourselves and the next generation -- through highly compelling, visual, unbiased and empowering television and Internet content. It's all about connecting... people with the environment, with their home, and with themselves. It's about the seven E's: Environment, Education, Enlightenment, Entertainment, Excitement, Empowerment, Excellence. It's all about ***Ecology!***

Ecology Communications, Inc.

ECI was originally formed in October 1993 as *The Ecology Channel, Inc.* for the purpose of establishing, owning and operating a television production company and cable television network. The company was formed to focus solely on all aspects of ecology and the inter-connectivity of all living things and their environment.

By the time it had established its programming operations in 1994, the Company had changed its name to ***Ecology Communications, Inc.*** to reflect its broader position as a major source of environmental television programming for the U.S. cable television industry, alternative satellite distributors, and worldwide programming syndication. By the end of 1997, Ecology's programming reached over 10

million American homes on *Outdoor Life Network*, and an additional four million homes on Ecology's proprietary and rapidly growing local programming service for cable operators called the ***Ecology Cable Service***. This service eventually reached 11 million homes nationwide in major cable markets.

In June 1998, ECI was combined with two other companies with common shareholders and strategic synergies to create ***The J-Net Group, Inc.*** Ecology Communications maintained its operations and branding as a major division of J-Net, including the continued production and distribution of programming, as well as the development of its library, Internet operations as ***www.ecology.com***, and international programming syndication.

In September 2001, the Ecology Communications division was spun off from J-Net to form the new Ecology Communications, Inc., a Massachusetts corporation. This action was taken for the purpose of significantly expanding the distribution of its television programming via a broad array of multimedia platforms, particularly utilizing the convergence of its television programming and Internet operations. Such other businesses focus on domestic and international syndication of programming assets, traditional video distribution platforms, and the development of integrated educational applications for students, teachers and the life-long learner.

THE ECOLOGY CABLE SERVICE

In May 1997, ***Ecology Communications*** launched the ***Ecology Cable Service*** (ECS) as a natural extension of its ongoing multimedia operations. Specifically designed as a co-branded enhancement for local cable-originated programming, the ***Ecology Cable Service*** provided cable operators nationwide with world-class, ecology-branded programming on a barter basis. The service reached 11 million homes within 18 months, covering large markets such as Boston, Atlanta, Tampa, Orlando, New Orleans, San Francisco, Chicago, Dallas, New York, St. Louis, Philadelphia, Detroit and many others.

The purpose of the cable service was two-fold:

- 1) to develop a market for Ecology's programming on cable television in the absence of a network, and
- 2) begin introducing and branding Ecology's programming with cable operators. This effort turned out to be very successful given the amount of carriage and feedback from cable operators.

SELF-MANAGEMENT IN GATHERING AND PROCESSING OF INDUSTRIAL AND DOMESTIC WASTES IN THE CITY

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Environmental problems are systemic problems and in order to find their resolution it is necessary to consider not only ecological, but also economic, industrial, social and other aspects of a given area, as well as their interrelation with other regions. It has been known that misuse of waste returns to pervert changes of natural resources.

Management as a science of gathering and processing of industrial and domestic wastes does not always exist as a system. As you know, management begins with the creation of a system for gathering information. In this case, about industrial and domestic waste. Complex systems of management do not always successfully coordinate the various city organizations or departments of self-management.

Let's consider, how these difficulties can be overcome. For existing systems each created enterprise, having chosen for itself one or several kinds of economic activities, establishes the charter in which is registered in a corresponding department of self-management. Frequently the charters offer such a broad spectrum of activities that they are practically impossible to neither realize nor pay attention to all aspects or to envision the ecological consequence.

The competence of other departments of self-management is the coordination of permissions to use natural resources. Unfortunately, often this document is formulated after the registration of the enterprise, which can lead to dispute situations. To communicate the permissions of any economic activities and their possible consequences, it is necessary to combine the registration of the enterprise with simultaneous registration of its ecological passport.

Executed on the basis of material and power balance calculations of atmospheric emissions, quantities of other waste could become base for an establishment of payments by graduated tax scale for various activities. And we accept, as that like living organisms, technical products have a cycle of a birth, life and death. Each product has a different duration in this cycle and therefore their production wastes have different opportunities for recycling.

The second stage of monitoring of activities of corporate self-management is the combination of tax inspection with environmental inspection. Documented confirmation of all waste and executed payments will be quantified. The third stage - differentiation of waste reduction by kinds of waste. At this stage the appropriate conditions are created for enterprises to recycle.

The proffered approach to manage the part of the technosphere that is industrial waste is, in our opinion, an opportunity to develop new kinds of industrial waste processing. It presents an opportunity to get rid of the grave problems of landfills, pollution of subsoil waters, soil erosion, and the poisoning of our air. The im-

provements to the ecological situation in the industrial center would appreciably influence the quality of life for inhabitants of all regions.

ANALYTICAL SCHEME OF HUMAN RESOURCE PLANNING FOR PROFESSIONAL COMPANIES

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Human resources(HR) planning is a core problem for many companies nowadays by the virtue of a series of facts. The basis fact is actual conditions of the economic and marketing development of a country – the pace of this development has increased immensely for the past 10-15 years. Markets became well-developed with matured competitive environment where time of qualified human resources hiring becomes of vital importance for the company to get their clients' recognition.

The second group of facts concerns the characteristics of the modern epoch - global economy with increasingly sophisticated information technology where the demand for professional services is escalating. The quality of services a company can render-ultimately depends on the caliber of its employees.

Next group of factors consider human resource expenditures, such as salaries, professional development, pension, medical and other benefits, constitute a major portion of its total operating costs. It's an important factor for professional companies. To control these expenditures while maintaining high-quality services, management needs to deal effectively and efficiently with its manpower issues.

The last (but not the least) group deals with optimal workload caused by seasonal character of a company's activity. Such firms have a distinct *peak-wise* demand period during which the workload of their professional employees exceeds the hours normally available. Effective HR management must provide the company with the ability to meet the demand in a peak season.

Complex mathematical tools were once presented to the HR managerial theory. However, in spite of the results provided in the literature, human resource managers are reluctant to adopt linear programming approaches for two major reasons. Firstly, they prefer to perceive and effectively employ analytical rules and policies rather than mathematical programming. Secondly, it relates to the accuracy discrete time-based methods, which is not always controllable (the higher the accuracy needed, the greater the number of periods must be considered within the same planning horizon).

The model that we are going to present here allows the corporate managers to consider dynamic demands and processes analytically, including **peak-wise** (or seasonal) **demand**, balance of **workloads**, engagement (contract) **delays**, **loss** of clients (streams of revenues), and **over-capacity** (excessive surplus) issues when making human resources decisions, thus minimizing the firm's **operating costs**. It's a continuous-time model for human resources management. The goal of using such a model is to find a trade-off between the cost of delaying jobs plus loss in revenue, on the one hand, and the cost of recruiting and hiring employees at all levels, plus their salaries, on the other hand. For considering the model we assume the following:

- Employees have different combinations of knowledge, skills and experience and, therefore, are distinguished hierarchically.
- Senior managers who are to manage rather than to carry out professional assignments are excluded from the consideration.
- The service provided by a firm involves a systematic and sequential process that cannot be done in advance. But, a contract can be delayed with a costly penalty, assuming that there is a mutual agreement (understanding) when the contract is signed.
- The optimal solution does not allow over-capacity of a firm. Thus, it is not desirable to hire professional employees on such a scale during a peak season that the clients' demands can be met easily during the rest of the year not using all of the available HR.

Then we consider the employees are distinguished by level $n = 1, 2, \dots, N$ at which they are capable of performing incoming assignments. If the total performance rate from the beginning of the planning horizon by time t is greater than the accumulated demand by the same time t , the service process results in a surplus; otherwise it results in a backlog. The model proposes no surpluses, but backlogs are permissible. This implies temporary delays in completing engagements and a rejected job at the end of the planning period.

When there is a **peak in demand**, a dynamic response (hiring cycle) is required to minimize the cost of contract delays and the loss of fees. The demand level can be estimated reasonably, a professional firm should include the delay penalty as part of its negotiations with clients before the signing of contract. If a firm realizes that a delay cannot be avoided due to a lack of suitable manpower, it may be beneficial management to reject a contract in the early stages of negotiations or engagement processes. This would limit **delay penalties** to unexpected circumstances and prevent the company from an image damage.

Loss of fee is used to represent cost invested by a professional firm in evaluating a client before accepting the engagement. Hence, is a loss for not accepting an engagement after the initial assessment of a client's financial condition.

Three **workload policies**: workload at the maximum rate; no-workload-at-all; partial workload. The company depending on the working process and its strategy can stick to one of these policies. And, under different conditions they could be optimal. Mathematic tools describe these possible situations concerning the cost of hiring, an employee's salary and benefits over the peak time. From the cost control and

profit maximization viewpoints, employees must be fully loaded after the switching point to the peak season. The case of under-utilizing of professionals during the peak time is a case of **over-capacity**.

Optimal hiring of professional employees at all levels can be of three types: (1) no hiring of professional employees of level n up to time t_1 , hiring employees of level n at full rate from t_1 to t_2 , and no hiring after t_2 ; (2) hiring of employees of level n at full rate from the beginning of the planning horizon to t_2 , and then no hiring of this level employees after that; (3) no hiring at all of professional employees of level n

Human resources expenditures typically includes all resources consumed to bring an employee to the point that he/she will be able to generate revenues for the firm. Therefore, we include time and financial resources consumed by the human resources management department, the personnel at all levels who are involved in recruiting and hiring, his/her salary and benefits, the overhead expenditures to design, print and deliver recruiting materials, and other expenditures (e.g. training provided for new hires).

Summing it all up, to cope with the issues of human resources planning in professional firms, we explicitly consider the firm's hierarchical structure, costs of recruiting and hiring, workload, engagement delay penalties, loss of fees, and the issue of over-capacity. And, it is imperative for the firm's management to establish human resource policies in hiring, training, scheduling, balance workload and retention, so that both clients and professional employees can maintain a high level of satisfaction, enhance a firm's profitability and also sharpen its competitive edge.

“SUSTAINABLE DEVELOPMENT” AND PROBLEM OF WASTE

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One of forming moving the Ukraine to European and world community there is realization of the cardinal principles to models "sustainable development", which provides need of the development society in accordance with possibility environment.

Within the framework of one state of the notion "sustainable development" expects ensuring the layered system of the balance between society and nature in economy, demographics, industry, ecologies. Considering from these position condition Ukraines, follows to define the absence of such balance.

For years independence of the Ukraine, in spite of reduction of industrial activity, technological load on biosphere increases. This reveals itself in growth amount departure, which are got when mining useful fossilized, industrial activity, in every day life, as well as in increase surge bad gas in atmosphere and in soiling the water pool

In Ukraine is dug close 25 billion t different waste. Under their accommodation are spent greater area (nearly 50 thous. ga), much departure contains the hazmats. The Waste there is integral part road production, spheres of the service and consumption. They are got on miscellaneous phase technological process, commencing from source raw materials material. Only 2-5 % amount that that gain, is given material form to in the manner of final product

Thereby, problem departure on direct connected with ecological direction of activity state, and his(its) it is necessary to consider as element component at realization of the concepts a sustainable development to decisions of the problem departure can be a state program of the address in sphere departure, which provided such strategic directions:

- industrial-production (using departure as secondary material and energy cheese);
- ecological (the reduction technological loading on surrounding ambience);
- sociological (eliminating the dangerous action on person, increasing level to employment of the population in sphere of the conversion departure);
- saving resource (the saving material and energy resource to account of the introduction the most latest technology)

The Waste follows to consider not only as the source of the contamination surrounding ambiances, but also as secondary raw material for own consumption, as well as as goods, market product commercial deyatelinosti.

The Ways of the further conversion departure are defined many criterions, for which their classify: degree to dangers; the unit condition; physico-chemical composition; biological, biochemical characteristic departure. The Hard industrial waste distribute on such groups the conversion metal production subdivisions; the metallurgical production subdivisions; the production and conversions syntetic polymeric material; the natural polymeric material (paper, albumens); the systems of the heating; radioaktive.

For industrial departure typical more clear structuredness at categorizations. Under consideration home departure to sign, which typical industrial approach, are added signs departure food goods, as well as departure to economic activity of the person on homestead area, datcha and etc. The Home waste divide into such groups:

- food;
- the capacity metal;
- the inorganic origin (glass, ceramics, the building materials, stone);
- the material from natural high-molecular of the join;
- the preparation, facilities of the medical purpose; syntetic polymeric materialov.

Efficient address with departure has such forming:

- a reduction of the volumes of the formation departure,
- a repeated use,
- an incineration,

- packing.

As to Ukrainians then on state level while that understanding the problem address with departure (except radioactive) no. The Attempts scientific workman to attract attention to problem have not found neither legislative-legal, nor technical, nor material support. Possible, in this there is something positive. The most efficient technologies of the address will be perfected For this time with departure, and herewith will possible use the last achievements in this napravlenii.

EXPONENTS AND INDICATORS OF SUSTAINABLE DEVELOPMENT

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Sustainable development ensures the realization of national surviving and producing process, the activation of human role in society, providing rights and freedoms of people, harmonization of relations between people and nature, environmental protection.

As any other process of sustainable development and conditions of its flood can be appraised with a help of quantities and qualities exponents and indicators.

Forming and using ecological exponents and indicators help to manifest the level of harmonization of relations between natural and human systems, the problems which appear and help to choose optimal complex of measures and to control the effectiveness of problems' realization.

Nowadays about three thousand of ecological exponents and indicators are used in practical activity. As there are a lot of them they need to be classified for more effective using in solving ecological problems.

Many international organizations are involved in learning indicators of sustainable development. Each of them its own classification.

First of all, ecological exponents and indicators of sustainable development are divided into three basic groups: economic, social, natural and resources.

In USA another classification is used, it means that all exponents and indicators are divided encoder to the character of their settings. Among them are : health and environment, population, sustainable social environment, education and others.

MSR (Moving-Status-Reaction) is another system of ecological exponents and indicators. Indicators of moving are indicators of human activity; indicators of status fix indicators of sustainable development in a present district in a current moment of time. Indicators of reaction include political choose and other reactions on changeable characteristics of sustainable development.

While analyzing classifications of indicators, system of ecological exponents can be presented as a pyramid, which consists of four levels: first is ecological exponents, which take part in the process of observation and measuring any pheno-

mena. Another level - ecological indicators which characterize status of systems and factors and other changes, caused by these factors. the third level is ecological indexes , they value environment, changes in different spheres of environmental protection. The highest – fourth level is ecological macro indexes which serve for valuing the status of system on macro economic level.

ECOLOGICAL SECURITY IN CONDITIONS OF CONTEMPORARY MILITARY-POLITICAL SITUATION IN THE WORLD

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In modern conditions extremely great value, both in system of the international relations, and in system of national security of any country occupies ecological security. Political stability, economic development and existence of mankind depend on its maintenance. In opinion of the author, during consideration of national and international interests it is necessary to allocate the ecological interest; its maintenance makes essence of environmental safety. In a general view ecological interest consists in maintenance of favorable ecological conditions of existence and development of a separate person (citizen), a society and any country of the world. Creation of favorable ecological conditions means preservation and careful use of natural resources, protection of a variety of ingredients of biosphere, a condition of an atmosphere, a hydrosphere, a lithosphere and near space sphere. Ecological security can be defined as a degree of protection of ecological interests of a person, a society, a state, and mankind from external and internal threats of anthropogenous (technogenic) and natural character.

For today in the world there are a lot of replaceable and constant threats of different character of influence. Nevertheless, armed conflicts continue to represent one of the greatest dangers to mankind and an environment existence. An aggravation military - political condition in the world, emergence of internal and international conflicts and the problem of terrorism connected with them can lead to catastrophic environmental consequences of global character. In general, activity of armed forces represents one of the basic polluters of an environment as a result of emission of a plenty of toxins and harmful substances which erode an ozonosphere of the Earth. The level of development of modern arms transforms any armed political conflict into a powerful hazard to an environment. Only arsenals of the nuclear weapon quite will suffice to destroy not only mankind, but also the Earth, - to transform it into nuclear desert. Preservation of this threat is assisted with presence in a number of the states of significant arsenals of the nuclear weapon. Events of last years confirm threat of the nuclear weapon use in one of unresolved confrontations.

As a vivid example can serve the aggravation of the India - Pakistan conflict in 2002 owing to which the world has appeared before a real opportunity of nuclear war between India and Pakistan.

Ecological problems are not only a consequence, but also the reason of emergence of military conflicts. It is necessary to pay attention also that the ecological problems caused by confrontations in the separate countries and regions, are not only their internal problem, but also are directly negatively displayed on ecosystem of a planet, carry threat of an ecological situation complication in the adjacent countries. Chemical and radioactive substances, getting in an atmosphere and a hydrosphere, can have negative consequences for ecology of the areas remote from a zone of the conflict on hundreds and thousand of kilometers. Confrontations and wars represent internal and external threat of environmental security of all of the countries of the world. Numerous explosions and fires negatively influence an ozoneosphere of an atmosphere. Refugees from zones of conflicts assist breaking of ecological balance of areas of their forced stay. Unconditional there is a fact ruinous influence of manufacture and test of various kinds of arms; - especially it concerns the weapon of mass killing. Processes of radioactive disintegration proceed tens years, leading to irreversible changes in living organisms and an environment. In a wide arsenal of the weapon of mass defeat a number of experts allocate the ecological weapon. Use of the newest and perspective samples of the ecological weapon can be directed on killing of a fertile layer of land, a call of piece earthquakes, destructive hurricanes, a tsunami, to stimulate volcanic activity, to change a direction of current of the rivers, etc. Considering prospects of development of the ecological weapon, some researchers examine an opportunity of the "global ecological war". The most dangerous for an environment is the terrorism with use of radioactive and chemical waste. Potential threat is represented also with an opportunity of realization of acts of terrorism on atomic power stations, items of storage of the fulfilled nuclear fuel, research reactors, and on the enterprises of a chemical industry.

Preservation and the further increase in threat of destructive environmental consequences of military conflicts and terrorism causes necessity of magnification of the international control over development and use of ecologically hazardous kinds of arms. The effective recognition of a priority of peace methods of conflicts settlement and incorporation of the countries of the world in creation of global system of maintenance of ecological security are necessary for development of a human civilization.

THE IMPACT OF INFORMATIONAL ORDER OF SOCIAL – ECONOMIC SYSTEM ON ITS EFFICACIOUS FUNCTIONING AND DEVELOPMENT

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The problem of informational order of social - economic systems is the main on modern stage of the development of mankind because this notion is generalizing in progress and operating of the system. It includes the results of all innovations and new decisions in the system, shows their effect by means of efficient functioning of the system.

We will touch theoretical aspect of notion of information in the view of synergetic approach to this question. I.e. we will consider information as a reason of the origin of energy flow in a system and as an effect of its efficient work and the main – its efficient development.

Existence and development of any system is connected with mechanisms of negative and positive feedback.

Mechanisms of negative feedback support in a system a stationary condition - homeostasis, and mechanisms of positive feedback ensure a system transformation - a transition from one level of homeostasis to another. The incitement to such turning of a system serves a sufficient accumulation of free energy, when system moves to the new qualitative level of its development. As accumulated free energy becomes available to the system it occurs also a separation of energy of the system, more exactly its uncontrolled diffusing that causes a discord inwardly systems and can prevent its further progressive development or bring about its full destruction. So it comes up a problem of efficient using the systems resources to reduce the losses of energy.

The prime cause of the efficient formation and development of the system is its informational supply.

The economy of any country represents an opened system i.e. it occurs an energy, material and information exchange with other social - economic systems. So any social - economic system has a possibility to develop because of the influx of energy and information. The last one has a special importance because systems have an internal spare of energy (useful fossil fuels, labor facility etc.).

But not every system manages to use its potential with maximum profit. There are several reasons for this but the general sense is reduced to insufficient informational order of the systems.

First of all, system may have enough energy, but its use is connected with big uncontrolled diffusing of energy (increase of entropy). At a rate of enterprises it is great production costs, of the state it is stealing of money, international migration etc. So all this leads to the inconvertible losses for society and have as a result the falling of the living standard of the population, increasing criminality, falling the interest of people in the society development. Inefficient use of system's resources leads to its gradual destruction. The decision is to raise system's informativity - a degree of its informational order.

The second reason - an attempt consciously to close the system i.e. to disturb the natural exchange of information, energy and material between systems. The problem consists in expenses of enormous amount of energy and resources to produce economically ungrounded goods. This is because energy has differentiated

structure from the point of view of its informational essence: it is divided into energy of high quality and low quality; and the problem is connected with use of these types of energy.

Also if touch the prospect of the society development in the nearest future with existing rate of the resource use, that less than in 100 years will run short reserves of main energy sources. There remains only one resource – the information, after all by means of information it is possible to obtain the use of completely renewed energy, minimize the wastes i.e. to minimize the entropy of not separated social - economic system, but global community, which will soon become the Earth...

PREPARING AND IMPLEMENTING SUSTAINABLE DEVELOPMENT COMMISSION IN UKRAINE: THINGS DONE AND PROSPECTS FOR FUTURE

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The National Commission on Sustainable Development of Ukraine was established under the Cabinet of Ministers of Ukraine in 1997 with the purpose of ensuring the solution of problems of the social and economic development, environmental protection and rational use of the natural resources in Ukraine and execution of the decision of the UN Conference on Environmental and Development (Rio de Janeiro, 1992). The Commission consists of the Ministers, members of the Cabinet of Ministers, specialists of the ministries and bodies, scientists, representatives of the community. The main tasks of the National Commission on Sustainable Development are as follows:

- drafting of the proposals on implementation of the decisions and recommendations of the Commission on Sustainable Development of the Economic and Social Council of UN;
- ensuring of the political support to the sustainable development strategy;
- establishing of the procedures of the inter-sectorial coordination to include the ecological aspect in the drafts of the programs and projects of transformation, formation of the pricing policy of the use of natural resources;
- promotion of introduction of the assessment practices of economic losses due to not solving the ecological problems;
- promotion of development of the economic mechanisms on solving the ecological problems in the plans of social and economic development of all levels;
- creation of the organizational and methodological conditions for making managerial decisions for development and introduction of the sustainable development strategy.

The National Academy of Sciences of Ukraine takes an active part in the process of introduction of the decisions of the UN Conference on environmental and development issues in Rio de Janeiro. The following concrete arrangements were implemented:

1. The Presidium of the Ukrainian NAS considered the issue of “Pro-scientific basis of sustainable development” on the expanded meeting on 15 April 1998. The adopted resolution approved the program of work of the Ukrainian NAS’s establishments on the stipulated direction, as well as the priority directions of the scientific research works and introduction of their outcomes.

2. The National Committee of Ukraine on the UNESCO Program “Man and biosphere”, which functions from December 1973 under the Ukrainian NAS’s Presidium, considered and approved the program “Pro-scientific basis of preservation of the biological and landscape diversity in the context of the sustainable development of Ukraine” at its meeting in June 1998.

3. In 1998 in the first and second, amended and clarified, editions of the collection “Problems of sustainable development of Ukraine” were gathered the texts of articles of the leading specialists dedicated to the problem of use by Ukraine of the principle of sustainable development. Independent experts and non-government organizations are also involved in the process of development and introduction of the principles of sustainable development.

Cooperation with them allows using their experience, potential and organizational abilities for significant improvement of the strategic programs.

Introduction of the new approach of the Government to the sustainable economic growth has its own results. For the first time during the last decade it has become possible to achieve a real increase in GDP. Economic stabilization, achieved in 1999 due to the increase of the rates of economic transformation, rectification of the previous mistakes, found a predictable development in the economic growth in the year 2000. In the conditions of absence of foreign credits from the international financial institutions Ukraine has been able to achieve not only economic growth for practically 6%, increase of real money incomes of population on 6.3% in comparison to the corresponding period of the last year, but also to decrease the debt burden, having decreased by this the dependence from foreign creditors.

Reference

1. «Development of the sustainable development policy introductory process in Ukraine» - report at Johannesburg Summit 2002. http://www.johannesburgsummit.org/html/prep_process/national_reports/ukraine_national_report.pdf.

2. “Guidance in preparing a National sustainable development strategy: Managing sustainable development in the new millennium” - outcome of the International Forum on National sustainable development strategies Accra, Ghana 7-9 November 2001

SUSTAINABLE DEVELOPMENT AND SECURITY PROBLEMS

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Recognition of necessity in transition to sustainable development and implementation of a such development model provide for cardinal reconsideration of the national and global security priorities. The concept of the transition to sustainable development may not be separated from that of ensuring the national and global security. In case of traditional development characterised as implementation of a unsustainable development model the national security can not be ensured in principle. In other words, the national security can be ensured only under sustainable development conditions. Thus, any strategy designed to ensure national, first of all environmental security, must be derived from the principles of sustainable development.

This is a essential new approach to the security and safety problems, since previously security has been considered as protection against threats emerging in the process of naturalistic development (within the framework of the unsustainable development model). Nowadays, only those states and societies may be recognised as secured ones, which follow the principles deriving from the sustainable development model while unsecured states and societies may be characterised as those following the unsustainable development model leading the mankind to a global catastrophe.

By the present moment a lot of countries have established the priorities of solving social and economical problems in their national security strategies. But the current conditions call for incorporating the fundamental ideas of global sustainable development of society and nature into a national security concept. Due to the strategy of sustainable development and environmental security a general concept of national security gains a new, global and biospherical dimension making its contribution to our civilisation survival and preservation.

Thus sustainable development is not only a systematic integrity of the economical, social and environmental activities of different types, but also the immanent interdependency of development and security.

The preservation of biosphere is a basis of society sustainable development. But the transient to the model of sustainable development in itself is necessary to ensuring security and sustainability of biosphere development. Society and biosphere determine each other in their development. It seems to be obvious that the security of society, a nation, and a person can not be ensured if biosphere with its biological variety of species, sustainability of natural cycles and processes of evolution is damaged. In terms of a security concept it should be noted that the anthropocentrism in this field has remote past roots, and the particularly social approach to

solve this problem is replacing with the socio-natural one. Along with traditional objects to be secured – state, society and a person - a new natural object closely associated with them, biosphere, has been emerged.

Deriving from the necessity to turn to the sustainable development model it is expedient to add "The Concept of National Security of Ukraine" with the new approaches to ensuring military, economical and environmental security and safety issues. When doing so it is important: to review the existing and potential internal threats to national security; to develop measures aiming at reaching the necessary parameters of economical development and environmental conditions; to identify the characteristics of national economy and environment being adequate to the national security level required and providing sustainable development, normal operation of the vital branches of industry and social sphere; and to improve the living standards of public also affecting sustainable development.

THE USE OF INTEGRATIVE HEURISTIC ORIENTED TEACHING METHODS IN THE ECOLOGICAL EDUCATION

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We can hardly overestimate the meaning of ecological education in the system of teaching methods. Nowadays there are only a couple of eco-disciplines introduced in the teaching plans of technical universities concerning the problems of ecology. The traditional educational system deals with a plenty of subjects, the content and methodology of which are not coherent. The main organizational principal of such education is based on the discipline operation as a separate educational system. Because of the light connection between the subjects there are serious problems, concerning the students' world understanding as an organic whole.

According to the 22nd Article of the Belarusian project of the law concerning high education the educational process at a high establishment is aimed to provide the absolute skill development and intellectually creative potential of the person, as well as the opportunities for his active, free and constructive performance in the society development in order to meet the governmental and social requirements in highly educated specialists. To solve the abovementioned task we can use the synthesis of the world pedagogical achievements, offering us the system of efficient education as a process of man's individual self-realization during the studying activities, aimed on the development of internal and external educational products.

While teaching foreign languages we have noticed a tendency among the students of non-understanding their personal role in the environment. According to the basic (typical) program of teaching a foreign language at a technical university a

number of hours should be given to “Ecology”. Teaching at the Belarusian State Agrarian and Technical University we spend 10 hours in the 4th term to study the topic usually finishing it with a discussion on the problem. However there is a real difficulty for the second-year students to answer a simple question: “What can you personally do to keep the environment clean?” Mistakenly they consider the ecological problems to be caused only by the wastes from the factories and plants or by Chernobyl disaster, saying nothing about their role in the environment.

In our opinion it could be rational to use integrative heuristic oriented teaching methods for the better educational system operation. The use of heuristic methods of teaching reduces the time given to solve any problem in comparison to the objective choice among the all possible alternatives. The structure of the methods should be isomorphic to nowadays educational structure as it establishes favorable conditions for purposing the special knowledge inwardly digest by the students and the experience of their intercultural communication and emotional-valuable attitude.

The meaning of the integrative concept could be defined according to the analysis of the general professional training made by U. Semin. In order to form purposive consistent professional knowledge and intellectual skills, as well as professionally important character features, the ecological education of the students should be worked out on the basis of integrative teaching methods with the help of genetic causation, target determination and harmonization of foundation plurality. The use of integration radically changes the contents and the frame of modern scientific knowledge, intellectual-conceptual opportunities of any separate sciences. It leads to the unity of knowledge in meaty, structural, logic-gnosiological, scientific-organizational, linguistic-semantic, methodological and pedagogical aspects.

A real contribution into fundamental, technological and methodical student preparation for their further educational and professional work should be considered as the major integrative teaching task. In these conditions one of the major directions of educational development is fundamentalisation and humanization.

However the principles of integrative heuristic oriented teaching should be allied to the traditional system, which is the basis of modern education. In order to implement the methods of integrative technology into the foreign language teaching we have broaden the scheme of lexical studying of the ecological topic. For a couple of years our students take part in annual Students Science Conferences, making reports on the topic visually showing their presentations done in PowerPoint.

Nowadays they have good opportunities to use Internet recourses for the material search. We can advise them the following sites:

<http://directory.google.com/Top/Science/Biology/Ecology>

<http://www.guideall.com/ecology.htm>

<http://www.queryster.com/dir.php/Science/Biology/Ecology/>

www.ecology.com

On the sites they can find the issues of ecological magazines, special literature, different information about ecological conferences and etc, as well as to discuss the

existing environmental problems in chat in real time (on-line). Thus the students could get good lexical training and enough professional knowledge to use them in their future term projects. Such kind of education is aimed not only on the knowledge, but also on the creative intellection, actual interest and the characteristic features of the participants of the educational process. Studying a foreign language is a part of common educational system of preparing qualified specialists and could be widely used in integrative teaching as ant foreign language could be used as the means of communication and information exchange.

THE AIR POLLUTION AND ECONOMIC IMPACT OF CORROSION

O. Dreval

Corrosion is a natural process and universal phenomena worldwide. The national costs of corrosion vary between 1,5 and 5,2 percent of gross national product (GNP) of the economies.

The cost of corrosion can be defined in different ways depending on what is included and who is affected. The costs of corrosion is defined as the corrosion fraction of design, manufacturing, operation and maintenance, technology development, and asset value loss.

The two methods used in study to estimate the cost of corrosion are based on: the cost of corrosion control methods and services, and corrosion costs of specific industry sectors.

As can be seen by the above mentioned analysis, the "cost of corrosion" is of major economic consequence to society reflected in the increased losses that it causes to various industrial sectors of the economy. The cost of corrosion study estimates that these corrosion-related costs to most of the large industry sectors are between 3.5 to \$14 billion annually. The industrial sectors identified with the highest corrosion costs were:

- Oil and Gas Extraction
- Petroleum Refining
- Chemical Processing
- Pulp & Paper
- Public Utilities (electric, gas and water)
- Transportation (auto, train, air)
- Metals Production
- Civil Infrastructure

The costs of corrosion come in the form of either premature deterioration or failure resulting in the need for maintenance, repair and replacement of damaged equipment. Other sources of costs come from lost production and increased downtime of equipment arising from corrosion problems. In some cases, corrosion cost also include additional standby capacity that needs to be instituted to alleviate

downtime problems associated with corrosion failures or unscheduled maintenance. A major portion of these expenditures could be eliminated using existing technology through application of best available practices.

Perhaps most dangerous of all is corrosion that occurs in major industrial plants, such as electrical power plants or chemical processing plants. Plant shut-downs can and do occur as a result of corrosion. This is just one of its many direct and indirect consequences. Some consequences are economic, and cause the following:

- Replacement of corroded equipment
- Overdesign to allow for corrosion
- Preventive maintenance, for example, painting
- Shutdown of equipment due to corrosion failure
- Contamination of a product
- Loss of efficiency—such as when overdesign and corrosion products decrease the heat-transfer rate in heat exchangers
- Loss of valuable product, for example, from a container that has corroded through
- Inability to use otherwise desirable materials
- Damage of equipment adjacent to that in which corrosion failure occurs

Still other consequences are social. These can involve the following issues:

- Safety, for example, sudden failure can cause fire, explosion, release of toxic product, and construction collapse
- Health, for example, pollution due to escaping product from corroded equipment or due to a corrosion product itself
- Depletion of natural resources, including metals and the fuels used to manufacture them
- Appearance as when corroded material is unpleasing to the eye

All the preceding social items have economic aspects also. Clearly, there are many reasons for wanting to avoid corrosion.

Now the major directions of corrosion cost study are:

- methods of estimation of corrosion losses in technical and municipal infrastructure;
- effects of environment on corrosion losses of structural materials with regard to cultural heritage objects;
- equipment for monitoring corrosion processes;
- methods of assessment of corrosion losses and costs;
- methods of presentation of corrosion risks and losses in relation to time and area;
- methods of exploring corrosion data bases for decreasing of corrosion losses.

The cost of corrosion study have developed the CorrCost model which described the approaches used to collect data on corrosion related costs, current corro-

sion problems and control measures, and the extent to which modern approaches are being used to control losses due to corrosion in these industries. Methodology of estimations of corrosion costs which might be saved in the near future due to more stringent requirements in air pollution control was shown.

A model CorrCost was developed for spatial estimation of corrosion rates and was recommended maintenance periods for building materials. The model uses available spatial information about climatic and pollution parameters in an area. It can use values either from local measurements or estimated values based on emission inventories. The model has the option of calculating the cost related to the deterioration when knowledge about the stock at risk is available.

THE APPROACHES TO RESOLVING THE PROBLEMS OF FINANCING NATURE PROTECTION EFFORTS ON REGIONAL AND LOCAL LEVELS

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Nowadays one of the most burning problems of nature protection and the rational usage of natural resources was and still remains the problem of financing nature protection efforts. There are more than 1500 ecological funds which can be underwritten from the following sources:

- centralized financing from the state budget (transfers within the limits of budget programs and separate deductions according to the current budget legislation);
- resources from environmental protection funds;
- local budgets within the limits of corresponding deductions;
- internal resources of enterprises;
- credits and loans of financial establishments;
- grants of international organizations.

One of the ways of drawing financial support for the realization of nature protection programs on regional and local levels can be receiving credits from banking establishments. However, the drawing of commercial credits with the rate interest of more than 30 per cent seems unreal. In this case there exist special banking establishments which underwrite local social organizations and the corresponding projects aimed at decreasing the rate interest. One of the establishments of this type is the European bank of reconstruction and development, which created the credit line of microfinancing. For this purpose in Ukraine one can address the following banks-partners of the European bank of reconstruction and development in Ukraine: *AGIO, AVAL', FORUM, NADRA, PRIVATE BANK.*

Another possibility of taking a credit is provided by credit unions. Credit unions can be created on an independent basis or as a branch of an already existing

union and then draw the resources needed. The creation of a credit union can be initiated both by local authorities and social organizations or small business. The main here is to have unequivocal unique goals and the realistic vision of designing nature protection activities.

One of the kinds of voluntary support for the underwriting of the ecological projects on regional and local levels can be the grants of international voluntary organizations, but to receive them the corresponding background should be created – starting with the qualified staff to the well-thought mechanism of the effective realization of the project.

As to the state of things with financing of nature protection efforts in Sumy region, it was executed due to nature protection funds. The main source of forming funds in 2003 were the collections to help against the pollution of the environment: 8 percent - against air pollution; 34,4 per cent – for utilizing wastes; 57,6 per cent - against water pollution.

We should admit that nowadays the financing of nature protection efforts in Ukraine is under-developed. It happens, first and foremost, because of the lack of stimulus for the enterprises and organizations in providing nature protection activities as now it is more profitable for them to pay the fine instead. There is no interest from the side of the state and commercial banks alike to create the credit line of microfinancing for the ecologically-oriented projects with descended interest rate. The initiative of the community has a great potential on a local level, but till now on it is used rarely and episodically.

For resolving the problem of financing nature protection efforts, the first thing is to decide the following: to raise the importance of the budgets on different levels in the financing of nature protection programs and efforts; further develop the system of state ecological funds; strictly differentiate the sources of financing the nature protection efforts between the internal resources of enterprises, budget sources and funds for special purposes and also provide their security and sufficiency under the system of market economy.

GLOBAL ECO – ECONOMICAL PROBLEMS

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The entire history of civilization can be viewed as an intricate series of challenges and responses involving changing eco-systems. Humanity has chosen to move ahead, but why are we losing? Historically economy developed rapidly, used nature and did not think about consequences. As a result, appeared the science with the aim to correct economical blunders. Really differences between ecology and economics are no less fundamental. For example, ecologists worry about limits, while economists tend not to recognize any such constraints. Ecologists, taking their cue from nature, think in terms of cycles, while economists are more likely to

think in terms of linear or curvy-linear developments. Economists have a great faith in the market, while ecologists often fail to appreciate the market adequately.

The gap between economists and ecologists in their perception of the world as the 21st century begins could not be wider. Economists look at the unprecedented growth of the global economy and of international trade and investment — and they see a promising future with more of the same. Where economists see booming economic indicators, ecologists see an economy that is altering the climate with consequences that no one can foresee. In short, economists see the environment as a subset of the economy. Ecologists, on the other hand, see the economy as a subset of the environment. Economists rely on the market to guide their decision making. They respect the market because it can allocate resources with an efficiency that a central planner can never match. Ecologists view the market with less reverence because they see a market that is not telling the truth. For example, when buying a gallon of gasoline, customers in effect pay to get the oil out of the ground, refine it into gasoline, and deliver it to the local service station. But they do not pay the health care costs of treating respiratory illness from air pollution or the costs of climate disruption.

For all their depth and range, economic theory and economic indicators do not explain how the economy is disrupting and destroying the earth's natural systems. Economic theory does not explain why Arctic Sea ice is melting. It does not explain why grasslands are turning into desert in northwestern China, why coral reefs are dying in the South Pacific — or why the Newfoundland cod fishery collapsed. We have no an explain why we are in the early stages of the greatest extinction of plants and animals since the dinosaurs disappeared 65 million years ago. And yet, economics is essential to measuring the cost to society of these excesses.

Today the problem of water purity and lack is one of the most important and sharpest. Water has long been seen as an issue of great concern for most developing countries, but not for developed economies. For rich nations, water seemed readily available — and endless in supply. It is a fact that 90% of the diseases of the world are still water-related. Four out of every five deaths in developing countries are the result of water-related disease. This means that approximately six million people die every year because of contaminated water. That is why sanitation remains a major global issue. Today, even many developed nations face problems of water purity. Many of the water delivery systems there are fragile and aging. As a result, contamination is increasing in many “modern” countries. The trend is clear, but rarely commented on. Just look at the many citizens of the most developed nations, who now carry water in bottles, have home purifiers and residential delivery services. They do all that simply because they cannot trust municipal supplies. And as the world raises the standards of what is considered safe pure water, we continue to identify more pathogens and contaminants to be addressed. Back in 1950, there were only two cities with more than eight million people. Today, there are 23 cities larger than 10 million inhabitants — and 18 of these mega-cities are in the developing world. By 2030, just 25 years from now, the urban population will be two times

that of the rural areas — representing an urban growth rate of 160%. And yet, the amount of available fresh water will remain constant at about 1%. All the remaining water in the world is either salt water in the oceans or fresh water unavailable in polar caps, in the soil, snow and humidity. While agriculture uses 70% of the world's water, cities just a few hundred miles away from farms often struggle with shortages and high prices. But farming is not the only culprit. If one looks at manufacturing, the picture is also discouraging. The world's manufacturing systems are largely open, meaning water is drawn in for production — and then discarded at the end of the process. More often than not, we are discarding a valuable renewable resource. When we watch the results of water consumption in industry we can understand why we have such problems. The manufacture of a complete car requires 39,000 gallons of water. One barrel of crude oil takes 1,800 gallons, a ton of steel 62,000 gallons — and just one semi-conductor takes 3,000 gallons.

And this cost equation applies in developed countries as well. Remember the cost of the water in the bottles we carry around? It is six to ten times the price of gasoline — a commodity that many consider really expensive today. In the end, we must be able to look at our globe and recognize that water is not a traditional "local" issue. Just as local supply chain productivity is affecting economies around the globe, the interdependencies of water related issues have become one global issue. If we want to become be the masters of our water destiny we would be well served to change the outdated ways in which we still think about this precious resource.

We all citizens, governments respond constructively to the crises of our times. But we are not responding. We are only consuming and drifting. One of the most successful trying to fix the environmental situation is the Kyoto Protocol, so let's speak about it.

Most of the world is celebrating the fact that the Kyoto Protocol on Climate Change finally came into force on February 16, 2005. Others are miffed that Kyoto has taken effect. Kyoto has its roots in the 1992 UN Framework Convention on Climate Change (UNFCCC), part of the Rio Summit. That treaty's objective is to stabilize the concentration of the gases in the atmosphere at a level that will avert dangerous climate change — in a time frame that will allow ecosystems to adapt naturally, and development to proceed sustainably. Kyoto, which caps the global warming pollution of some 35 industrialized nations for the years 2008-2012, takes a vital first step. Every country with caps on emissions is required to ensure that — at the end of the 2008-2012 period — its actual emissions do not exceed its allowable levels. If a country has emitted more than it is allowed, it may purchase excess emissions allowances from another nation that has emitted less than allowable amounts. And anyone in any Kyoto country, by cutting global warming pollution, can earn emissions credits that are tradable in the Kyoto marketplace. The framework thus gives countries, companies and communities powerful economic incentives to search for better, faster ways of reducing global warming pollution.

NUCLEAR ENERGY (NE) AND/OR SUSTAINABLE DEVELOPMENT

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Sustainable development (World commission on the questions of environment and development) – to satisfy the necessities of modern generations, not putting under the threat of future generations to satisfy the necessities.

Nuclear energy and sustainable development. During XX century humanity grew into geological force, the level of influence of which on a biosphere left off to be small indignation just. Above a biosphere the large-scale geophysical experiment is conducted (Roger Rovelle). Extracting and consuming energy, people simultaneously throw out in an atmosphere milliards tons of carbon dioxide, oxides grey nitrogen, unite in rivers, seas, oceans are the enormous amounts of liquid wastes, destroy the superficial layer of Earth.

Developed NE will allow freeing organic resources for satisfaction of necessities of humanity in chemical energy, clothes, food and materials.

The NE using opens by itself an evolutionary process, which, in principle, includes a new technical revolution.

It is needed to mark that nuclear energy now in everything to the greater measure begins to be examined as renewal energy technology. The problem of modern energy consists that for creation of comfort, riches, maintenance of order, realization of mechanisms of power and for withholding of them from degradation it is necessary to use energy with inevitable violation of natural processes. It is impossible to pass to sustainable development at the simultaneous increase of consumption of high-quality resources and, accordingly, troop landing in the environment of substances with properties negative for a biosphere.

That NE was indeed able in the future to help humanity to manage with the problems of stability of supply by energy, she must become large-scale. And multiple innovative developments are needed for this purpose – no today's generation will choose – but the choice can be carried out only from that will be ready as developments passing the necessary preparatory protracted enough temporal stage.

The decision of these problems in an aggregate will demand the investment in research projects no less than 1% those facilities, which are annually revolved in the field of energy (25 billion dollars in a year). Basic task of market in a region OEB is determination of prices on OEB and minimization of costs at providing of services in energy providing. The OEB cost will undoubtedly increase, special in connection with transition on the booty of untraditional supplies of oil and toughening of ecological requirements to all parts of fuel cycle. But a market mechanism is able to choose only from that is. He on principle is «short-sighted» and does not care of

long duration prospect, that it is impermissible in the conditions of transition of society to principles of sustainable development.

Nuclear energy or sustainable development. When speech calls about nuclear energy at people uninformed, frequently there is negative attitude toward this type of energy. It is caused by fully explainable reasons, namely by precedents existing in history. The use of nuclear energy not always was of use to humanity.

Risk perception is related not only to estimation of level of risk, but is depended on many other factors: catastrophic of events, acquaintance of people with the dangerous phenomenon, understanding of the phenomenon by simple people, vagueness of consequences, controlled of events, voluntarily of acceptance of decisions, influence on children, convertibility of events, trust to the persons accountable for the risk, attention of MASS-MEDIA, preceding history, justice – evenness of distributing of risk, benefit (benefits) for risking, personal involved of people, origin of risk (natural or from activity of man).

Is there what risk actually from the use of nuclear energy? How safely or unsafely to live near from NS? Is production and use of nuclear energy possible without the causing damage to the future generation of people?

On laws and norms, safety of NS, (for example Balakovskaya NS, Russia), must be grounded. Part of ground is the results of model tests (equipment, standards). On NS it is not possible to test everything by such direct way. Except for the model tests are and «calculation» on the so-called calculation models – sets of formulas and equalizations, which the conduct of different descriptions of object is calculated on. From their size it is necessary to name these risks remaining. They are one of not many direct quantitative indexes of safety of NS.

“Risk estimation” in a year for the average inhabitant of Russian Federation: New formations (spontaneous cancer) are a 0.0020; Tuberculosis are 0.00013; accidents, all – 0.0022; Including RTE – 0.00019; Suicides – 0.00040 Murders – 0.00035 accidents with a fire – a 0.00012 Sinking – 0.00018; Poisonings by an alcohol is a 0.00014; "Atomic risk" – 0.00000002.

Under right radiation safety the HRB–99 (based on world practice) risk in one millionth is considered acceptable. At us the «atomic risk» as early as 50 times is below. This is a rational answer for a question about safety of NS. There is a reasonable question about production of alternative nuclear and standard (oil, gas, coal) energies. Will its use be more effective (from the economic, ecological points of view)? It is simple to halt, displacing their use is impossible – in fact modern large-scale technologies of production constantly require energy. Much to our regret, an idea about the use ecologically of clean methods of getting of energy is accumulation of energy of a Sun (power engineering solar), utilization of energy of waves, waves, wind, geothermal waters (for example, hot geysers) – will not be able yet long time to become the real. At first from data of world examination, power plants of such type, even on condition of permanent their perfection, and in a few decades will produce of no more than a 1.5-2% world production volume of energy. Secondly, work of most such options extremely unstable and depends from

the whims of weather. Thirdly, it is necessarily needed to take into account that extraction of energy from the clean sources of nature quite not safe for a man.

Thus, a conclusion invites to that on this stage of development, humanity did not create the most acceptable method decision of power problem, than the use of nuclear energy. And time on the invention of alternative «bicycle» as never lack!

PROGRESS TRENDS OF WIND ENERGY IN UKRAINE

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Modern powergenerative technologies are oriented mainly on insineration of the fossil fuel accumulated by nature for a long period of time. Many shientistsare counted, that such way bring humanity over to the catastrophic consequences, shown above all things in formation of invironment useless for life. Very big interest appears to the untraditional sources of receipt of energy, including to wind energy.

For the modern technical level of wind energetic options we can use districts with average annual speeds of wind 5 m/s. Therefore the priliminary estimate of wind descriptions of territory of Ukraine is given with use of this criterion. 214 weather-stations for a long period of time testify the analysis of these long-term supervisions that in Ukraine winds prevail from 0-5 m/s. But experience showed that data was given about aveerge annual speed of wind, got the weather-stations of Ukraine, useless for production of electric power by windy power-stations, because their error very often makes 40-70%/ General power of perspective wind power station. Ukraine is estimatev in 16000 megawatt with the possible annual making of electric power about 30 billion kilowatt-hour/

As for a legal base, on June, 15, 1994 Cabinet of Minister of Ukraine adopted the decision. 415 "About building of wind power-stations in Ukraine", and on March, 2, 1996 Decree of President of Ukraine was accepted 159/96 with the same name, which formed the soesial fund of building of wind power stations, due to the increase of tariff on electric power in a size 0.75% from the volume of commodity products of production of electric power. Development of wind energetics of Ukraine supports Law of Ukraine "About of electroenergy", Law of Ukraine "About energy supply", Law of Ukraine "About alternative energy sources".

After average speeds of wind - 5 m/s, it is possible to select 6 districts (Carpathians, Prichernomorsky, Donbassky, Western-crimean, Estern-crimean) and 2 areas (Poltava, Kharkov). There are such wind power stations in Ukraine: Donuzlavska, Myrnovska, Vorobiyovska, Truskavetska, Askanivska, and also of the stage of planning — Western-Syvashska, Sdanese, Black sea, Djankoyska and other.

Spesial researches with the purpose of estimation of public thought in behalf of introduction of wind energetics in Ukraine were not conducted. But events of

negative plan for all active period, beginning with 1989, place does not take. And judging on the publications in mass medias, it is possible to do a conclusion about positive perception of this direction. Positive argumentation is based on: receipt of electric power; improvement of ecological situation; creation of alternative to the nuclearepower plants; creation of new workplaces. However, there are three fundamental problems in relation to development of wind energetic crisis of economy; unfavorable character of influencing of lagislative base; imperfect organizational structure.

BALANCED DEVELOPMENT AT LOCAL LEVEL: ECONOMIC, ENVIRONMENTAL AND SOCIAL COMPONENTS

T.V. Ivashchenko

Modern world is characterised by dispersing processes. Waste accumulation, resources deficit, financial pyramid serve as signs of cut-cycled human activities. While human's impact on nature and environment was inessential the dominant paradigm of development emphasized on production, its expansion and increase. However from the middle of the last century civilization's impact on environment became far too noticeable. Dispersing processes started by humans broke many natural cycles and became global. The development of ecopolice concept is an attempt to understand natural circulations and coordinate own activity with natural cycles. This will give an opportunity to predict and regulate the results of human's activity at any scale and for any period.

In the literature on environmental crisis the great recognition received the concept of the need of choice that human being should make between the prevailing till recent time position of struggling for domination over nature, known as anthropocentric approach, and alternative position of harmony and equality. The latter certainly includes practical application of human's moral and cultural values, concerning the world and environment he lives in. So this is an approach which gives the ground to the concept of ecopolice. Such angle allows us to view ecopolice as combination of three equal components that is: social, economic and environmental (ecological). Each of them occupies a worthy place in holistic structure.

In the report *ecopolice* is viewed as modern, open, dynamic, integrated system with social, territorial, administrative, environmental and economics peculiarities, which is orientated on the harmony (equilibrium) between human and nature.

Four main functions of ecopolice can be outlined on the basis of research, already carried out in this area. These functions are:

Scientific

Economic (productive)

Environmental

Educational

Economic component must be aimed at maintaining high and stable level of economic growth and employment in harmonic combination with the goals of other components of ecopolice. From one side economic sphere provides generation of material base for community functioning creates the relationships of social development but from the other side it gives the ground for the parameters of human's impact on the environment. That is why it is necessary to include environmental component in the process of economic activity structure upgrading.

Environmental component is based on the principle: not to store up problems (of pollution, over limited resources use and so on) for future generations. The main function of environmental component of ecopolice is to preserve environmental equilibrium and to provide its sustainability. Fulfilment of this function is possible just through systematic actions headed at solving climate problems, problems of inefficient energy use, low air quality, low quality of water, forest, and land resources, inefficient use of minerals. All this problems determine the main directions of environmental component.

Characteristics of **social component** of ecopolice emphasises on the fact that ecopolice as cultural, educational, scientific centre must unite human and nature, creating not 'cosy corners of nature' in city, but a city in harmony with nature. This is evident that in such conditions the potential of human society will have an opportunity to reveal itself in its best and fullest. The process of teaching person and especially the process of education are dominant in the life of ecopolice. Thus the creation of ecopolice is expected to increase educational level of its population and to create a network of environmentally orientated educational units for generating 'ecothinking' and harmonic ideology.

Ecopolice as a new form of organization of social settlements is historically grounded need which emerged in the process of evolution of human conscience. This is not just geographically determined territory with economically substantiated methods of achieving social wellbeing, but also the moral and cultural centre which provide the condition for realisation by the human the main principle of it functioning – harmony of human and nature. The trinity of environmental, social and economic components, and understanding by the human of this unity and not domination one of them is the fundamental element of ecopolice concept.

THE INTEGRATION OF ECONOMY AND ECOLOGY FROM THE POINT OF VIEW OF THE MODERN SOCIETY

Lidia Kabanova, Tatyana Kabanova

Day by day the world we live in is becoming more and interrelated. Everything is connected with almost everything else. Goods, people, money and information are sent around the Globe with an ever-increasing rapidity. The overall in-

tensity is continuously increasing due to a growing level of consumption and the growing size of the population.

When the speed of communication increases, time and place will lose some of their previous importance. Communication within a local community or within a country has no advantage compared to communication between countries or continents, if it takes place with equal ease.

One effect of technological development is therefore the initiation of the local communities' dissolution. Liberated from local constraints, some of the things that shape a local community will be translocated to other larger more centrally located places. The increasing loss of local closeness and clearness that is consequence of the process of globalization, has in the Sumy region as in many other areas, led to examples of increasing local dissatisfaction. This happens even though the same local population takes advantage of the benefits and comfort that also is a part of the process. Thereby they contribute to the further globalization.

The results can either be a stand of the local people against the market, which is seen as a threat to human relations and nearness. On the result can be a stand against the central authorities, which with command and control seems to make everything troublesome, bureaucratic, and far too complicated.

It is possible to see the broad context, which nature protection increasingly is a part of, as a question of sustainable development. And this is a discussion that necessarily has to look at the present in the light of far future, and at the same time adopt a global point of view. It was the World Commission on Environment and Development that in 1987 brought the concept of sustainability high onto the agenda. It defines S. as a development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. The fundamental concern is whether current economic growth is achieved at the expense of the well being of future generations. Sustainable development is often said to rest on three equally important pillars: the ecological, the economic and social sustainability.

Ecological sustainability has a clear reference to nature and its carrying capacity. Its limits are in principle not changeable. Our impacts can be irreversible and thus finite, or they can be reversible, in which case the level of impact may be object for political discussion. Economic and political sustainability, on their side, has primarily societal relations. They are, therefore, in principle both manageable and reversible. But in the public discussion they often threaten to exclude ecological sustainability, so this ends up being considered as an economic or social concept. This is both inconsistent and confusing. During the 1980 it became obvious in the management of environment that the methods like command and control and technological means that have dominated so far, now had to be supplied with other tools. Firstly, the costs of steel more new technical means were soaring. Secondly, it became obvious that the means used so far could not cope with multi-source disturbances such as diffuse pollution, the green house effect, marine pollution, and loss of biodiversity. It became clear that the problems for nature and environment

had a more fundamental dependence of the economy and the economical behavior. Sustainable development is, generally speaking, a vision of the good life. The introduction of a holistic and cross-sectorial thinking that emphasize recycling of matter and the participation of stakeholders and citizens can hopefully, pursue it. The more these ways of thinking are arising, as a result of either insight or necessity, the more will a common denominator – a convertible measure of value, be needed. Economy can offer a solution but it requires that nature can be valued in monetary terms.

For many non-economists, it is highly controversial viewpoint that the three forms of capital are convertible i. e. the one can substitute the other. One of the reasons for the dissatisfaction is that not all capital can be converted. Everybody, including the economists, is aware of the existence of critical limits – so called critical capital. Without this capital coming generations can't survive. Examples of critical capital could be many of so-called ecological services e.g. the global recycling of oxygen.

A principal field of disagreement, or perhaps better formulated “difference in faith”, between economists and ecologists, has to do with the practicality.- Is it at all realistic to believe that all natural and human capital can be measured, counted, and paid for on monetary terms ? first of all is it clear to everybody that it will be an enormous estimate the economical value of all types of natural and human capital. For many forms of natural capital a market does not exist. This makes complicated investigations necessary concerning people's hypothetical willingness to pay for things they otherwise have taken for granted. Another more technical complication is that the ordinary everyday market-economy and accounting have difficulties in handling far-sighted aims where the annual interest rate is very low. This is because they have to compete with investments in much more shortsighted and profitable engagements, which can bring higher returns.

But perhaps the main cause of disagreement between ecologists and economists is that ecologists, and many other people, operates with a lot of values they won't give up and won't price, although they can't be classified either as critical capital or as convertible capital. They can be called unique values. They are species, landscapes and other entities we want to maintain and hand over to the next generation. Not because they are critically needed, but because we like them and want our descendants to care for them as we do. These values might be called “genuine heritage”. Much of what nature- and landscape management is dealing with is in fact protection of unique values, a good example of unique values could be the cultural landscapes with their content of natural and cultural heritage. Finally it should be mentioned that many people and many cultures in the world find that nature has intrinsic values that cannot be paid for in monetary terms e.g. when they are given a religious meaning. To sum up: The economy has its constraints especially when it comes to longer run considerations, complex and locally bound values are claimed. But in a market society economy is indispensable when it comes to proposing means with which to manage nature and the landscape and ensure that political

aims are achieved efficiently. But the aims have to be set in a political process based on also other values than what the economy can handle.

But whatever the political will to protect is strong or weak it has to be implemented in an increasingly complex world. In this world the management of nature and the environment are not a separate but an integral part of what else goes on. In the competition with other parts of the society nature conservation and environmental protection has therefore to improve its ability to express its aims, needs, and progress in quantitative terms. We should be better to present a comprehensive and consistent description of the state of the nature, the environment and the impact of human activities. And to do this we need both traditional natural scientific data and indicators, and we may even need shadow prices that citizen's assign to different ecological services.

ALTERNATIVE ENERGY

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The people of the world will need to use every conceivable source of energy to sustain a burgeoning population living on a planet of limited space and resources. Fossil fuels are clearly limited resources, and serious environmental and ecological effects are associated with the use. Nuclear energy, thought by some people to be the salvation of the world's energy needs, is inhibited in development by public apprehension concerning its safety. However, there are several renewable energy sources in addition to direct solar and biomass that may, in the future, contribute a very important mix to the world's energy supply. These alternative energy sources include ocean temperature differences, ocean currents, tides and waves, wind, geothermal, and hydro. These energy sources are generally dispersed, with the exception of geothermal, and have fewer associated environmental, ecological, health, and safety problems than do fossil or nuclear fuels. They are best utilized for generating electric power or for manufacturing energy – intensive products such as hydrogen gas or ammonia. Hydrogen gas may be conveniently transmitted through pipelines and burned without any carbon dioxide, carbon monoxide, or sulfur dioxide emissions. Hydrogen may also be used to energize fuel cells. Ammonia is in great demand for fertilizer and its production by alternative means to use as natural gas could save enormous quantities of petroleum.

Ocean thermal, ocean currents, tides and waves, wind, hydro, and geothermal power are self – renewing energy resources that may be tapped to various degrees for the extraction of power. In each case, nature provides a higher concentration of these resources at certain sites than at others. It is at these sites that extraction of some of the energy is most practical. Only certain estuaries possess the highest

tides; certain coasts, islands, or mountain passes the highest winds; steep mountain valleys the greatest hydro potential; and hot magma areas near the surface the greatest geothermal possibilities. The equatorial and subequatorial oceans have the greatest temperature difference between surface and deep water. Great ocean currents sweep the coastlines of the world. Even the swiftest of these – those currents in equatorial regions along the western boundaries of the oceans – are of very low energy densities. It is unlikely that ocean currents will be used to generate much power. Tidal power is the most widely distributed of these, but it is not generally located at useful sites.

Alternative energy sources – solar, wind, geothermal, ocean thermal, tides, ocean waves, hydro – can only provide a fraction of the total power required by a burgeoning world population living in an industrialized society. There are all dispersed energy sources and they cannot provide the concentration of power needed except at very low efficiencies. On the other hand, oil, gas, coal and uranium are highly concentrated energy forms but each has a finite supply.

The people of the world are in an environmental vise between carbon dioxide and acid rain on the one hand and radioactivity on the other. Populations overrunning food production are dying and millions of people are suffering from impoverished ecosystems today. Soil erosion is occurring at an alarming rate and no less so within the developed than among the developing nations. As soil deterioration occurs, more and more nutrients must be supplied to maintain crop productivity. However, nutrients, particularly nitrogen, require petroleum for the production, and petroleum shortages will eventually be commonplace.

Estimated quantities of oil, gas, coal and uranium resources will continue to change as new discoveries are made – or fail to be made. Even estimates concerning the amount of power derivable energy sources will change considerably as technology improves and our understanding of each source increases.

We can choose to live in a fool's paradise for a while longer, but the day of energy reckoning will come and our children and grandchildren will pay for our profligate waste.

MAIN PRINCIPLES OF CONSTRUCTION OF MATRIXES SYSTEM OF INTEGRATED ENVIRONMENTAL AND ECONOMIC AC- COUNTS

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The guidelines in the System of National Accounts (SNA) originated fifty years ago and have been revised several times since, most recently in 1993. One aspect of the latest revision was the greater attention paid to capital stocks and

flows and in particular to the place of natural resources within the set of economic assets.

However, the existing system of the national account and the parameters designed on the basis of such account (for example, gross domestic product (GDP) or the national income) do not give an opportunity to estimate result of interaction of economy and an environment. As known, GDP is monetary value of all volume of final manufacture of the goods and services in national economy for one year. But GDP encounters barrier, in particular, at an estimation of ecological parameters. For example, the more the nation pollutes water, the more it needs to invest in systems on clearing water, the better it for GDP. That is, concerning an environment the aggregated parameters of system of national accounts have three basic lacks: they do not account an exhaustion of natural resources, insufficiently full take into account costs of protection of an environment, and also do not take into account degradation of quality of an environment and a consequence for health and well-being of people.

Thus, there is a necessity of introduction of the System of integrated Environmental and Economic Accounts (SEEA). SEEA – is an external satellite account for SNA. An external satellite account extends the scope of the system by including stocks, flows and transactions which are not covered by the existing SNA.

An identity which is central to the SEEA (and in fact to the SNA also) is that when flows of products are measured ex post, total supply and total demand (or use) must exactly balance. New goods and services are supplied either by production in the current period from resident producers or come from producers in the rest of the world as imports. Thus:

$$\text{Total supply} = \text{domestic production} + \text{imports}$$

These goods and services are either:

- used by industries in the course of making other goods and services (intermediate consumption);
- bought by households to satisfy their wants (household final consumption);
- bought by government to satisfy the needs of individual households or of the community at large collectively (government final consumption);
- bought by industries for use in making other goods and services in future periods (capital formation);
- they leave the economy to be used in another (exports).

$$\begin{aligned} \text{Total use (demand)} = & \text{intermediate consumption} + \text{household final consumption} + \\ & + \text{government final consumption} + \text{capital formation} + \text{exports} \end{aligned}$$

Table 1. – A simple supply and use table for all physical flows (million tones)

	Products	Industries	Consumption	Capital	ROW	Residuals	Material balance
Products		Intermediate	Consumption	Capital for-	Exports		

		consumption 442	39	mation 119	101		
Industries	Production 551					From industry 280	
Consumption						From households 48	17
Capital						From capital formation 73	72
ROW	Imports 150					Residuals generated by non-residents 14	-51
Natural assets		To industry 382	To households 26		To ROW 3		-411
Residuals		To industry 7		Waste to landfill sites 26	To ROW 9		373

In fact some demand is met not from current production but by using up items which exist in inventories. Traditionally, changes in inventories appear in the total demand equation, appearing as a positive entry when items go into stocks and as a negative entry when they are withdrawn. We thus separate capital formation into two parts, fixed capital formation which relates to the acquisition of capital goods to be used repeatedly in future production (machinery and buildings, for example) and changes in inventories. Thus the composite equation reads:

$$\begin{aligned} \text{Domestic production} + \text{imports} = & \text{Intermediate consumption} + \text{household} \\ & \text{final consumption} + \\ & + \text{government final consumption} + \text{fixed capital formation} + \text{changes in} \\ & \text{inventories} + \text{exports.} \end{aligned}$$

This identity must hold for any product or group of products as long as they are measured in units which are consistent for every component. Thus although the identity above is most familiar to national accountants when expressed in monetary terms, it must also hold when expressed in a common physical unit. The simple supply and use table for all physical flows including rows and columns for natural resources, ecosystem inputs and residuals is shown in Table 1.

THE DRY BLAST- FURNACE SLAG GRANULATION AS RE-SOURCE AND ENERGY ECONOMY IN THE METALLURGY

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Slag treatment is the main ecological problem of the modern Ukraine metallurgy manufacture.

The blast-furnace slag is the by-product of the ironmaking process. It has produced in the blast-furnace in the amount of 300 kg per tonne of pig iron.

Now in Ukraine the blast-furnace slag is treated by impinging much water for granulation. This treatment is mainly used for producing a raw material of the cement, aggregate and the roadbed.

This method has some serious problems to be overcome. As follows:

- too much water is necessary to granulate molten slag of high temperature;
- an alkaline element in slag is polluting the water;
- sulfide is emitted from slag into the air by the water quenching;
- the thermal energy of high temperature slag is wasted without recovery.

To avoid these problems we should make use of leading country's experience where the dry slag granulation process is taken root.

The Redcar and Davy Dry Slag Granulation Process (Great Britain) is analysed as the example of the dry granulation arrangement.

Traditionally the liquid slag is atomized by high pressure water jets which impinge on the slag stream as it leaves the runner. The rapid cooling produces the glassy structure which is necessary for cement making.

In Donetsk there is 300000 tonne of the molten blast-furnace slag per year is treated. It is known that the amount of the water for granulation is $3,5 \text{ m}^3/\text{t}$ of the slag. Significant quantities of water vapour at this point, which escape to atmosphere, amounting to some 10% of the water used for granulating.

The granulate must then be separated from the water necessitating a significant investment in plant and equipment all of which is subject to the highly abrasive granulate/water mixture. The slag, when separated, still contains about 12% of water which must be removed by the thermal drying at the cement plant.

The analysed dry granulation process is to atomize the molten slag and then to cool the particles rapidly so as to produce a glassy slag. The atomization is done using a rotary-cup, air-blast atomizer. The particles cool as they travel through the air and then cooled further in a fluidized bed. Both of these processes provide the rapid cooling necessary for the formation of a glassy slag product. The fluidized bed is a convenient method of containing the slag particles as it prevents the agglomeration of hot particles as it providing rapid cooling. The molten slag enters the heat-recovery vessel through a launder, covered to reduce heat loss. Launder delivers the molten slag directly into the rotary-cup, air-blast atomizer located in the center of the vessel. On atomization, the slag particles are projected radially outwards and slightly upwards in a spray and impinge on the vessel wall. The particles fall directly into the primary fluidized bed. The slag particles then overflow into the secondary fluidized bed where more heat is reduced to that at which the slag is discharged. The cylindrical granulator chamber may be up to 20 metres diameter. At the centre of the chamber is the rotating cup assembly. During operation molten slag is thrown from the lip of the cup in the form of droplets and slag particles with

a mean diameter of 2 mm can be produced by the atomizer and so the slag product is in a form that easy to handle.

It is known that the temperature of the molten slag is over 1400 °C and the enthalpy at this temperature is 1680 – 1800kJ/kg. At the wet granulation the most part of the heat is spent at the evaporation and is lost irrevocably.

The most important advantage of the dry granulation is the heat recovery from the slag. Energy recovery is possible from the dry process, either in the form of preheated air for the use in the other process, or in the form of steam, possibly for power generation. The most satisfactory way of the utilizing the recovered heat is to use it on the blast furnace. It leads to economy of the coke and the nature gas.

The wet process is essentially polluting in nature. The pollution matters in the water are lime, H₂S (15-175 mg/l) sulphates (300-1000 mg/l) and ammonia (20-100 mg/l). This water emission in the reservoir affects the heat, chemical and mechanical pollution makes worse sanitary – biological and ecological factors of the water fauna and flora. Ions Ca²⁺, SO₃²⁻, S₂O₃²⁻, HS⁻, Cl⁻, SO₂²⁻ are always discovered in the recycling water. The salt deposit is the result of the water evaporation and the salt alkalization from the slag. The water becomes contaminated with dissolved salts from the slag and the airborne discharge is saturated vapour which results in highly corrosive acid mist. Elimination of these discharges leads to problem of containment and treatment, with commensurate cost increases. The handling of the water, with its high concentration of abrasives, is the cause of high maintenance costs. The dry process avoids these pollution problems.

The air pollution level in Donetsk exceeds the sulphur compounds maximum permissible concentration a few times.

At the dry granulation the air pollution by sulphur gas and dust emissions is reduced considerably as the process is carried out in the close vessel with emission extraction and cleaning.

The dry process in the case of blast furnace, produces a cement grade granulate of equal quality to that produced by the wet process. Hence it has increased value due to reduced energy requirements in subsequent processing.

So the dry blast-furnace slag granulation arrangement application can dissolve such problems: the dry even sized high density granules receiving for the cement manufacture; the environmental improvements as the sulphur gas emission are reduced and there isn't polluted water discharge and vapour plume; the heat recovery from the molten blast furnace slag.

Consequently, the dry blast-furnace slag granulation arrangement installation at the metallurgical plants of Ukraine allow to the ecological improvement of the industry region and to the economy of the expensive kinds of fuel.

ECOLABELING IN UKRAINE

In the contemporary market there numerous products are imprinted as “environmentally friendly”, “ecologically clean” or, at least, with prefix eco- and bio- on them. By means of such methods, the producers posit goods as more preferable and safe for consumer’s health. Though the labeling and public informing is widely spread throughout the developed countries, tendencies of this process are only at the very first stages in Ukraine. This process considered to be very favorable and important for both consumers and producers. Ecolabeling is the information that producers give to the consumers for motivating them to buy their products, and due to this they posit themselves to be the leaders at the area of environmental protection.

The ecolabeling process has started since 1998 as the result of the consultations for enterprises, consumers and public environmental organizations. It is controlled by the ISO 14 021 and the practical applications of the international management systems nowadays (Dmitriev). The ISO standard has the definition of the term product, and it includes the services, materials, technical and program providing as the final supply for the consumers.

The ecolabeling can be adopted by the enterprise or service on the voluntary basis. Though, weighing all the positive moments and benefits of it, our country needs a foundation of the national labeling system for all products on the market.

According to the article by Gerasimova, the possibility to select the product among its analogues and substitutes is among the general demands for the ecolabeling. It also covers any claim about environmental nature of what is being offered at the point of sale (“Green Claim Code”). Under the Code, the claim should “be clear, accurate, and capable of being supported by scientific evidence, relevant to that particular product or service, and clear about what aspect it refers to, significant in terms of the overall impact during the product life cycle, open, explicit about symbols, written in plain language, legal, decent, honest and truthful.”

Though the ecolabeling has the recommendation and volunteer character, the label confirms that the product is really recommended by the international legislation. The product can be labeled by the independent side: the labeling organization, private company or the government organization, and get the license for production; although, the producers have the right to be self-labeled. Another thing is that the trust for these labels should be proved by the reports of the companies about the changes they applied to make their production safer, cleaner and environmentally friendly.

“Green Claim Code” advises the labels to be truthful and precise. It means that the producer have to be ready to give the necessary information to prove his products’ imprints. The exaggeration of information’ meaning is completely prohibited. The usage of the words and terms like sustainable development, green, harmless, wasteless, environmentally friendly, for Earth, nature, environment should be avoided (“Ecolabeling”). The analysis of the contemporary situation of the ecolabeling shows that the great amount of labels breaks that rules, and an example of un-

controlled labeling process can be observed. In most cases it is not supported by actual actions for the environment and health care from the enterprises.

The specific German ecolabeling imprint Green Dot on a piece of product signals that the manufacturer of the packaging has paid a license fee for the collection, sorting, and recycling of the wastes (Joan Sylvain, [Evale Colleen](#)). Ukraine can develop its own label to sing the products' energy efficiency, recycling possibility, or other options. Thus, the creation of the national ecolabel sign will improve the situation of the global resource overuse problem and stimulate the enterprises to be environmentally friendly, even getting benefits from this (Liga Business Inform).

The main problems with ecolabeling are connected with its uncontrolled usage; though, the most trustworthy have to be the products, certified by the third side, in most cases the non-governmental organization. In Ukraine the ecological non-governmental organization *Zhyva Planeta (Living Planet)* gives the certificates for products (Berzina).

The certified products may be somewhat costly than the ordinary ones. But the consumers would eagerly buy the products even with surplus, if they will know about their safety. So, Todd Shenk in his article about the techniques of ad firms specifies that the social marketing and promotion should be used by environmental organization to make the consumers to pay the price surplus for the safer and wasteless products. Moreover, under the research described in the article by Berzina, people are ready to buy costly products in case of their true and proved safety.

The benefits of the producers are not so obvious for their stimulation, but later it can be resulted in the preference given by consumers and public. The strong side of it could be the reputation promotion among the partners, and gaining the approval and support from government for raising standards in the environmental management.

The great share of the products in the market is imprinted as “environmentally friendly”, “ecologically clean”, and safe for health. Some of them are certified by non-government organizations and this is reliable method. But very often the enterprises sign the goods and services by themselves. While doing this, they should at least show the reports of their activities for improving the environmental management.

The consumer might agree to pay the price surplus for the prove that the products are safe and not harmful for environment. The benefits could be achieved for both sides. Thus, the producer improves his image, states himself as the leader and gets the public and government support. Though the first steps in the applying of the ecolabeling has being started, in most cases the rules are not fulfilled and the ecolabeling process is uncontrolled. The solution for this problem should be the foundation of the national ecolabeling system.

Works Cited:

1. Berzina, Svitlana. "Raising the Level of the Nature Protection Measurements through Implementation of the International Standards" *Delovoy Vestnik* 4(107). 2003: 23-25.
2. Dmitriev, Alexandr "Choice and Application of Standards ISO 9000:2000" 16 Feb. 2004. <<http://www.klubok.net/article1428.html>>
3. "Ecolabeling." <<http://www.greenbiz.com/toolbox/printer.cfm?LinkAdvID=78>>
4. Gerasimova T.M. "Ecolabeling is the Effective Source of Information of Consumers about the Benefits of the Products." *Delovoy Bryansk* 10. 2004: 14-16.
5. "Green Claim Code." 10 March. 2005. <http://www.nfcg.org.uk/ConsNews/cn191p06.htm>
6. Joan Sylvain, Evale Colleen. "The Green Dot System: Promoting Recycling in the European Union." 11 March. 2005. <http://www.packaginglaw.com/index_mf.cfm?id=151>
7. Liga Business Inform "In VR the meeting about the Introduction of Eco-labeling According to the International Standards was held." 12 Feb. 2005. <<http://www.liga.kiev.ua/news/137769.html>>
8. Shenk, Todd. "Co-opting the techniques of ad firms, social marketers manipulate consumers for the good of the planet." *The Bulletin*. Volume 12, number 1. May. 2003: 22-23.

SUSTAINABLE DEVELOPMENT INDICATORS IN UKRAINE MADE ON THE BASIS OF OECD AND WORLD BANK TECHNIQUES

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The new discourse of "integration" suggests that there is no longer any conflict between environmental protection and economic development, and that the latter has become a necessary complement, conditions even, of the former.

Therefore it's necessary to make correction of the basic economic parameters in the view of influence on the environment. The standard economic indicators do not reflect ecological degradation. Their growth can mean damage of natural resources and the growth of environmental pollution.

According to the calculation and analysis made for Ukraine on the basis of OECD, World Bank and UN conceptions concerning ecological-economic indicators, one can draw a conclusion Ukraine has no stability for the time being. Though the main indicators obtained during the research have positive results, they don't meet the requirements of balanced ecological-economic development.

We have positive tendencies practically on all sustainable development parameters (see table 1). Considering the consumption of natural resources, the structure

of economy and technological level in the country you can observe the tendency to decreasing the energy consumption and materials-output ratio, reducing industrial waste per unit of GDP, lowering the air and water pollution.

That's why just considering the trend of basic ecological-economic indicators on the basis of international techniques, we can come to the wrong conclusion that Ukraine is in a rather favorable situation on the way to approach sustainable development.

Here it's important to understand that you mustn't simply transfer parameters of one country technique to another one. A careful analysis of national realities and peculiarities should be followed by the use of the foreign experience and methodology in the construction of sustainable development indicators.

This fact for Ukraine is caused by many reasons but among them it's enough to mention the transitional period in our country.

So taking into account the so-called "positive" results just mentioned, do not mean the stability in Ukraine. It's necessary to realize that the results will reflect the level of stability if only harmless, innovative, material- and energy-saving technologies are used. It will result in less wastes and pollution.

However some indicators quite adequately show condition of economy and environment in Ukraine. Among them it's necessary to single out the area of especially protected natural objects, coefficient of capital fund renewal, the index of the consumer prices, etc. The values of the two last indicators confirm once again that the results received are caused first of all by the fall of industry during the long economic crisis in our country. Besides, the growth of GDP is greatly caused by the trade.

Making the analysis of basic problems and indicators of sustainable development in Ukraine (30 parameters), you can receive a more realistic picture but with overestimated results as well.

To make the indicators show a real situation in Ukraine, I offer the following. First of all it's necessary to use GDP not in the form of actual prices but corrected by the inflation rate. It would be really useful for our country as we had high and super high inflation for a period of 10 years. And in order not to overestimate a real value of GDP we can't just ignore the fact.

Besides, to my mind it's extremely important to correlate all the indicators considered not to GDP but to the amount of production received only during an industrial activity in the country. So it's nonsense to include the trade and service incomes into indicators of energy consumption and materials-output ratio and into wastes and polluting substances emissions as well.

Table 1 - Main basic ecological-economic indicators in Ukraine

Problem	Indicator	The parameter of the indicator (2001)	Dynamics of the indicator	Estimation of the dynamics
Natural resources consumption. Structure of the economy. Technological level	1. Energy capacity	0,716 kg of conditional fuel \ hryvnas of GDP	Reduction in 4,76 times to the level of 1995, and in 2,88 times to the level of 1996	POSITIVE
Incidents and catastrophes. Environmental damage. Capital fund renewal Technological level	2. Coefficient of capital fund renewal	2,36%	Considerable reduction to the level of 1990	NEGATIVE
Pollution of environment People's Health Technological level	3(a). Emissions of polluting substances into the air per unit GDP	30 kg \ thousands hryvnas of GDP	Reduction in 4,58 times to the level of 1995	POSITIVE
	3(b). Emissions of hard substances from the stationary sources	18080,1 thousands of tons	Reduction in 2,22 times to the level of 1990., and in 1,39 times to the level of 1995	POSITIVE
	4. Dounthrow of polluting substances into the water per unit GDP	0,0105 m3 \ thousands hryvnas of GDP	Reduction in 8,1 times to the level of 1995	POSITIVE
Wastes Technological level	5(a). The amount of unused and non-neutralized toxic wastes	45411,0 thousands tons in 2001, and 46052,3 thousands tons in 2002	Reduction in 2,41 times in 2001 to the level of 1995, and in 2,38 times in 2002 to the level of 1995	POSITIVE
	5(b). The amount of unused and nonneutralized toxic wastes per unit GDP	0,225 tons \ hryvnas of GDP	Reduction in 8,9 times to the level of 1995	POSITIVE
Saving ecosystem functions and biodiversity	6. Especially protected natural objects	970,8 thousands of hectares in 2001	Growth in 2001 in 2,69 times to the level of 1991, and in 2,32 times to the level of 1995	POSITIVE
		1013,6 thousands of hectares in 2002	Growth in 2002 in 2,8 times to the level of 1991, and in 2,43 times to the level of 1995	
Global climate change (market of quotes on green-house gases)	7. Emission of green-house gases	3106,5 thousands tons in 2001	Reduction in 2,36 times to the level of 1990	POSITIVE
		3254,7 thousands tons in 2002	Growth at 5% in 2002 to the level of 2001	NEGATIVE

AIR AND WATER OF CONDITION OF URBANIZATION

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Urbanization is one of the most controversial problems of modern society. Although it is an essential process of social and economical development of humans, it also the source of the problems that people never faced before. Anyone familiar with the world development trends knows that nearly half of the world's population lives in urban areas and the number are expected to grow by 2% every year. Modern urbanization process has tons of problems, starting with insufficient housing and ending with global ecology impact. The paper is designed to cover the basic ideas of ecological impact and how significant it can be if we don't realize it soon.

Air pollution

Under the term "ecological disaster" we understand that one constant system changes to another unstable system. For example, increase in average temperature on Earth leads to melting of polar ice, which can have an unpredictable consequence; or spread of the ozone hole can bring all sorts of diseases or death to a many life forms. One or all of these disasters would occur as the product of our activity if the countries won't pay enough attention to greenhouse effect of emission.

Urban air pollution is one of the most important environmental problems. High concentration of transportation, industry and people turns the city into perfect polluter of the air. According the statistical data, the main sources of air pollution are vehicle exhaust, industrial emissions, and domestic use of wood, coal and refuse for heating and cooking. But in the city the lion share of air pollution belongs to transportation. Vehicles contribute about 14% of total global air pollution but in big cities it can contribute up to 80% of the city's emission.

The problem is not only in developed countries. In many developing countries, rapid urbanization has resulted in increasing air pollution in many cities. WHO air quality guidelines are often not met and, in mega cities such as Beijing, Calcutta, Mexico City and Rio de Janeiro, high levels of Suspended Particulate Matter (SPM) prevail. The result of air and water pollution is chronic and infectious respiratory disease; water borne diseases; increased mortality rates, particularly among children; and premature deaths – the highest rate being among the poor. Air pollution is not only the cause of lung disease, but also has become the cause of heard attacks, birth defects and cancer.

In developing countries, transportation is not the main source of air pollution. For example China and India together have about 600 million bicycles and much, much fewer cars. If in the US every second person has a car, in China only every 79th person has a car, so the sources of pollution are different. People move from rural to urban areas to find better job and a better life, so many cities in China have a housing problem. Because the city can't offer decent housing, people live in small

self-built shelters and usually heating and cooking is done by burning a very low quality coal, because it is the only cheap source of energy.

Water pollution

Water pollution problems vary in severity around the world, depending on population densities, the types and amounts of industrial and agricultural development, and the number and efficiency of waste treatment systems that are used.

For a millennia, people have used water as a convenient sink into which to dump wastes. The pollution comes from many sources, including untreated sewage, chemical discharges, petroleum leaks and spills, and agricultural chemicals that are washed off or seep downward from farm fields. In one area after another, the amounts and types of waste discharged have outstripped nature's ability to break them down into less harmful elements. Pollution spoils large quantities of water which then cannot be used, or at best can be used for restricted purposes only.

A growing number of regions face increasing water stresses because more people are both polluting and demanding more water for all uses from a renewable but finite resource. They are thus suffering from scarcities caused by failure to adapt to the amount of water that is regularly made available by rain and snowfall. Water demands are so high that a number of large rivers decrease in volume as they flow downstream, with the result that downstream users face shortages, and ecosystems suffer, both in the rivers and in adjacent coastal areas.

South and Southeast Asia are facing severe water pollution problems. Rivers such as the Yellow (China), Ganges (India), and Amu and Syr Darya (Central Asia) top the list of the world's most polluted rivers. In cities in the developing countries of the region, most water bodies are now heavily polluted with domestic sewage, industrial effluents, chemicals and solid wastes. Most rivers in Nepal's urban areas have been polluted and their waters are now unfit for human use, while drinking water in Katmandu is contaminated with coliform bacteria, iron, ammonia and other contaminants.

Researchers like to characterize humanity's impact on the environment through three factors: population, consumption and technology. Someone said: "The pollution problem is a consequence of over population". The humanity almost doubled within the century and soon we are going to double again, no wonder that we are facing the pollution problems. There are not much can be done about population growth, because we all have the freedom of living and breeding. Everyone would like to leave behind the posterity. So maybe we must concentrate on cutting back on consumption. We must try to use fewer, like saving the energy by turning off the unused electrical equipment or thinking twice before buying the co-called transportation "SUV" which travels only eleven miles on one gallon of gas, which is insane. And finally, we must try to develop our technology on high level and share with others. More efficient and safe technology is our last hope on better environment. Imagine, what will happen if all transportation will work on battery or by the wind. It is so exciting to think about all the benefits that humanity can derive from it.

Urbanization will continue to play a leading role in the economy, environment and people's life. The challenge is just to learn how to live with urbanization while using its benefits and guiding undesirable and negative impacts in manageable direction.

“GRENN” TOURISM IN TRANSCARPATHIA - PRIORITY DIRECTION OF ECONOMIC DEVELOPMENT OF THE REGION

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Transcarpathian region has exclusively favourable conditions for development of practically all branches of tourism and improvement of people's health. They come to the surface due to geopolitical situation and climatic natural peculiarities of the region. It's the only region of Ukraine which borders on four countries of Eurocarpathian region, that is Hungary, Poland, Romania and Slovakia. 70 per cent of its territory, is presented by mountainous and premountainous types of relief which cause its unique landscape richness and variety of plant and animal world of the tourism recreational potential of the region.

Transcarpathia retains one of the richest zones of balneologic treatment not only in Ukraine but in East Europe too. There are 620 mineral sources there 360 of which are mastered and most of them are world widely recognized for their unique peculiarities. There are 465 objects of nature reserve fund there, 494 reserves of alive and not alive nature and it is the most saturated memorial of history and culture of Ukraine.

The potential of tourism resources of Transcarpathia is extremely big. There are 415 objects of nature reserve fund in the region, 9429 rivers and streams flow along it, there are 137 lakes among them 32 are mountainous. The most of populated area is in villages where people have their own farmsteads where they can accept guest.

The development of village tourism is exceptionally important for Transcarpathia. It has great popularity in the countries of Central Europe. The experts even assert that the XXI century is going to be the century of village tourism. For our neighbours today it is a highly profitable branch of economy and hundreds thousands of people are involved in it.

Why is kind of tourism so fascinating and what is it so specific?

Is in brief it's in following things. Under the conditions of urbanization the desire of the town inhabitants to escape from stone jungles into nature, is growing, they'd like to live the measured village life, to get acquainted with the mode of life, to visit the architectural, cultural spiritual memorials of this or that region.

Such kind of rest attracts almost 30% of tourists in European countries, because it is the most accessible concerning the waste of money. It is advantageous

for the villages too and for those who can take the tourists for special pay to accommodate them comfortably, to give different conditions of life. It means village tourism, special investing into the village economy, catalising factor of its social development.

There is a possibility to be engaged in village tourism in our region the whole year round. Today 95% of the territory of the region are villages, where 70% of the regional population live (32% in Ukraine). The development of village tourism will help us (and is helping today) to solve the problem of population's engagement, especially in mountainous regions and to solve some social economic problems of developing of villages without what the transformation of the region to nature market conditions is impossible. For the last years the Ukrainian tourism business is more oriented on the development of our tourist industry. It is connected with the fact that Ukraine has rich potential for developing tourism including "green" or village tourism as the most popular and perspective today. In specialists estimation about 1 mln houses in villages may be potentially used on demands of "green" tourism - according to the year of their building their interior architecture and area they are suitable for accepting quests.

The necessity of developing of just this kinds of tourism is caused by the realities of nowadays because it is accessible to the majority. Village tourism as the specific kind of international tourism which influences directly the social, cultural, ecologic and economic spheres of the country becomes an integral part of the life of many people.

"Green" tourism is effective and profitable and the index of profit does not depend on the economic development of the country.

Everyone can organize such kind of business who has a comfortable house near the river, lake wood or at historical places or architectural monuments, who can accept guests and give them the necessary complex of services. Practicians say that it's necessary to have only 1 thousand dollars for the beginning which will be returned in 2-3 seasons.

Not only foreigners who want exotic impressions and are interested in Ukrainian traditions, folk trades may be consumers of the village tourism services but our compatriots as well who live in big cities and want silence, fresh air, natural food products, unity of rest, treatment and sport. A farmstead may be become the home of fans of mountain skiing, alpinists, those who wishes to be treated at salt lakes and to canoe along mountainous rivers. Village tourism is one of the serious forms of supporting small business, developing and stimulates investments. Successful functioning of their specific kind of undertaking will help to solve many problems such as:

1. the problem of people's engagement in villages
2. filling up the village families' budget
3. realization of the farmstead products
4. development of village infrastructure
5. village planning and organization of public services

6. revival of folk trades
7. restoration of local architectural monuments.

Much attention paid to environmental protection because green tourism is very “soft” tourism, it is considered to be ecologically cleaner than other kinds of tourism.

Among the main conditions of arising of ecotourism the leading role belongs to the growth of contradictions between the enjoying of tourists’ demands and rational use of touring resources. Anthropogenic loading is in the base of these contradictions what the tourism accomplish on natural and culturally historical touring resources. This loading rises proportionally to the rates of developing touring industry, thanks to its massness.

Ecological tourism in the context of stable development foresees preserving of ethnocultural surrounding too.

THE IMPACT OF GLOBALIZATION ON SUSTAINABLE DEVELOPMENT

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The majority of nations and states are considered to be free, and allowed to participate in many international organizations. But it’s not a complete freedom if 85 percent of the world’s income goes to 23 percent of people – the affluent consumers. By contrast, more than 1 billion people, the absolute poor, survive on less than 1 dollar a day, one of the three children malnourished and these are the reality of temporary world. Moreover, the developing world is dealing with these problems under greatly constrained conditions. Because of their staggering debt burdens, poor countries paid nearly as much to rich ones over the last decades as they received in new funds. Large debt payments force developing countries to plunder forests, fisheries, and other mineral resources to increase export earnings. Meanwhile, the international push for free trade may create competitive pressures for nations to adopt minimal environmental standards so as to attract investors. But the problem stands to be unsolved still, a lot of damage for the environmental done by developing countries and that is reflected in planet climate. Rich countries try to establish high standards of living only on their own territory, taking no care about poor ones. The solution at least in a broad scope, would be for a society to manage its economic growth in such a way as to do no irreparable harm to its environment that situation is close to the concept of sustainable development – development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Historically, rapid exploitation of resources has provided only short- term economic growth, and the environmental consequences in some cases have been incurable for example, 40 years ago, forests covered 30 percents of

Ethiopia today forest covers only one percent, and deserts are expanding. Globalization has not provided those positive results that were expected by the participants of the summit in Rio de Janeiro: the improvement of economic welfare in the countries of the third world, the possibilities for solution of social problems. On the other hand, sustainable development envisages the orientation of all countries towards decrease of anthropogenous stress. This is impossible without economic, legal and trade integration. Building an environmentally secure world – one in which human needs and wants are met without destroying natural systems – requires a wholly new economic order, one grounded in the recognition that high levels of consumption, population growth, and poverty are driving the earth's environmental decline. That order demands reduced consumption of resources by the rich to make room for higher living standards for the poor. And with current notions of economic growth at the root of so much of the earth's ecological deterioration, it calls for a rethinking of our basic values and vision of progress.

SWEEPINGS. IS THIS PROBLEM IMPORTANT AND HOW IS TO RESOLVE?

Roman Lagvilava

Kharkiv National Economic University

In the developed countries the population makes mountains of sweepings. For example, the quantity of sweepings accumulated each year in the USA, one thinks that the water equal to sweepings mass can pack 68 000 Olympic pools. In Germany every year they throw out such quantity of sweepings that one may pack a train with length of 1 800 km. In Great Britain, according to some evaluation, every year the 4-members family throws out such quantity of paper that six trees are needed for its production.

The problem of sweepings accumulated concerns to the developing countries too.

What is to do with an unnecessary thing? The answer is evident: It may be thrown out. But it's no easy to get out of sweepings. Where is to throw? One calculated that polyethylene bag need 10-20 years to be decomposed in the sea, nylon products- 30-40 years, metal tin -500 years and glass bottle needs 1000 years to be decomposed.

Last time the quantity of such sweepings is increasing. Now the market possesses a great number of goods and the advertising convinces us that we need of it. The British newspaper «Gardian» noted: «The advertising helps as to satisfy the necessities which existence is not suspected by us». Today they're many disposable products. Their validity is short. Yesterday it was in fashion, today it is throwing out. And a valuable raw material is dumped.

If is useful this wish to buy? Thus it is very advantageous for businessmen who receive a great profit. At Switzerland, a weekly magazine «Weltwoche» notes: «If each of us use only the furniture or a car during the whole life or longer in two times as we do the economic crisis would break out». The economic crisis can't save the situation.

How can we resolve the problem of dumps?

Some industrial countries found a solution by transferring of waste products to the developing countries. But this method is not a way out and serves as an example of disrespectful attitude to other countries.

If the unused things are not to throw out but to use them as secondary raw material? Certainly, in this case it needs to be assorted. Some counties have the laws to do it.

The treatment has advantages. For example, the treatment of aluminum economizes a great quantity of energy and reduces the damage to the environment by bauxite extraction in open way. The treatment needs less the energy in two times and the water - in ten times for paper production.

If some branch of industry can't to use the waste products it's possible to treat them and transfer to other users. Thus, in Holland, there is network of exchange of secondary raw material existing from the beginning of 1970.

In some countries the authorities prevent the production of the waste materials instead of looking for their moving away.

Thus, the problem of sweepings is resolving. Besides the mentioned methods there is an easy but prior way: to become a society of thrifty people where the sweepings are minimal and the resources are economized.

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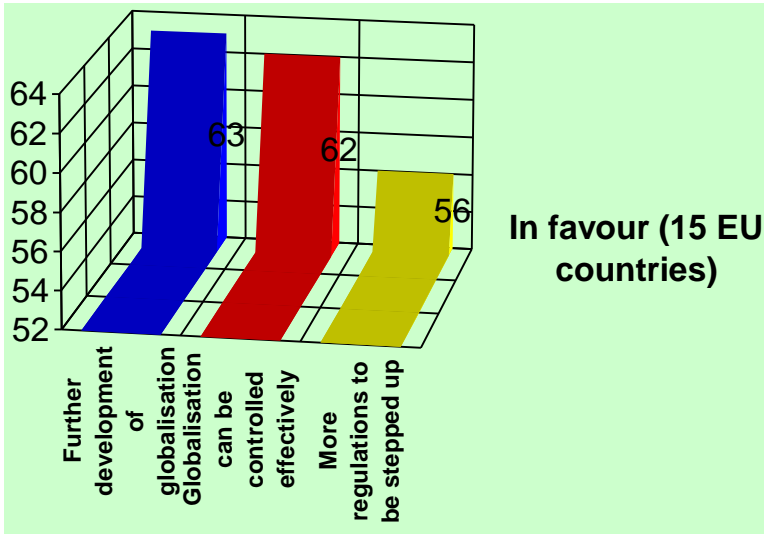
Lastauskas Povilas

I have chosen the work group under the issue "European Integration Processes in the Globalization Context". Thus, the presentation is proposed with a name "The EU today: what is the role in globalization – benefits and dangers."

The main ideas, which will be developed in the presentation, according to the title, also having in mind the main issue:

How do Europeans react to the processes of globalization? Do they feel sure about the future challenges? Are they ready to cope with new problems caused by unification and benefits to use effectively? In order to answer all these questions I will propose the ideas, which are now popular in Europe. As an example, here is a data given in graphs and in written:

Main figures about globalisation (in percentage)



- Over 3 in 4 EU citizens have heard of globalization. Awareness levels are particularly high in Austria (90%), Finland (89%) as well as Greece and Italy (88%)
- 56% of the respondents view the opening-up of markets as a good opportunity for domestic industry, with Sweden (65%), Denmark (64%), Ireland, Italy and the Netherlands (63%) at the top
- 58% of EU citizens are positive about the European Commission negotiating on behalf of all Member States on trade matters, with Italy (69%) and the Netherlands (66%) as the most positive
- On the effects of globalization, 57% of EU citizens believe it is positive for economic growth, 52% believe it is negative for employment, 64% believe it is positive for solidarity between countries.

The expenditure of the Union shows an aspect of a necessity to unify. After the crash of Berlin wall, there is no “curtain iron” on the Old continent. Nowadays, when world is becoming more and more dependent on the international corporations, there is a great need to supervise their activities under the governments level. Also equalizing national regulations and providing for those, who most need resources invested right now, can only reach many economic objectives. Another benefits coming from globalization are:

- The contribution to poverty reduction and the achievement of the Millennium Development Goals;
- A very fast progress and a high inventions level in some specific areas very closely related to globalization. The rapid technological advances, particularly in the areas of transportation and information technology come from contemporary approach to the economy based on knowledge.
- Trade, easier financial transactions, cultural and information exchanges, international meetings and ideas-experience sharing events become as usual as visiting guests in home country. Talking simpler, the distance is not a problem as many things can be done immediately owing to Internet, a rush life-style, broadening outlooks and open-minds.
- Problems:
 - The unsatisfactory level of FDI,
 - The risk of oscillations in trade liberalization are all negative signs of a difficult juncture in the world economy that is only now starting to turn around,
 - Migration trouble to more developed countries,
 - Illegal work, smuggling through “free borders”, stealing of authorities, intellect property,
 - Different conditions for entrepreneurs to compete in different countries (not similar living conditions and social policies).

ECONOMICS FOR ECOLOGY

Bhaktaraj Limbu

Ecology is the study of living organism in relation to their environment, the surrounding in which organisms live. Sir Arthur G. Tansley Coined the term ecosystem in 1935. The ecosystem comprises both living organisms(biotic) and the non living surrounding (a biotic).

The biotic community together with their physical environment forms a noting and interacting system called an ecosystem or the ecosystem is the relationship between living and external physical environment both interacting and exchanging materials between them so as to maintain balance in nature. It can be defined as self sustaining unit of organisms formed by interaction with its environment.

It is very essential to become aware of the environment that we live in. Due to industrialization and urbanization that take place on our earth, it plays major role to destroy our surroundings and make ecological imbalance. The various economic activities affect the ecology. Ecological imbalance leads to different health hazards. It also causes natural disasters like fire, floods, landslides, soil erosion, earth quakes, etc. So the planners and people should think well before doing any activities. The following points can be helpful to maintain ecological balance a.

Establish factories far from the human settlement.

- b. Use scientific equipment to regulate smoke emissions.
- c. Do not blow horns frequently and loudly.
- d. Dispose the industrial, human and animal wastes safely.
- e. Do not drain them in rivers, recycle them.
- f. Plant trees. Preserve forests and conserve wild life.
- g. Check deforestation and wild fire.
- h. Check on systemic housing and urban development.

Therefore, we must be enthusiastic and responsible for our natural wealth, environment and our universe to preserve and make as a heaven to live for every human beings, animals and plants. So on behalf of my country Nepal, I advise all the citizens of every nation to give importance for economics, for ecology.

ENVIRONMENTAL CLAIMS FOR SALES PROMOTION

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In the UK, the British Code of Advertising, Sales Promotion and Direct Marketing (the Code) is the rule book for non-broadcast advertisements, sales promotions and direct marketing communications (marketing communications). The sales promotion rules are designed primarily to protect the public but they also apply to trade promotions and incentive schemes and to the promotional elements of sponsorships. They regulate the nature and administration of promotional marketing techniques. Unfortunately in Ukraine there is no such self-regulation system. But I think that it is necessary to introduce the same regulation. And by the way, we can use the experience of Great Britain.

The basis of any claim should be explained clearly and should be qualified where necessary. Unqualified claims can mislead if they omit significant information.

Claims such as ‘environmentally friendly’ or ‘wholly biodegradable’ should not be used without qualification unless marketers can provide convincing evidence that their product will cause no environmental damage when taking into account the full life cycle of the product. Qualified claims and comparisons such as ‘greener’ or ‘friendlier’ may be acceptable if marketers can substantiate that their product provides an overall improvement in environmental terms either against their competitors’ or their own previous products.

Where there is a significant division of scientific opinion or where evidence is inconclusive this should be reflected in any statements made in the marketing communication. Marketers should not suggest that their claims command universal acceptance if that is not the case.

If a product has never had a demonstrably adverse effect on the environment, marketing communications should not imply that the formulation has changed to

make it safe. It is legitimate, however, to make claims about a product whose composition has changed or has always been designed in a way that omits chemicals known to cause damage to the environment.

The use of extravagant language should be avoided, as should bogus and confusing scientific terms. If it is necessary to use a scientific expression, its meaning should be clear.

So, to protect consumers and environment, marketers and promoters should follow such rules.

- Marketers should not discourage essential treatment. They should not offer specific advice on, diagnosis of or treatment for serious or prolonged conditions unless it is conducted under the supervision of a doctor or other suitably qualified health professional (eg one subject to regulation by a statutory or recognised medical or health professional body). Accurate and responsible general information about such conditions may, however, be offered.

- Consumers should not be encouraged to use products to excess and marketers should hold proof before suggesting their products or therapies are guaranteed to work, absolutely safe or without side-effects.

- Marketing communications should not suggest that any product is safe or effective merely because it is 'natural' or that it is generally safer because it omits an ingredient in common use.

- Marketers offering individual treatments, particularly those that are physically invasive, may be asked by the media and the ASA (The Advertising Standards Authority) to provide full details together with information about those who will supervise and administer them.

- Where appropriate, practitioners should have relevant and recognized qualifications. Marketers should encourage consumers to take independent medical advice before committing themselves to significant treatments, including those that are physically invasive.

- Marketers should hold proof before claiming or implying that minor addictions and bad habits can be treated without effort from those suffering. Marketers should not use unfamiliar scientific words for common conditions. Marketing communications should include the name of the product, an indication of what it is for, text such as 'Always read the label' and the common name of the active ingredient if there is only one. There should be no suggestion that any medicine is either a food or a cosmetic.

- Marketers must not use fear or anxiety to promote medicines or recovery from illness and should not suggest that using or avoiding a product can affect normal good health.

- Illustrations of the effect or action of any product should be accurate. Marketing communications for medicines should not be addressed to children. Marketers should not use health professionals or celebrities to endorse medicines.

- Marketing communications for any medicine should not claim that its effects are as good as or better than those of another identifiable product. Homeopath-

ic medicinal products must be registered in the UK. Any product information given in the marketing communication should be confined to what appears on the label. Marketing communications should include a warning to consult a doctor if symptoms persist. Marketing communications for unauthorized products should not make any medicinal or therapeutic claims or refer to any ailment.

Promoters should make all reasonable efforts to ensure that their promotions, including product samples, are safe and cause no harm to consumers, their property or the environment.

SUSTAINABLE DEVELOPMENT WINS FOR ALL?

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"Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"

It is well known that the main pillars of sustainable development are economic development, social development and environmental protection as in the local, national, regional as well as in the global levels. That's why, nowadays this notion is not only a fashionable term, but it is becoming a requirement. As a result, among the society and of course among the scientists appears the question, whenever sustainable development can really be achieved or is it just a beautiful phrase?

In the whole, sustainable development focuses on the synergy between environmental sustainability and economic growth. Given increasing environmental pressure from economic growth, the region is seeking to shift from unsustainable development patterns to environmentally sustainable economic growth.

There are a great number of the *tools* for promoting environmentally sustainable economic growth, among which we could innumerate the most important ones, such as:

- internalising environmental costs;
- improving eco-efficiency of production and consumption patterns;
- encouraging the development of markets for green products;
- creating the services and environmentally sound technologies e.t.c.

At the same period of time, when we are talking about sustainable development, we shouldn't forget about the interconnections between the sustainable economic growth and the environmental policies.

The environmental policies should focus not only on pollution control but also on improving eco-efficiency; the environment should be regarded as a driver for growth in the economy and research and development, rather than a burden; and environmental challenges should be turned into opportunities. The rapid economic growth should be environmentally sound and socially equitable.

As an example, of such cooperation and mutual understanding between economic growth and the environmental policies could be **World Summit on Sustainable Development** (Johannesburg, 26 August – 4 September 2002) which focuses on the indivisibility of human dignity and resolved through decisions on targets, timetables and partnerships to speedily increase access to clean water, sanitation, adequate shelter, energy, health care, food security and the protection of biodiversity. At the same time, the world leaders in the frameworks of this institution would work together to assist one another in gaining access to financial resources, benefit from the opening of markets, ensure capacity-building, use modern technology for development, and ensure technology transfer, human resource development, as well as education and training to banish underdevelopment forever.

During the World Summit on Sustainable Development in Johannesburg, among the significant agreements reached in the negotiations are provisions to take action on the five areas that **UN Secretary-General Kofi Annan** suggested that the Summit tackle, moreover in the frameworks of this Summit the Johannesburg Declaration between the world leaders was adopted.

In the correspondence with this Declaration the world leaders would continue to pay special attention to the development needs of small island, developing States and the least developed countries. They recognized that sustainable development required a long-term perspective and broad-based participation in policy formulation, decision-making and implementation at all levels.

The leaders agreed that in pursuit of their legitimate activities, the private sector had a duty to contribute to the evolution of equitable and sustainable communities and societies. They also agreed that there was a need for that sector to enforce corporate accountability within a transparent and stable regulatory environment.

The world leaders came to the conclusion that the **Johannesburg Summit** had brought together a rich tapestry of peoples and views in a constructive search for a common path towards a world that respected and implemented the vision of sustainable development. But, in order to achieve the possible result and future perspectives of this declaration, the leaders adopted an **Implementation Plan** as well, cause it's evident, having the strategy (the main priorities and ideas), it's very important to have a well-qualified tactics, organs and law base, in other words, how to implement all these plans, who will achieve the main goals, with whose help and in according with what should they act?

The **65-page** Implementation Plan commits participants at the World Summit to concrete actions and measures at all levels on a wide range of environmental and development issues, such as clean water, energy, agriculture, trade, health and biodiversity.

As we see, the governments, as well as NGOs and other state organisations are ready to act in accordance with the well known rule of **A.Maslow "If the only one thing you have is a hammer, you tend to see every problem as a nail"**. But each of them don't want to turn their attention to protecting the environment only after terrible damage is already done. Ecological resources are the bases of economic de-

velopment and therefore any activities harmful to such resources are rejected. In addition to grass-roots domestic NGOs, many international NGOs are also joining the effort to promote the idea of sustainable development.

At the same period of time, the main aspect, which unite all of them, is not only to play an active role in solving this world problems, but to gain the maximum economic benefits through the most efficient use of energy and resources, that will give not only the huge economic growth of the states and there position in the world economy, but it will lead to the high life standards of the people and the world society, at least, partly will forget about some ecological and health problems.

The only one and the most important thing for all the states at the present situation is to find the mutual understanding and to be ready for cooperation, because only together, the world society will gain the result.

May be it is a very optimistic note, but in this connection I couldn't forget the well-know phrase, as Francais says: *“Impossible ce n'est pas francais” (“Impossible, this is not for French people”)*, I am convinced that we could state the same for the whole world, that *“Impossible, this is not for the whole world (society)”*.

ECO-LABOR TAX REFORM: EXPERIENCE OF IMPLEMENTATION BY THE EUROPEAN COUNTRIES AND POSSIBILITIES FRO UKRAINE

Olena Maslyukivska, Iryna Myronova

Ukraine's current tax system makes energy and natural resources cheap, thus encouraging inefficiency and waste. On the other hand, it makes labor too expensive (additional payroll taxes and mandatory social contributions, paid by employers, average about 37% of a salary), which discourages employment, encourages payment of wages in cash, and fuels the unofficial economy.

Ukrainian GDP composition is a good illustration of this. It's structure leans toward heavy industries (metallurgy, mining, chemical and oil-refining industries, and energy). The share of these industries in the industrial output of Ukraine has more than doubled in recent years, from 23 % in 1991 to 58 % in 2000. Also in 2000, the share of heavy industrial products in Ukrainian exports was over 60 percent. Metal products alone accounted for about 40 percent [10].

Many modern economist such as H.Daly, R.Costanza, L.Brown and others see the problem in the fact that today's fiscal systems reflect the past time goals to exploit natural resources as rapidly and competitively as possible via increasing the productivity of labor and capital. But now natural capital is the scarce resource. The present goal should be to restructure the fiscal system so that the prices reflect the truth, protecting economy's natural supports [4]. Thus, a concept of eco-tax reform emerged, which means the following: tax lightly the things you want more of (labour and income), and tax more heavily what you want less of (resource depletion

and pollution of the environment). For some scientists it is known as a double theory hypothesis.

There are quite a few simulations proving the double-dividend theory. Andre et al. [1] believe that it makes sense to perform an empirical analysis to test the economic effects of a specific reform in a selected country or region, by means of Computable General Equilibrium (CGE henceforth) models to assess the economic effects of an ETR. These models perform a disaggregate representation of all the activity sectors and the equilibrium of all markets, according to basic microeconomic principles. The World Bank economist Benoit Bosquet with his research of the 139 computer simulations from 56 studies of eco-labor tax reforms, mostly in Europe and most of which shifted taxes onto energy while shifting them off labor, indicated that eco-labor tax reform indeed benefits both the economy and the environment. The economic simulations showed that reductions in carbon emissions would result in improvements of environmental quality as well as marginal gains in employment levels [2].

In the 1990s a growing number of European countries introduced reforms linking a variety of green taxes to reductions in social security contributions. The tax shifts have amounted to anywhere from 0.2 percent to 2.5 percent of these countries' total tax revenues [2,9]. At the same time a growing number of studies, modelled the economic and employment impacts of ETR. Although the underlying assumptions about the nature and size of eco-taxes, as well as the precise ways in which the tax revenue would be used, vary widely, the key conclusion was that a tax shift is clearly good news for job creation [2].

Thus, both simulations and empirical studies show that the potential impact of a tax shift is likely to be greatest in countries where labor taxation is particularly high, as it is in most of Europe [5,6]. Although economies of developing countries often find more difficult to commit on a long lasting tax reform, due to a low institutional development and the abrupt political changes it drives, Casillas considers that they have more possibilities to implement ETR.

The authors believe that Ukraine should restructure its taxation system according to the principle of eco-taxes, i.e., tax lightly the things you want more of (labor and income), and tax more heavily what you want less of (resource depletion and pollution of the environment). The resource intensive and labor tax heavy economy of Ukraine will benefit from ETR due to increase in resource productivity and increased rate of employment leading towards the effective and efficient economy restructuring. The tax base can be shifted from labor and income to resource throughput at the depletion or pollution ends, or both. The tax shift should be made revenue-neutral to minimize political opposition. This would provide strong incentives for job creation and for higher and officially paid wages, on one hand, and for enhancing resource productivity on the other [8]. This shift could be carried out gradually by a preannounced schedule to minimize disruption and should be a key part of structural adjustment [7].

Bibliography

1. Andre F.J., M.A. Cardenete, E. Velazquez (2003) Performing an environmental tax reform in a regional economy. A computable general equilibrium approach. Discussion paper No. 2003–125. Tilburg University. December 2003.
2. Bosquet, B. (2000) Environmental tax reform: does it work? A survey of the empirical evidence *Ecological Economics* 34, pp. 19-32.
3. Brown, Lester R. (2001) *Eco-Economy. Building an Economy for the Earth*, New York: W.W. Norton & Company, 2001. Chapter 11. Tools for Restructuring the Economy.
4. Daly, Herman (1996) *Beyond Growth: The Economics of Sustainable Development*, Boston, Beacon Press, 1996.
5. Gameson T. et al. (1997) *Environment and Employment*. Report for the Committee on Environment, Public Health and Consumer Protection of the European Parliament, (Seville, Spain: Institute for Prospective Technological Studies, April 1997.
6. Hoerner, J. Andrew and Benoit Bosquet (2001) *Environmental tax reform: the European experience*, Center For a Sustainable Economy, Washington, DC, February 2001.
7. Jarass, Lorenz (1996) *More Jobs, Less Tax Evasion, Better Environment—Towards a Rational European Tax Policy*, Contribution to the Hearing at the European Parliament, Brussels, 17 October 1996.
8. OECD (2002) *Towards Sustainable Consumption: An Economic Conceptual Framework*, Paris: Environment Directorate, June 2002, p.17.
9. Roodman, David Malin (1998) *The Natural Wealth of Nations*, New York: W.W. Norton & Company, 1998.
10. Vovk, Viktor, *Sustainable Development for the Second World: Ukraine and the Nations in Transition*, Worldwatch Paper 167, State of the World Library 2003, Washington, D.C.: Worldwatch Institute, September 2003.

RESOURCE SAVING AT UKRAINIAN MACHINE-BUILDING ENTERPRISE: ECONOMIC ADVANTAGES AND PROBLEMS

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Transformation market processes, which are occurring in Ukrainian economy, put in the forefront new, more rigid requirements to conducting economic activities by the domestic enterprises. In contemporary conditions economical agents have to take into account any changes of the market environment to keep the adequate level of enterprise production competitiveness and to provide the growing scales of profit. Such changes include demand fluctuations and consumer requirements transformation, appearance of competitors new products, development of scientific and technical progress and implementation of its achievements in certain branch etc. The important component of market success, in particular, for the machine-building enterprises, is the accounting and practical application of scientific and technical achievements in production process, i.e. the active realization of innovational policy.

One of perspective directions of innovational activity at the machine-building enterprise is resource saving, which provides the effective using of all kinds of production resources (materials, labour, finances, information, etc.) and their regular increment due to economy [1]. The problem of rational use and economy of production resources is extremely actual for the Ukrainian machine-building enterprises, because of resource capacity of gross domestic product of this branch exceeds several times (according to informal statistics several tens times) the similar parameters of the developed countries [2]. According to some experts' evaluations, in particular, the material use coefficient at the average machine-building enterprise of our country does not exceed 0,2, so about 80 % of involved in manufacture materials transform into wastes. Resource capacity reduction of Ukrainian industrial output, manufacture resource efficiency increasing will promote the stabilization of economic situation in machine-building and the steady economic growth in this branch.

Resource saving activation at Ukrainian machine-building enterprises will allow them to achieve some ecological, social, technical and economic advantages compared to competitors at external and internal markets. *Ecological* benefits of the enterprise from resource saving measures realization can include the reduction of environmental pollution volumes owing to smaller volumes of resources, which use for former production quantity manufacturing; the reduction of areas for formed waste products storage etc. Direct economic consequence of such ecological benefits is reduction of ecological payments sums, paid by the enterprise, reduction of waste products storage charges, decrease of expenses for production water preparation and sewage treatment, etc.

Resource saving *social* advantages for the enterprise lie in working conditions improvement; reduction of workplaces number with harmful and especially harmful working conditions; decrease of traumatism level and the general morbidity of workers owing to implementation of effective technological processes demanding smaller material resources volumes involving for manufacturing; noise and vibration levels reduction; labour-intensiveness reduction and labour productivity growth. The economic expression of social advantages is enterprise wages' expenses decrease, in particular the reduction of harmful working conditions surcharges volumes, sick-list payments' reduction, etc.

Technical benefits are equipping of the enterprise with progressive resource and energy saving equipment; technological processes improving on the basis of latest science and technology achievements; manufacture mechanization, automation and computerization; enterprise technical opportunities expansion; production nomenclature and assortment increasing, its quality improvement; production capacity increase and so on. These advantages allow to react more flexibly according to consumers preferences changes concerning characteristics of products, volumes and technology of their manufacture, providing a high level of competitiveness and additional profit reception.

Economic advantages of resource saving projects realization include the decrease of enterprise purchases volumes of initial resources and energy for manufacture; currying capital volume reduction; decrease of the production prime cost price and the opportunity of its price variation according to the target profit volume reception proceeding; manufacture profitability and enterprise financial stability increase; enterprise reputation improvement in consumers eyes in connection with production quality growth, its price optimization etc.

Integral component of resource saving policy realization at the enterprise is expenses for carrying out the resource saving measures. These expenses are frequently exceed opportunities of their financing by economic agent's own means, demanding the participation of other capital. As a rule, this problem - resource saving efficiency substantiation and financial sources' search - is the main barrier to resource saving measures realization in machine-building of Ukraine. However as the numerous facts of domestic pilot resource saving projects implementation and scientific publications, dedicated to such projects efficiency evaluation, testify, the economic result of resource saving in 1,3-2,5 times exceeds the expenses sum with regard to achievable ecological, social, technical and actually economic advantages. Nevertheless, because of absence of normative methodic for resource saving efficiency estimation with regard to all specified advantages (now economic advantages are taken into account only), the efficiency of these projects appears to be artificially underestimated, and in some cases they become unprofitable. So at the present stage there is necessary to provide by state the economic stimulation of resource saving implementation in machine-building of Ukraine, to improve the normative and legislative base, to use the adequate toolkit to manage these processes.

Bibliography

1. Чапек В.Н. Экономика природопользования. – М.: Изд-во «ПРИОР», 2001.
2. Мельник Л.Г. «New-ВАСЮКИ» глобального масштаба: Экономические эссе. – Сумы: ИТД «Университетская книга», 2004. – 56 с

THE DEVELOPMENT OF ECOLOGICAL BUSINESS

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This topic is of present interest nowadays, because the ecological and economic situation in Ukraine is rapidly changing for the worse. The negative influence of the national production intensifies and it causes the necessity to find the solution of ecological problems. It becomes obvious, that the securing of the quality of national environment in our country is impossible without the “greening” of social production.

The “greening” of the national economic complex means a purposeful process of economic transformation aimed at reducing the integrated ecological impact of the processes of production and consumption of goods and services on the environment. “Greening” is realized through a system of organized measures, innovational processes, restructuring of the sectors of production and consumption and transformation of environmental protection activities realized at both the macro- and microlevels.

One more factor, that promotes the “greening” of the economy, is the development of ecological business and ecological market, where ecologically clean goods and services are sold.

Ecological business promotes intensification of the economic activity of a country and solving the social problems. Economically developed countries pay a great attention to the innovational factors, such as new improved goods, technologies, materials and methods of the production and realization.

In Japan is actively forming a new sphere of economy – it is an ecobusiness. Carbuilding firms work out and produce ecologically clean cars with electric and gasoline engines; produces of the office-equipment master an output of the products made from recycled materials; produces of garbageburning machines, aircleaning technique and other environmental equipment have a good reputation on the world-market. About 50% of consumer garbage is used as a resource for the production due to the corresponding attitude of the population. It is an example of the innovational activity of the country in organizational sphere. These facts are of great interest for Ukraine, because the problem of garbage utilization is of present interest here.

In Ukraine some sectors of ecological goods have formed and they are actively developing, but other sectors of such goods only begin to form.

In the industrial technological society the productive sector is considered to be the main point in public life. It is this sector that determined the current political, economic and social processes. Human beings work just for this and very often forget that the economy is only a means. The motivation of economic activity is often not based on physiological needs or social interests. Very often this damages human health as well as spiritual development and personal happiness.

The reproduction of ecological demand is defined as the constantly renewed processes of shaping the needs for ecological goods as well as the creation of financial possibilities for the realization of identified needs.

It is common knowledge that our economic mechanism works with a negative ecological result, because for our national producers is more profitable to pay different ecological payments, than spend money for the environmental measures.

How can we change this situation? We can do economic efficacy of the ecological goods production higher, than economic efficacy of the unecological goods production. For this purpose we must perfect forced and encouraging management methods of ecological goods market forming.

DEVELOPMENT OF ECOLOGICAL ENTREPRENEURSHIP IN UKRAINE

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Social and economic progress in the field of environmental protection shows up in the development of ecological entrepreneurship. In the developed countries, formation of the system of ecological entrepreneurship took a long time and it was the result of improvements in environmental regulation.

Today, ecological entrepreneurship deals with the progressive system of nature management. The direct drawing on foreign experience is impossible because of the current situation with environmental degradation. But, from the other side, there is no time for the development of our own methodical approaches in the ecological field because of negative natality and decrease in the health potential.

Governmental policy in the area of ecological entrepreneurship should be focused on management decisions concerning the most serious environmental problems which influence the population's health levels.

Thus, it is necessary not only to improve the environmental parameters (air, water, soil etc.), but also to form the scientifically based level of population's health by changing the environmental situation. We consider the labor potential of the society and its main groups as the main indicator of the population's health level.

Therefore, costs, associated with the negative effect on health (particularly, environmental payments) should stimulate minimization of externalities of entrepreneurship. And here we consider the ecological insurance of the labor force as the

most prospective. At the same time, the governmental incentives system concerning environmental entrepreneurship should be based on fundamental studies of interrelationship between workforce quality and environmental situation.

DEVELOPMENT OF ENVIRONMENTAL REGULATION IN THE AREA OF NATURE MANAGEMENT

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Degradation of natural resources has led the modern society towards understanding the need for the combined production and environmental management. So, today the new guidelines for the production development, as well as technological decisions and approaches to the nature management, have appeared.

Development of environmentally and socially responsible forestry management is an important element of this process. In modern economic literature, such type of management has been named as environmental management.

Today, forestry policy is one of the main components of the environmental protection system in Ukraine. After independence, Ukraine developed the Forest Code, where the regulatory rules of forestry management are formulated. The national legislation stipulates that Ukrainian forests should perform water-, air- and health-protecting functions.

The main directions of the forestry management are:

- increase in forest covered area up to optimal level for every natural zone;
- conservation of biodiversity of forest ecosystems;
- increase of forest ecosystems' resistance to negative environmental factors, climate change and anthropogenic factors;
- rational use of forest in order to satisfy demands in timber and wood products;
- amelioration and forest cultivation in the steppe.

Development of governmental and other instruments of nature management regulation includes: payments for natural resource exploitation; tax regulation of nature management; the system of fines and compensations for losses, caused to natural objects and resources; development and application of the methods of economic evaluation of natural resources; formation of an idea of the environmental value of resources; development of mechanisms of voluntary environmental certification; creation of economic conditions for development of environmental insurance.

ECOLOGICAL AND ECONOMIAL STOCK-BREEDING CONDITIONS IN BELARUS, NIGERIA, THE NETHERLANDS

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During the last years we can see much more warnings from the official sources of European Alliance and ecological organizations, about the threat of the environment pollution, coming from the modern intensive stock-breeding. The intensive stock-breeding occupies one of the central places in the discussion of the UNO department provision and for agriculture(FAO).

The modern stock-breeding leads to the water,air and land pollution, destroys the wideworld, including birds and animals. In fact, it is used for food production. It is the main factor, which is followed by the modern agriculture, as well as the main influence factor on the environment.The Main problem of the intensive stock-breeding is the utilization of wastes. The main sources of the ground and water pollution from the livestock enterprises are manure, urine, technical water and disinfecting substances being used during the veterinary-sanitary measures. Manure can be a factor of passing over more than 100 types of the incitants of the animal diseases, including the ones dangerous for people. Especially dangerous is watery manure, which is obtained from nonlayer type of animal breeding. Pathogenic microflora in watery manure remains viable for a very long time due to high moisture and a great content of ammonia and chloride, preventing the duplication of thermofile microorganisms. Because of that the biothermal processes in watery manure do not happen and as well as its biothermal dehydration.

The main feature of intensive stock-breeding is breeding of a large amount of animals on a small territory, often in the premiseses, insulated from the environment. In order to get maximum amount of products using minimum expenses we save place, electric power, do the technological process cheaper, not taking into consideration such factors as: animals natural needs, ecological situation, not paying attenting at morally-ethical side of this question. It is known that there is a straight connection between the level of the economic development of the country and ecological situation in the country. As an example let's take 3 countries, different in the level of the economic development.

The agriculture of the Netherlands is high productive, with a brightly expressed export orientation. 60% of the agrarian products produced in the country is delivered abroad from Holland. It forms 24%of the cost of the whole Netherlands' export. The important reasons of a large foreign demand are high and stable quality of products and strong market organizations. High attention is payed to the ecological safety of stock-breeding.

In Holland large positive farming experience is allied to high technologies that allows to get ecologically clean products of high quality. Holland existing laws

regulate strictly the environment protection from the negative influence of agricultural production. Ecologically clean technologies in dutch farming are successfully introduced not because of the administrative press, but also because of their economic benefits for the farmers themselves.

In Belarus, compared to Holland there is a large amount of large livestock breeding complexes, 6 of them pig-breeding for 100000 goals. Such concentration causes a wide range of pollution problems of each environmental component. There are a lot of examples of negative consequences in the zone of the complexes. The plant production, which is obtained on the field of irrigation near the town pig-breeding complex for 108000 goals, is not suitable for animal feeding and 400 ga of irrigated fields are completely non used. The quality of livestock products (according to the content of microelements and etc.), which is obtained at the complex, is 3-6 times lower in comparison with the products got from home animals and in 5-12 times lower than from wild animals. In the air of livestock-breeding farms the content of ammonia 4-10 times exceeds the possible rate concentration.

For example, the share of stock-breeding in the Republic of Belarus is 91% of halfwatery manure type. Because of the lack of efficient technologies and equipment, organic fertilizers pollute the environment and there is a loss of a lot of power elements while storing.

However during the last years it was decided to reduce the concentration of animals on the same territory. In 2002 it was forbidden to use nonlayer animal breeding, so that the manure could be punched and it could be possible to prevent the environment pollution.

In Nigeria, with its hot and dry climate, the problem of poultry waste utilization is one of the central ones. Poultry production develops the economy of Nigeria, and it is a very profitable business. Died during the production process birds are buried without following any sanitary rules and regulations. Because of the hot climate there is a quick decomposition of the corpses that leads to mass virus and bacteria development. Because of the small depth, they are greatly influenced by atmospheric sediments. It leads to the underground water pollution.

It is possible to reduce the polluting influence of livestock-breeding complexes on the environment if a correct technology is engineered for the farm production and housing. It should be not allowed to build complexes for cattle breeding for more than 3-5000 goals, pig-breeding for more than 24-27000 goals, as well as the complexes use that the hidrocleaning system of manure utilization.

WORLD EXPERIENCE OF ENERGY-SAVING TECHNOLOGIES

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Successful development of Ukrainian economy depends greatly on the solution of energy resources issue. Due to the lack of its own resources Ukraine has to import them. According to the structure of Ukrainian imports, energy resources are the biggest item contributing to total import growth of our country; its share accounts for 36 % of total goods imports, i.e. more than 1/3 of Ukrainian GDP is spent on energy sources imports.

Due to abovementioned, energy saving policy must be a first-priority issue for Ukrainian policy-makers, as well as a highlight of decision-making process overall. Ukrainian energy complex is characterized by enormous energy consumption. The most significant energy losses are registered in electric energy generating systems, as well as in house heating and hot water supplying systems. Aforesaid can be easily explained by the fact that electric energy is generated at condensational power plants, where less than 30% of the heat is used efficiently; the rest is dumped into the environment. Meanwhile, house heating and hot water supplying production accounts for 75 mln tons; 30-50% of system's power is usually lost due to the exploitation of low-efficient, used, out-of-date equipment, poor state of engineering networks etc.

Using new generating alternatives makes it possible to improve power plants efficiency, to obtain higher output and to increase "environmental friendliness". There are two main types of fuel used to produce energy in Ukraine: coal and natural gas. That's why gas and coal fired power plants are at the centre attention in this article.

Coal fired power plants form a part of generation portfolio in Ukraine, but have a disadvantage of relatively high levels of carbon dioxide emissions. However, a number of solutions – both short- and long-term ones – can put coal on a level with other technologies. Among all energy sources comprising nuclear, coal, gas and renewables, coal has a number of attractive features:

- It is easy to store and transport and can be sourced from diverse stable suppliers worldwide.
- Pulverised coal fired power stations offer unique load carrying flexibility, particularly useful in meeting peak demand, and in compensating for the intermittency of renewables.
- Coal fired generation (including emission control equipment to the latest stringent standards) is the lowest cost option for electricity generation.

Against the advantages, coal suffers from a significant disadvantage of having the highest level of carbon dioxide (CO₂) emissions, close to 1.4 t of CO₂ per MWh generated for the majority of Ukrainian plants. For coal to have an environmentally acceptable future, CO₂ emissions from new and existing coal fired power plants

have to be reduced to as low level as possible. There are three complementary solutions to reduction of CO₂ emissions from these plants:

- Improving generation efficiency either via building new plant or upgrading the existing one.
- By substituting a fraction of the coal with biomass (biomass co-firing), biomass being CO₂ neutral.
- Use of advanced concepts in plant integration.

Simultaneous adoption of all three improvements outlined above would reduce CO₂ emissions by 50-60% to a level comparable to a modern gas fired plant.

Advanced gas turbines market keeps being a driving force of significant technological change, caused by a call for new efficient technologies. The market's motivation for technological change has proved both the catalyst and the incentive for evolution of advanced gas turbine designs, made available to the market by several original equipment manufactures. And as these gas turbine lines have evolved in capacity, output, and performance, market expectations for "availability and reliability", set by pro forma requirements remain high. Availability and reliability is tied to the owner profitability objectives for the plant. Combined cycle gas power plants provide the most efficiency comparing with other gas fired power plants.

Benefits of combined cycle gas power stations:

- Competitive kilowatt hour: in combined-cycle applications new gas turbines have as much as a 10% advantage in efficiency over conventional turbine technology.
- High reliability and availability: lowest possible turbine inlet temperatures and a uniform annular temperature profile extend unit operating life.
- High power density: compared to conventional gas turbines new turbine design provides up to 60% more output in the same footprint. High power density design leads to reduced steam cycle requirements and lower capital costs.
- Low maintenance costs: the compact annular combustor provides a uniform hot gas temperature profile increasing the lifetime of the hot gas path turbine blading stages.
- Lower environmental emissions: the gas turbine concept for low emissions is based upon a unique combination of basic thermodynamics, combustion technology and design features. Sequential combustion technology is the industry's most innovative platform for low emission, high efficiency gas turbines.

However, the strategic prospective of energy saving policy must involve not only implementation of new environment-friendly and effective equipment, but also development of using unconventional and renewable energy resources, as well as new generating alternatives in order to substitute for conventional fuel types and economize the energy resources. The latter will contribute considerably to conventional energy sources saving and cut back the import expenses in the state budget.

YOUTH AGAINST SMOKING

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About harm of smoking it is told much. However the anxiety of scientists and the doctors, caused by distribution of this addiction, grows, as for the present the significant number of people does not consider smoking unhealthy.

Smoking - not harmless employment which can be thrown without efforts. It is the present narcotism and the more so dangerous, that many do not take seriously.

Nicotine - one of the most dangerous poisons of a phyto-genesis. Birds (sparrows, pigeons) perish, if to their beak be it only to bring the glass stick moistened by nicotine. The rabbit perishes from 1/4 drops of nicotine, a dog - from 1/2 drops. For the person the fatal dose of nicotine makes from 50 up to 100 mg, or 2-3 drops.

Such dose acts daily in blood after smoking 20-25 cigarettes (in one cigarette contains about 6-8 mg of nicotine from which 3-4 mg get in blood).

The smoker does not perish because the dose to be entered gradually, not in one step. Besides, the part of nicotine will neutralize formaldehyde - other poison containing in tobacco. Within 30 years such smoker smokes approximately 20000 cigarettes, or 160 kg of tobacco, absorbing on the average 800 mg nicotine. Regular absorption small, not fatal doses of nicotine causes a habit, predilection for smoking.

Nicotine joins in the processes of an exchange occurring in an organism of the person, and becomes necessary. It also is a principal cause why so it is difficult to leave this addiction. Smoke all categories of the population: women and men, elderly and teenagers, and even children. Especially negatively affects children and teenagers. Experts consider, what exactly in 12-13 years at children occurs "explosion" of interest to an adult life and its attributes to which many teenagers carry also cigarettes.

Smoking of teenagers, first of all, affects on nervous and intimate - vascular Systems. In 12-15 years they already complain on troubles with breathing at physical activity. As a result of long-term supervision the French doctor Dekalzne of 100 more years has come to belief back, what even insignificant smoking causes an anemia, frustration of digestion in children. But, despite of furnished proofs about harm of smoking, consumption of tobacco and tobacco products in our country grows also the market becomes more and more various and accessible.

Our generation already does attempts of struggle against smoking: " At schools of St.-Petersburg and Leningrad region realization of the program under the name " Competition of classes, free from smoking has begun ". According to Northwest public advice on a problem of teenage smoking, competition are called

to promote prevention of teenage smoking and to form in the youth environment of principles of a healthy way of life ". In competition will take part more than 700 sixth and seventh classes of the Petersburg and regional schools.

"I have friends and friends who smoke. To me too offered, but I prefer to communicate with those who does not smoke. If all over the world nobody smoked, the culture of all countries would rise". So schoolboys in the compositions write. Smoking schoolboys consider, " that if their comrades did not smoke, they too did not smoke".

- If we wish to care about health of the nation and the future generation as has shown an expert, it is necessary to forbid smoking legislative by and introduction of innovations as for example, it have made in the USA where smoking is forbidden in all public places, offices and premises, that to the detriment of tobacco firms, on packs of cigarettes photos of a liver of the smoker are located, people with cancer diseases, etc. the State is much more interested in health the citizens, therefore the center of selling has moved to the countries of the East Europe, and Russia, unfortunately, borrows, and will borrow the leading part in consumption of tobacco products.

Unfortunately Russia, Ukraine yet has not taken advantage to so To strict measures on struggle against smoking, all passed laws have no reinforcement in the future and the present. Unfortunately people do not reflect on that that they ruin the future, and our future-it children. We continue to poison them even in places specially allocated for them-children's playgrounds and they from infancy get used to that that smoking -it normally and daily not seeing the present harm.

You can follow this advice or not-it already on your discretion, everyone chooses the way, but not forget -the only thing that it is impossible to buy so this health.

THEORETICAL RECOMMENDATIONS OF CHOOSING ENVIRONMENT-SAVING MEASURES FOR AN ENTERPRISES

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Each enterprise during operation realize some environment-saving measures according to law, public views an so on. Choose and realize an optimal measures is very important for every enterprise.

In this thesis I'll try to give some recommendations of choosing environment-saving measures.

First recommendation: scale all possible environment-saving measures, that enterprise can ever realize, choose and actualize cheapest one (see figure 1). This recommendation more theoretical than practical, because some mesuares must be rea-

lise in series (see figure 2), moreover, forming one series of system environment-saving measures never can be optimal.

Second recommendation: forming series of system environment-saving measures and compare efficiency some environment-saving measures with another one (see figure 3). According to efficiency choose some series and environment-saving measures.

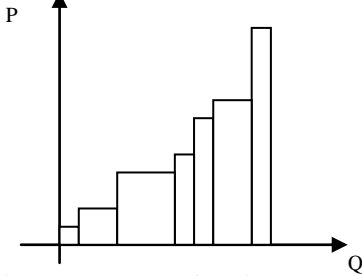


Figure 1. System of environment-saving measures of a enterprise

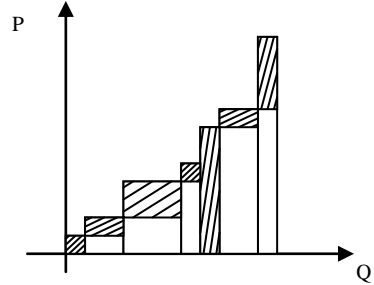


Figure 2. Realize environment-saving measures in series

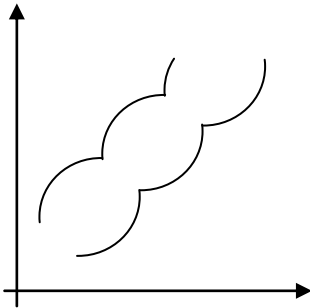


Figure 3. Compare efficiency some environment-saving measures with another one and choose optimal

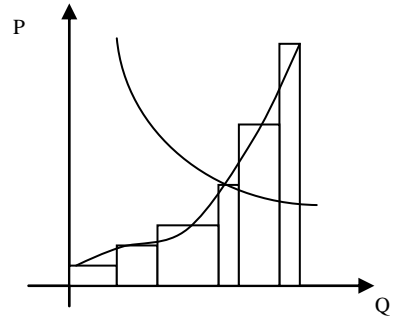


Figure 4. Choose environment-saving measures according to demand on it

Third recommendation: consider demand for an ecological environment and, pro tanto, environment-saving measures (see figure 4). This recommendation base on picture demand curve and curve of system environment-saving measures. Point of intersection this curves is an optimal environment-saving measure and environment-saving expenses.

Fouth recommendation: picture series of all possible system environment-saving measures and choose, according to necessity, cheapest measures from different system (see figure 5).

Fifth recommendation: decrease quota of pollution one's enterprice by growth enterprice and develop a business on basis of environmentally appropriate technology, pro tanto, it will change optimal environment-saving measure (see figure 6).

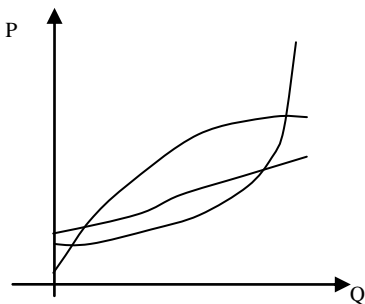


Figure 5. Curves of some series of system environment-saving measures

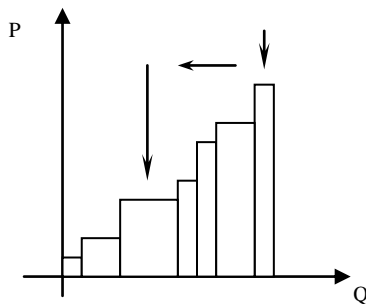


Figure 6. Choose optimal environment-saving measure by developing business

Choosing optimal environment-saving measure is very important for any enterprise. I think, in future, scientists will give more consideration to creation, choosing and realize an optimal environment-saving measure on the enterprises.

“SOFT” SECURITY AND THE ENVIRONMENTAL PROTECTION AS A PART OF EURO-ATLANTIC COURSE OF UKRAINE

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The matters of safety acquired new characteristics in the XXI century. Symptomatically, the direct military threat plays a less important role having been replaced by asymmetrical threats and responses to them, as well as by blurred distinction between internal and external security. Among the new types of threats researchers and practitioners constantly single out the threats to ecology safety. Against such challenges military formations of national armies and even the united NATO forces are powerless. Effective and adequate response can be found only in a complex system of co-operation of separate individuals as well as whole countries and peoples in the fields of economy, politics, trade, culture etc.

The shift in emphases found its reflection in the basic documents that guarantee security in the European Union. “The nature of changes in our security environment is a shift of emphases from classical threats (military intrusion) whose significance is decreasing to the non-typical ones, which originate from non-state organizations and institutions that are not always easy to determine. These threats may concern safety of our citizens, organizations, institutions and services essential for normal functioning of the country. They require special attention on our side.”

The European Union due to its economic strength and quick growth of political weight is an instrument of “soft” (non-military) security. This process presup-

poses mostly political ways of influencing the economic, ecological, cybernetic and other securities, as the adoption of modern EU political and economic standards will lead to meeting of the modern ecology standards. In this case our country's foreign line of policy defines the arrangement of the internal state security, including the environmental one.

European and Euro-Atlantic ambitions of Ukraine help to create a safety zone of a new type, but the success of these attempts directly depends upon the achievements in stabilization and development of the economic and political life of the country.

The Council of the EU adopted a special declaration on Ukraine stating that the development of the EU-Ukraine relations will depend on the progress of the reforms in Ukraine. The Council welcomed the European choice of Ukraine and the creation of a new government of the country that had declared an ambitious program of political and economic reforms the Union promises to support.

Newly appointed Ukrainian Foreign Minister Borys Tarasyuk told journalists that all steps of Ukraine in its foreign policy should be "not pro-Western, not pro-Eastern only pro-Ukrainian." European and Euro-Atlantic integration is priority for Ukraine, which will try to move "from words to actions," said Tarasyuk. He stressed that this year Ukraine must solve all issues that impede its relations with the EU. In particular, it must achieve the status of a market economy country, join the World Trade Organisation, and push for the start of negotiations on creation of a free trade zone with the EU and liberalisation of the visa regime.

Oleh Rybachuk, Ukrainian Deputy Prime Minister for European Integration and Jean Asselborn, Minister of Foreign Affairs of Luxembourg, the state presiding the EU, signed the Action Plan for Ukraine in Brussels on February 21st. The goal is to increase political and economic co-operation between the contracting parties. The three-year plan aims to bring Ukrainian law more into line with EU norms and is seen by the Ukrainians as a step toward eventual EU membership.

The support of other countries is needed to establish the Ukraine-EU relations. A serious struggle may be foreseen between the supporters of the Northern, Mediterranean and Eastern dimensions of the European Union policy. This struggle will be also affected by other factors, e.g. the role of NATO and the USA in Europe, the pace of deepening of the integration etc. The USA, for example, is interested in stabilization not only in the Black Sea region but also on the Balkan peninsular. For France and Italy it means predominance of the Mediterranean dimension over the Eastern one. And one may offer a number of such combinations. By using the mutual interests of the countries that support the Eastern dimension, preservation of co-operation between the countries and the Atlantic policy of the EU as opposed to those who support the Mediterranean dimension, deepening of integration and the European military identity Ukraine may achieve the desired result.

The success in co-operation with the EU in the matter of building the East-European "soft" security zone depends on the domestic situation in the Eastern European countries (first of all in Ukraine) and the political art of establishing the co-

lition groups of interest in Europe. Ensuring the “soft” security in the region has to involve vigorous actions on the part of the EU in the frame of all “three pillars” of the EU – economic policy, security of the member countries of the EU and preservation of piece, and at last the coordinated migration policy and co-operation of the customs and law-enforcement agencies.

COMPONENTS OF ECONOMICAL DAMAGE TO THE HELTH OF NATION AFTER NUCLEAR DESASTERS

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Inrecent years, accidents at several nuclear power plants have proven such events can lead to the widespread discharge of radioactive materials into the environment. Several historical events have shaped our understanding of the consequences of radiation disasters. The atomic bomb blasts in Hiroshima and Nagasaki in 1945 during World War II remain the most defining moments in the consequences of a nuclear exposure. The Nagasaki release, containing a 22-kilo-ton force, killed an estimated 39 000 among the 195 000 exposed. On March 28, 1979, a nuclear power plant, Three Mile Island (TMI), had a near "meltdown" (overheating of the fuel rods and a release of radiation) that produced negligible doses among people living nearby: a maximum of 0.001 Sv (100 mrem) and an average dose to the community of 0.00001 Sv (1 mrem).

In April 1986, a power plant in Chernobyl, Ukraine, had a mishap that produced a meltdown. The area around the reactor was heavily contaminated with plutonium, cesium, and radioactive iodine. An estimated 120 million Ci of radioactive material were released, contaminating more than 21 000] of land, with the greatest areas of fallout occurring in Ukraine, Belarus, and the Russian Federation Approximately 135 000 people were permanently evacuated. A total of almost 17 million people, including 2.5 million younger than 5 years of age, were exposed to excess radiation. The first delayed effect, beginning 4 years after exposure, was the occurrence of a great excess of cases of thyroid cancers in children and adolescents, especially among those younger than 4 years of age at the time of the accident. Seventeen years later, the area remains uninhabited because of persistent concerns about environmental contamination.

Radiologic threats can be unintentional or intentional. Unintentional threats include power plant disasters such as Chernobyl and TMI. Intentional threats are associated with military conflict or terrorism. Three major types of radiation disaster threats are:

- the detonation of a nuclear weapon;
- damage of a facility that contains nuclear material;

- dispersal of nuclear material, either by detonation of a conventional) or the release of nuclear materials in transit.

Any of these occurrences could result from human error or terrorist activity.

One of the most important scientific and methodical problems in a field of man-made disasters management is the complex estimation of consequences of such accidents. The economical losses after the Chernobyl accidents varies from 8 bill. dol. USA (the official value) to 250 bill. dol. USA (the independent experts). The main reason of such differences is the lack of estimation of negative consequences such as changing for the worse the health of nation.

So, in the article it will be revealed the structure of economical damage of people's health worsening.

Economical damage is the edition costs which exist in the government economics and people after the rising of environmental pollution.

The structure of economical damage are:

1. GDP losses after unforeseen death due to the accident;
2. the losses of working time after the rising of sick rate, and as a result we can see the decrease of production and losses connected with it;
3. payments for sick-lists & temporary disablement;
4. people costs for medicine;
5. privileges and payments to victims. For example, in Ukraine 10 % of population are identified as Chernobyl victims. They get corresponding payments.
6. decreasing of the capacity for work because of stress. And as a result the losses of GDP. More than 6 years after Chernobyl, the large populations exposed in the 2 areas of fallout had a high prevalence of distress and behavioral disorders; 35.8% of respondents had a psychiatric diagnosis as defined by the Diagnostic and Statistical Manual of Mental Disorders. Emotional effects are even greater for those who witness injured or mortally wounded victims after a radiation disaster;
7. consequences for the future generation. They include the rising of the children sick rate, who were born after nuclear accident, genetic illnesses and mutations. This point includes the components mentioned above, which concerning to future.

The components 1-6 are possible to estimate with some share of probability, but it is almost impossible to predict the 7th one.

Local planning for a possible radiation disaster focuses on the creation of disaster management protocols, education of first responders and health care professionals, and acquisition of appropriate equipment and supplies.

ENVIRONMENTALLY FRIENDLY TRENDS IN POWER GENERATING INDUSTRY

Inna Orlovskaya

An economy is sustainable only if it respects the principles of ecology. These principles are as real as those of aerodynamics. If an aircraft is to fly, it has to satisfy certain principles of thrust and lift. So, too, if an economy is to sustain progress, it must satisfy the basic principles of ecology. If it does not, it will decline and eventually collapse. There is no middle ground. An economy is either sustainable or it is not. Today's global economy has been shaped by market forces, not by the principles of ecology. An economy is sustainable only if it respects the principles of ecology. These principles are as real as those of aerodynamics. If an aircraft is to fly, it has to satisfy certain principles of thrust and lift. So, too, if an economy is to sustain progress, it must satisfy the basic principles of ecology. If it does not, it will decline and eventually collapse. There is no middle ground. An economy is either sustainable or it is not.

The key to restoring climate stability is shifting from a fossil-fuel-based energy economy to one based on renewable sources of energy and hydrogen. Advancing technologies in the design of wind turbines that have dramatically lowered the cost of wind-generated electricity to the point where it can be used to produce hydrogen from water, along with the evolution of fuel-cell engines, have set the stage for a dramatic restructuring of the world energy economy. The good news is that this shift is under way. The bad news is that it is not happening nearly fast enough to avoid a climate-disrupting buildup in atmospheric CO₂ levels. The dynamics of consumption by source we can see from the table (See Table 1)

In 2001 alone it grew by a robust 36 percent. And in the United States, wind electric generating capacity jumped by a phenomenal 66 percent in 2001. Solar cell sales, growing by 21 percent a year from 1995 to 2001, are likely to grow even faster in the years ahead. Once economically competitive only when used in satellites and pocket calculators, solar cells are now becoming competitive for residential lighting in Third World villages not yet connected to the grid. In many countries, if getting electricity to villages means building both a centralized power plant and a grid to deliver the power, it is now often cheaper for families simply to install solar cells. In Andean villages, for example, the monthly installment cost (with a 30-month payment period) on an array of solar cells to provide lighting is comparable to the cost of candles. A similar price relationship exists for the more remote villages in India that depend on kerosene lamps for light.

Another renewable source, one with a largely overlooked potential, is geothermal energy, which is growing at 4 percent a year. This is a vast resource and one that is likely to figure prominently in the energy economies of the Pacific Rim, particularly where widespread volcanic activity indicates that geothermal energy is close to the earth's surface. The western coasts of South America, Central America,

and North America have an abundance of geothermal energy. Perhaps the geothermally richest region is the western Pacific, including Indonesia, the Philippines, Japan, and the eastern and southern coasts of China. Another rich region is the Great Rift Valley, which stretches through East Africa up into the Middle East. In fact, the entire eastern Mediterranean is geothermally well endowed. Some countries have enough geothermal energy to meet all their electricity needs.

Hydroelectricity, which supplies over one fifth of the world's electricity, has expanded by 2 percent a year since 1990. In contrast to the other renewable sources of energy, the growth in hydropower is losing momentum as suitable sites for new dams are scarce and as public opposition mounts to large-scale inundation of land, the associated displacement of people, and the disruption of ecosystems.

Fortuitously, the fastest-growing fossil fuel is natural gas, which is the obvious transition fuel from a carbon-based energy economy to a hydrogen-based one. The natural gas infrastructure, including distribution networks and storage facilities, can easily be adapted for hydrogen as gas reserves are depleted.

The new century is bringing new directions in the world energy economy. The last century was characterized by the globalization of energy as oil emerged as the leading energy source. Indeed, the entire world became heavily dependent on one region, the Middle East, for a disproportionately large share of its energy. Now as the world turns to wind, solar, and geothermal as the primary energy sources and to hydrogen as an end-use fuel, the energy economy is localizing, reversing the trend of the last hundred years.

Table 1. Trends in Energy Use, by Source, 1995-2001

Energy Source	Annual Rate of Growth (percent)
Wind power	+ 32.0
Solar photovoltaics	+ 21.0
Geothermal power 1	+ 4.0
Hydroelectric powre	+ 0.7
Oil	+ 1.4
Natural gas	+ 2.6
Nuclear power	+ 0.3
Coal	- 0.3

THE KYOTO MECHANISMS: ECONOMIC POTENCIAL, ENVIRONMENTAL PROBLEMS AND POLITICAL BARRIERS

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The Kyoto Protocol allows industrialized countries – the so-called “Annex B parties” – to fulfil their commitments to greenhouse gas abatement partly through reducing emissions in other countries where such measures are cheaper. The kind of flexibility, which enables industrialized countries to comply with their commitments at lower costs, is defined in the Protocol under the following so-called “Kyoto mechanisms”:

- joint implementation (JI) under Article 6;
- the clean development mechanism (CDM) under Article 12; and/or
- international emissions trading (IET) under Article 17.

IET uses a top-down approach by calculating reductions in emissions on the basis of national commitments. The legal text of Article 17 indicates that Annex B governments could trade parts of their assigned amounts. A sovereign government could decide to split up its assigned amounts by allocating permits to individual companies (or sectors), enabling them to trade emissions domestically.

JI and CDM differ from IET, because the former are project-based mechanisms with an investor receiving credits for the emission reductions achieved in the host country. In principle, the emission reductions in such projects are measured bottom-up from a baseline that estimates what the emissions at the projects location would have been if the project had not taken place.

Although both JI and the CDM are project-based, they differ in that a JI host country has an emission target whereas a CDM host country does not. This means that there is a stronger incentive for a CDM host country to overestimate emission reductions by inflating project baselines (in order to claim more credits). In contrast, a JI host has an assigned amount and runs the risk of being in non-compliance if it transfers too many credits.

Theoretical economic models predict large cost savings from emissions trading. A market for trading carbon emissions can work well provided that it is designed adequately. In particular, it requires the participation of private entities, clear trading and enforcement rules, as well as information and trade facilities (such as clearinghouse) to avoid market power, to strengthen compliance and to keep transaction costs low, for instance.

The Kyoto mechanisms lower the costs of reducing emissions, but several political, environmental and institutional barriers complicate their implementation, such as those related to private-sector participation, project baseline determination and hot-air trading.

PROBLEMS OF WATER QUALITY AND ACTIONS FOR IMPROVEMENT

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Water is one of the most important elements of the environment. The basic problems of ecology, which are connected to hydrosphere of the planet, are conditions of providing population with water, its quality and opportunities of its improvement. Until recently these problems did not stand so sharply, because of relative cleanliness of natural sources of water supply and their enough number. But the situation has sharply changed at the last decades. A considerable concentration of urban population and sharp increase of industrial, transport, agricultural, power and other anthropogenesis emissions have led to deterioration of water quality, to appearance of unusual chemical, radioactive and biological elements in sources of water-supply. That's why effective water supply for the population is the central problem of the modern life.

According to WHO – 80 % of all illnesses in the world are connected to unsatisfactory quality of potable water and infringement of sanitary, hygienic and ecological norms of water supply. Nowadays over 2,5 millions persons suffer from the diseases connected with usage of pollute and infected water.

And Ukraine is not an exception. High level of technological loadings on reservoirs and use of out-of-date technologies of preparation of potable water in Ukraine do not allow to provide the population with potable water of guaranteed quality, it leads to getting a considerable amount of inorganic and organic pollution into the potable water, and their joint action on an organism of the person causes real threat to health of the nation, especially in conditions of radiating loading.

Besides potable water from surface reservoirs is potentially unsafe in the virus attitude, because the technology of its preparation doesn't guarantee the removal of viruses from water. Underground waters of Ukraine (in particular artesian) don't answer the quality of potable water in the majority of regions. It is connected not only with nature conditions of their formation, but also with anthropogenesis pollution and that's why it requires clearing.

Poor-quality water in Ukraine is one of the reasons of the distribution of such diseases, as a stomach ulcer, bilious-stone illness, illnesses of bodies of breath, a stenocardia, a heart attack of myocardium, a cholecystitis, which are widely observed in Ukraine last years. Only for the last 10 years numerous cases of diseases connected with the water factor and, in particular, with potable water were registered. For example, cholera, belly typhus, a virus hepatitis A, a dysentery, a salmonellas and so on.

Unfortunately while having a lot of problems with water resources my country doesn't realize strict goal programs for preserving and economical using of water supply. Ukrainian government elaborated a lot of national programs and projects for

preserving and development of water sector. But lack of the budget money prevented the realization of all these programs and caused different crisis situations in water sector of Ukraine during the last years.

Problem of water supply in Ukraine (like in other countries) doesn't exist in isolation. It is connected with different ecological and economic problems. Nowadays there are such laws about water supply in Ukraine as: "Law about ecological protection" and "Water code of Ukraine". These laws establish main principles about the usage of water sources. Water code establishes a basis of water legislation in Ukraine. Now the law about potable water is worked out, legislation and regular base are reformed and expanded. But in spite of all programs, rules and laws only a few concrete measures were done. There are such reasons of this situation:

- The development and improvement of legislation doesn't connected with elaboration of the economic mechanism for the realization of ecological strategy.

- Lack of money is the result of bad organized system of ecological funds. Money is lost in different funds and not always used for the right purpose. There is no incentive mechanism for effective using of the divided funds.

- Nowadays there is no support in economic and social development politics, in national and region programs, in public opinion.

So Ukraine has a lot of problems with water supply and diseases connected with water.

There are some prime actions for improvement of quality of potable water in Ukraine:

1. Legislative and legal actions:

- To develop and accept of the Law of Ukraine " About potable water ";
- To continue improvement of legislation and regular base about the protection of water sources and its ration usage;

- To develop effective laws about responsibility for the water quality and about the reduction of water pollution;

- To develop the mechanism of the execution of ecological laws, control of the effecting formation, transformation and usage of ecological funds;

- To develop and introduce state standards on sources of economic-drinking water supply and potable water;

- To develop legal and normative base of alternative water supply.

2. Technological and technical actions:

- To develop and introduce new and perfection of existing industrial technologies of water clearing in practice of water supply;

- To develop and introduce constant advanced system of monitoring of water quality in sources of water supply and potable water;

- To develop and introduce new effective filtering materials and so on.

3. Research methods:

- To develop state program of scientific researches and research-design development on priority directions of technologies of clearing and improvement of quality of potable water;
- To develop national and regional programs about protection of water sources and its ration usage;
- To develop state program of scientific researches " Potable water and health".

NUCLEAR CONTROL AS A FACTOR OF NATIONAL SECURITY: THE CASE OF ECOLOGY AND TERRORISM

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In 1991, for the first time ever, a nuclear-weapons state dissolved. Four new nuclear powers emerged on the territory of the Former Soviet Union (FSU). As a result, unique and unprecedented security and environmental problems appeared. Even though today Russia is the only nuclear weapon state on the territory of the FSU, the Soviet nuclear legacy retains a high priority on the European security agenda.

Politicians and military experts alike reiterate the threat of theft of nuclear weapons materials or even nuclear warheads. The migration of nuclear weapons experts to threshold countries and environmental problems are considered other substantial risks that result from the huge civil and military nuclear complexes on the territory of the FSU. Downsizing these complexes and safely handling their legacy, namely the immense amounts of nuclear waste, will remain of paramount importance.

The situation in the Ukrainian environmental complex for example is worsening so fast that in some cases there is even no time left for in-depth analyses of possible approaches to solve these matters. Matters are more complicated with regard to current trends in Ukrainian security policy.

The past two decades of arms control - whether nuclear, chemical, biological or conventional - have ingrained in most of us the understanding that the priority of arms control is to eliminate weapons, and to scale down offensive and defensive capabilities. There is little doubt that this is, and should continue to be, the priority of our efforts to advance arms control. But what does arms control mean beyond dismantling weapons systems and creating safeguards for fissile and B/C (WMD) material ? The legacy of arms control is also a tremendous, yet little thought-of, global environmental security risk that is only now beginning to unfold.

Bi- and Multilateral efforts have only over the course of the past three years been initiated to retroactively address the environmental legacies of past arms con-

trol agreements. Unfortunately, the complexity of initiating and implementing such clean-up programs now, have brought about a host of complex obstacles and discouraging impediments that almost rival the complexity of negotiating arms control agreements themselves. Utilizing the example of ongoing multilateral arctic military nuclear waste clean-up programs, this short concept paper will:

- a) identify the operational obstacles to successful arms control related environmental security programs; and
- b) provide potential solutions to some of the more prevalent concerns.

Arms control related environmental clean-up efforts require coordination among the clean-up stakeholders to secure a cohesive and focused approach. Agreement to coordinate has to be created on the highest governmental levels of assistance-providing countries to maximize the impact and benefits of the efforts. Such coordination will significantly reduce costs by avoiding overlapping investments, duplication of research and organizational cost. It will also provide the political consistency and stability that is essential to successfully address such sensitive issue areas as nuclear submarine decommissioning and nuclear waste clean-up. Above described experiences apply to almost all post arms control, cooperative threat reduction related programs between the Western countries and Ukraine.

In the future, arms control negotiations will need to incorporate the above experience of the most recent years in order to structure arms reductions in a safe, economically efficient and environmentally more friendly fashion. Arms control can only then be called successful if the weapons-grade material is safely stored or disposed, the weapons platforms are decommissioned and remediated, former employees of the nuclear industrial complex have found new employment and the former weapons storage and production sites are cleaned up.

The possibility that a terrorist organization could detonate a nuclear explosive device lies at the nexus of two of the greatest threats to international security: nuclear proliferation and terrorism. This combination is considerably more dangerous than either threat alone. Throughout the nuclear age, we have depended on deterrence for security, but a terrorist organization may not be responsible for a defined geographic territory or a civilian population against which to level a deterrent threat. At the same time, a single, primitive nuclear explosive could give such an undeterrable group the power to cause hundreds of thousands of deaths. The civilized world has no higher security priority than preventing terrorists from acquiring nuclear weapons. The biggest obstacle to building a nuclear weapon is the acquisition of the necessary weapons-useable nuclear material. The process of making plutonium or enriching uranium to purity levels required to create a nuclear device is extraordinarily expensive, technically difficult, time-consuming, and likely to be detected. But if a terrorist organization could steal or buy the necessary fissile material, they would not necessarily have to replicate the Manhattan Project to produce a nuclear explosive. Theft or purchase of weapons-useable nuclear material could constitute a major short-cut on the road to developing a nuclear weapon. Therefore,

controlling access to weapons-useable fissile material is essential to the prevention of nuclear terrorism.

The proliferation threat is exacerbated by the fact that it is possible to manufacture a nuclear weapon with a surprisingly small amount of nuclear material. Hypothetically, a mass of four kilograms of plutonium is sufficient for one nuclear explosive device; even a small theft of the right kind of nuclear material could radically promote efforts by a terrorist organization or criminal conspiracy to build a bomb.

Many now question whether or not a black market actually exists for fissile material, given recent revelations regarding the role law enforcement agencies played in certain publicized cases of fissile material smuggling. This is not a compelling reason to believe that, in the future, criminal organizations will not attempt to purchase weapons-useable nuclear material, or in fact that such a purchase has not already occurred. The reality we face is that both supply of and demand for weapons-useable nuclear materials are now permanently in the realm of the possible; the actions we take can only make the supply and demand of weapons-useable fissile material more or less likely at the margin.

INVESTMENTS IN TOURISM AS THE MARKET MECHANISM OF ECOLOGICAL PROBLEMS SOLVING

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Rapid economic growth in the world predetermines pressure on the ecology strengthening and ecological problems activation. There is the problem of effective mechanism choosing of economic development regulating to the level that would not conflict with steady development. It is necessary to come to agreement in the controversy "environment - economy growth": to provide such level of development that would be grounded not only on material welfares necessary for society creation, but also make on harmonious ecological development.

Development of the ecology-oriented business in Ukraine will allow ecological situation changing substantially, environment protection improving and natural resources using. Obviously, it is impossible to decide ecological problems, to provide stable economic development without effective macroeconomic policy and economy of the country improving.

Ecological situation in Ukraine becomes worse because of economic, political and other factors influence. The main of them are improper legislation, ecology-balanced long-term economic strategy absence, mainly raw materials' character of export, natural resources extensive use, ineffective sectoral policy, investment policy oriented on resources squandering sectors of economy development. On the

whole, it is necessary to further different conceptions and approaches to these problems realization co-operation and consolidation for all ecological problems solving.

The most significance for ecology-oriented business development is investment policy sweeping change in the direction of nature protection priorities. Today's structure of state, private, foreign investments fastens such type development on future that base on resource using as considerable part of capital investments is put in complexes that base on active resources exploitation, foremost chemical industry, machine-building and agricultural products proceeding. This principle slows down the business growth that influence on ecological-oriented development. Fixed capital investments for environmental protection and effective use of natural resources in Ukraine in 2003 were 864,3 mln. grn. Financing from regional budgets and off-budget ecological funds is extremely insufficient (table 1).

Some researchers consider that environment protection problems have to be decided after economic. However environment integrity saving is the most important prerequisite for the most industries of the economy proper functioning. Ecology condition has considerable influence on tourism as tourist industry stronger than others relies on environment integrity - only primordial nature is instrumental in the tourists' personal interest and their valuable rest.

Table 1. — Financing of Program of recreational sphere, tourism and rest in the Lvov region on 2003-2007 development

Directions	Total financing, thousand of UAH (in % from the common financing)	Sources of financing %				
		state budget	local budget	assets of enterprises, societies and organizations	foreign investments	other
Saving, renewal and rational use of recreational resources	86270 (26,7)	1,4	2	19	2,4	5,7
Nature protection measures on recreational territories	71330 (22,1)	41,5	8,4	7,1	14,1	29%

At the same time, tourist business development does not pressure considerable on the ecology. Tourism is not considered ecologically harmful sphere of activity. It uses unique natural objects, monuments of architecture and culture, history and

archaeology and at the same time does not exhaust natural resources and not violate an ecological equilibrium.

Tourist industry is interested in ecological safety that is especially important for medical and health natural resources, aesthetical attractiveness of natural objects, their timely renewal and restoration and make great demands to resort and tourist regions environment quality.

Shortage of investment resources necessary for providing tourist and recreational potential of Ukraine proper using predetermines the necessity of investments active bringing in Ukraine purposeful policy development.

Ecological and economic providing of investing process in Ukraine has to ground on the following principles:

- priority of socio-ecological and economy-ecological factors during strategies and mechanisms of tourist territories development forming;
- creation of the conditions for the proper protection of unique nature and resource complexes and for nature-protected areas, national parks forming;
- maximally possible norms of anthropogenic loading in tourist and recreational areas observance;
- fast access to ecological information, tourist and recreational investment projects wide discussion;
- putting into operation wasteless, energy- and resource-saving technologies on the enterprises that exist on the tourist areas;
- purposeful support of the most valuable natural complexes;
- optimal investments on nature protection purposes providing, esp. on arrangements that not admit negative influence on environment.

Investments bringing into the ecologically oriented tourist industry purposeful policy realization will be instrumental for ecological problems decision and ecological situation in Ukraine improvement.

PREPARATION OF STORED FERRUGINOUS SLURRIES FOR UTILIZATION IN AGLLOMERATION

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Manufacture of metallurgical products is accompanied by formation of a significant amount of ferruginous waste products (a dust, slurries, slags). A compound of by-products of the metallurgical plant is following: slags - 57-63 %; mineral waste products (rafractories, entrance materials) - 4-6 %; metal scrap - 15-17 %; a dust, slurry, an oxide scale - 9-13 %; others - 2-4 %.

More than 70 million tones slurries are saved at Ukrainian metallurgical plants because of insufficient extent of utilization of ferruginous by-products. Only 25 million tones slurries are suitable for usage in metallurgy. Other part is mixed with

non-ferruginous wastes. Metallurgical slurries are stored in congested holding lad-
doons. Free capacities are not located near plants. And the organization of storing
far from the plants will result in significant economic expenses and a decline of
environment conditions.

Metallurgical slurries feature is high content of iron. Sintering slurries contain
30-43 % of iron; blast-furnace slurries contain 22-48 % of iron; steel-melting slur-
ries contain 50-68 % of iron. Besides, slurries contain a significant amount of non-
ferrous metals. For example, resources of zinc in stored metallurgical slurries are
estimated in 66000 tones. Cost of this mass of zinc is approximately 260 mln.grn.

One of the main routes of ferruginous slurries' utilization is their additive in a
sintering charge. But use unprepared slurries in charge influences negatively on
sinter quality and sintering machines' productivity.

Slurries utilization in metallurgy is complicated because of the contents of
non-ferrous metals, in particular zinc. For agglomeration zinc content in by-
products has no special value. But use such sinter in the blast furnace causes its
lining destruction, decline of productivity, increase of a fuel rate. Pyrometallurgical
processes of extraction of zinc are used for preparation zinccontaining metallurgical
slurries. We recommend processing of zinccontaining materials by fluidic slags of
steel-melting manufacture. This way allows using heat energy of steel-melting
slags, to sublimate non-ferrous metals and to receive a ferruginous product for a
blast-furnace production. The enriched dust (50-60 % Zn) is sent on nonferrous
metallurgy plants.

Maintenance of homogeneity charge on coarseness, a chemical compound,
humidity at use stored slurries is a problem. Strong flocs are formed in charge at use
stored slurries. These flocs are not destroyed during preparation of sintering charge,
are sintered badly, and they are the centers of destruction of a sinter. Thus, the nec-
essary condition of increase of extent of ferruginous by-products utilization in sin-
ter process is careful slurries distribution in initial charge. For utilization stored
slurries these condition is provided in the way of destroying large pieces of slurries
and their blending with other ingredients of a sintering charge.

The base demands for organization of homogenization sinter charge and de-
velopment of the corresponding unit are:

- coarseness flocs of slurries should be no more than 10 mm after destroying;
- not bucked pieces of the foreign materials up to 200×200 mm should be
passed by a size through the preparatory equipment;
- careful blending and loosening charge materials;
- continuum of work of the unit with its greatest possible productivity;
- free passage of materials through the unit at its shut-down.

On faculty of Rawtermical processes and law-wastes technologies of Donetsk
National Technical University the design of the chain rotary desintegrating-
blending machine for homogenization multicomponent agglomeration charge is
developed. Advantages of its design are: high extent of homogeneity of the
processed sintering charge; reliability of tools; continuum of operation; an opportu-

nity of plugging of the chain rotary desintegrating-blending machine in existing circuit of preparation of sintering charge.

The opportunity of the chain rotary desintegrating-blending machine use for preparation of the charge containing stored ferruginous slurries was fixed at its testings on sinter plants of Dneprovsk integrated iron-and-steel works “Dzerjiskogo” and Mariupol integrated iron-and-steel works “Ilyicha”. Quality of sinter charge after processing was monitored during explorations of chain rotary desintegrating-blending machine work. Pieces and flocs of slurries were absent in the processed sinter charge. It was homogeneous and loosened.

Thus, addition preparation charge circuit of sinter plants by the chain rotary desintegrating-blending machine will allow increasing the efficiency of use ferruginous by-products in sinter charge, including stored slurries, without breaking technology of an agglomeration and decrease of sinter quality.

ENVIRONMENTAL INSURANCE IS A GUARANTEE OF THE PRINCIPLE OF THE ENVIRONMENTAL LIABILITY

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Nowadays only 7 per cent of Ukrainian territory can be named clear, 8 per cent is clear conditionally, 15% is not much dirty, over 70% of territory is dangerous for conditions of people’s functions, and 1,7% of general territory is classified as “territory of environmental disaster”. About 0,3% of territory of Ukraine is occupied by dump and slag’s accumulating.

Existing of market economics leads to using economic mechanisms in the sphere of environmental politics. One of these mechanisms is environmental insurance. Principle of environmental liability realizes liability for harming third person and environment. Environmental insurance is one of the ways to provide principle of environmental liability in the sphere of market relations. The main point of environmental insurance is a guarantee of damage compensation which harmed life, property of third person (citizen and organization) and environment pollution, worsening of natural resources’ quality. On the other hand, environmental insurance is protection mechanism of enterprise’s property interests.

Environmental insurance is insurance of production civil-law responsibility - objects with higher danger to environment to damage for citizens and juridical person after emergency pollution of the environment.

Environmental insurance has two forms: obligatory and free-will insurance. So obligatory environmental insurance is divided into those types:

- Insurance of the objects with higher danger
- Civil-law responsibility insurance of the subject of damage cargo transportation

- Civil-law responsibility insurance of subjects which transport damage wastes transboundary and utilize them.

State politics should direct to support environmental insurance, which helps to decrease budget costs for liquidation of the emergency environment pollution, provides preventive actions, guarantees of people's ecological rights.

Environmental insurance has those advantages:

- Rising of lawful consciousness and ecological culture of people
- Constant monitoring of environment
- Formation of united state system to prevent emergency situations
- Stimulation to creation system of measure to prevent pollution by decreasing of insurance tariffs for work without emergency accidents
- Compensation guarantees to victims of accidents
- Provision of enterprise's sustainable financial condition
- Creation of man-caused accidents database
- Creation of active environmental insurance fund

The aim of environmental insurance is decrease of the environmental pollution or its prevention.

ENVIRONMENTAL PROTECTION IN MODERN GLOBALISATION

Rustam Rakhimov

The town where I live, or used to live, is called Ust-Kamenogorsk. Actually it is a usual town which is not the capital or financial centre of modern Kazakhstan. But the reason why I mention this city is that it is the place where you can find three metallurgical giants (every includes at least one plant), one power plant and one automobile plant. You cannot breath in this city and it is not exaggeration. I am quite sure that there a lot of locations on the territory of the former Soviet Union, where people just suffer from air and soil pollution. In most cases the main doers (if it is possible to say so) are not domestic, but foreign investors. These investors use not only cheap and qualified labour force, but also do not spend a cent on a necessary environmental protection in the countries they operate. Therefore it is today, but not tomorrow, when we should take active steps in the struggle against these violations.

I titled these essay as "Environmental Protection in modern Globalisation", because we cannot stop Globalisation, our task is to eliminate or decrease the negative influences of this phenomenon. I do not want to write pathos speech which sometimes guarantees people their election, What I want is just to see, to learn and to suggest possible economic solutions to some negative aspects of environmental pollution.

What should be done in order to increase the effectiveness of the struggle for environmental protection:

1. Publicity (free access of media to the sources of information). People should know who is doing what. Who is guilty in recent gas emissions and etc.

2. Tax benefits. Companies who use environmental protection equipment and environmental friendly materials should be on preferential terms.

3. Struggle with corruption. Corruption is the enemy number one. But it is not corruption when a doctor takes 30 euros for his services, but when a minister takes 40 millions for increased emission standards!

4. Society awareness. People should behave according to the environmental protection principles. It is not companies, but the people who stand behind them are responsible for environmental pollution.

This is just to outline the possible issues which can be discussed during our workshops. I hope you, members of selection committee, will find my position to be valuable and invite me to visit your conference.

DECISION OF ECONOMIC-ECOLOGICAL PROBLEMS OF SASYK-LIMAN

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The problem of effective and complex using of Sasyk-liman is developed by experts Institute of market problem and Economic-ecological researchers of National Academy of Sciences since 70th years. Already at this stage us were offered as alternative natural approaches to use of estuary Sasyk, and to a question of maintenance of the south of Ukraine by high-quality fresh water. The reason of environmental problems Sasyk liman is connected to its branch in 1979 from Black sea and transformation to the water basin.

The complex of the problems connected to transformation Sasyk demands the complex approaches to their decision, found reflection in the Concept of steady development of Tatarbunarsky region. The irrigation of Sasyk water has led to intensive degradation 30000 ha of soil and to decrease in their fertility. Water of Sasyk is not in demand at agricultural consumers. In 1983-1984 fish efficiency of Sasyk has exceeded 30 kg /ha. However, in due course, because of weak water exchange and the big temperature of water in July - August the lake began to become covered by a continuous blanket of blue-green seaweed. Their decomposition creates toxic pollution of a reservoir.

Rehabilitation of Sasyk stands in the center of problems of an effective utilization of natural resources of Tatarbunarsky region and Ukrainian Danube region. The basic *essence of rehabilitation of Sasyk in returning to it the status of sea estuary* by its connection with the sea.

The most important factors of the decision of problem Sasyk:

1. Dangerous ecological situation:
 - Degradations of soil in a zone of an irrigation in connection with use of unsuitable water for Sasyk irrigation;
 - Unsatisfactory quality of fishes in Sasyk ;
 - Flooding, bogging Sasyk territories, abrasion of coast;
 - Pollution, flowering of unfitness for household using of Sasyk waters;
 - Pollution of available underground sources of drinking water supply;
 - Pollution of coastal water areas of the Black sea;
 - Formation of dangerous conditions for the population - a cholera, etc.
2. Unfitness or low efficiency of Sasyk in a fresh-water variant for the various economic purposes (an agriculture, recreations and ecological tourism, a fish facilities, household water use).
3. Economic situation in the country, deficiency of power resources, absence of financial resources for constant expenses for water exchange and operation of irrigating system.
4. The increased disease of local population.
5. Preferability of functioning of reservoirs in a natural condition:
 - Foreign experience of transformation of complex ecosystems, resulting{bringing} in negative economic - ecological consequences;
 - Higher attendance of sea coasts and higher economic and social effect from improvement on sea resorts;
 - Uncertainty of long-term management of fresh-water Sasyk.
6. Necessity of an optimum combination of interests of the state, stakeholders and local population, removal of social intensity.

Using of biological potential. Various populations of sea kinds of fishes and coastal wild animals can be one of significant sources of economic development of region:

- Restoration and protection of sea kinds of the supreme vegetation;
- Development sea aquaculture;
- Cultivation on farms of trade kinds of birds;
- The sanction of extraction of a fish only under licenses;
- Use of the income of sale of licenses for hunting and fishing for protection and studying of a variety of kinds;
- Creation new natural reserves.

Estuary Sasyk enters in the Ramsar-list of international wetlands (the Convention about wetlands having the international value is signed on February, 2, 1971, Ramsar, Iran).

Preservation of Sasyk-liman in a sea mode gives the basis on ***development in this region of the international tourism, ecotourism.***

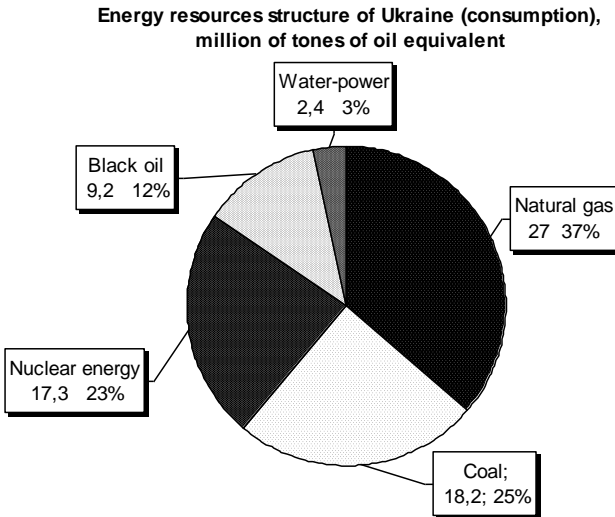
On the basis of complex scientific researches it is necessary to solve the problem on giving on the state level the status of sea estuary for liman Sasyk. It will create a basis for development and realizations of the Program of social and eco-

conomic rehabilitation and development of ecological-economic system of Sasyk-liman. Such campaign includes work above the feasibility report on optimum disclosing of Sasyk and its uses in a mode of sea estuary in view of social, economically, ecologically interest and steady development of Ukrainian Danube Region.

ENERGY-SAVING AS A KEY TO THE SUCCESSFUL ECONOMIC DEVELOPMENT AND ENVIRONMENTAL SAFETY OF UKRAINE

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Energy production, that is a necessary mean for humanity existence and development, influences on nature and environment negatively. On the one hand, heat and electric energy came in the way of human life and production activity reliably. A man does not imagine the existence without it and consumes its resources every day. On the other hand, humanity pays the attention on the ecological aspect of power engineering increasingly and needs ecologically clean and safe power production.



The main energy problem of Ukrainian industry is the low coefficient (3-5 %) of the use of resources. It had an effect on the state of environment already because of waste quantity growing every year (work of mineral resource industry is accompanied by the dumps of mountain stratum, metallurgical industry, energy production, – by heap of slag and ash), and also use in industry (metallurgical in particu-

lar), highly wasteful, resource- and power-consuming technologies. Blast- and steel-smelting furnaces, coke ovens and other similar objects give something about a million of tones of dangerous wastes a year.

This diagram shows us that the structure of main Ukrainian energy resources consists exactly of those elements which “are to blame” for the environmental degradation. The man-caused country’s territory loading is 5-6 times over the similar indexes in the economically developed countries. In the structure of industry a leading role belongs to power- and resource-consuming, high-waste, besides potentially dangerous production.

In future an ecological situation will be even more complicated because of that fact, that the increase of production volumes will take place in the circumstances of unsatisfactory quantity of the cleansing buildings and the nature protection setting, with the considerable physical and technological wear of basic production assets in addition.

Through the successive implementation the energy-saving policy and increase of energy-efficiency of production in Ukraine considerable attention should be devoted to the environmental protection too. At evaluation of energy-savings potential and of the basic directions of energy-efficiency increase related to industry in Ukraine the positive environmental influence of these measures should be taken into account.

That’s why scientists pay more and more attention to this problem. They work at the ways of energy use development to make the production process more effective. The main directions in the sphere of energy-efficient technologies perfection are:

- Development of technologies of the joint thermal and electric power production with the operating objects of power industry, thermal boiler plants of industry, in a communal|public| sphere, in the gas-transfer units systems.
- Decline|lowering| of harmful motor transport emission to an atmosphere by means of using of low-molecular fuels (natural gas, fuel ethanol in a mixture with unleaded benzine) and also use of the special additives to|by| the lubricants which are helpful|assist| in the diminishing of fuel consumption and therefore declining |lowering|of harmful motor transport emission.
- Development of the solar and wind-power engineering, as well as using of hydraulic energy of small rivers, increase of production and use of biogas and producer gas, and of artificial combustible gases of metallurgical and chemical industry, which are prodigally expelled to an atmosphere and pollute air space.
- Complex of measures|steps| related to the increase|rise| of energy-efficiency in a communal|public| sector, directed to the perfection of gas-using equipment, organization of energy resources account, reconstruction of thermal nets, use of norms and standards, taking energy-efficiency into account at the new buildings construction|erections|.
- Development|elaboration| and implementation of measures|steps| of the "Fuels pantries" program on the base of zirconium (Ukrainian deposits of this re-

source take the third place in the world) for the creation|making| of technologies of direct transformation|conversion| of energy, that is contained|maintained| in the organic types of fuel, and development of production of fuels pantries and creation|making| of high-efficiency and ecologically|ecofriendly| clean electric stations for production and private consumption, and also for means of transport.

- Improvement of energy-saving management organization, creation|making| of demonstration areas|zones| and objects, determination|definition| of optimum ways and possibilities of financing and implementation of energy-efficient technologies.

The former President of Ukraine Leonid Kuchma signed the order about creation of new power strategy of the state for the period till 2030 and for the following prospects. It is necessary for the new government to make the specialists from different scientific establishments and departments (including representatives of ecological public) be involved in this strategy creation and discussion.

It is expected, that after all of this measures realization energy consumption and contamination of environment will diminish. Implementation of energy-efficient technologies, machines, equipment and domestic electro-devices, conducting of active energy-saving politics, use of untraditional renewable energy sources, alternative fuel types etc. will allow to provide an annual cost-cutting measure or substitution of some energy types supply, output and use of which on the basis of "dirty" expensive technologies make the ecological state of environment worse.

ENVIRONMENTAL EDUCATION

Christian Rwema M.

A person's responsible environmental behaviour is based on different factors. The knowledge of environmental action strategies and intention to act give the person a sense of being able to make changes through his or her own behaviour. An organisational model for environmental activity was tested regarding its suitability at primary school level and the effects on environmental behaviour on the inhabitants of a small village. The results indicate that even young pupils can play a specific role as environmental actors and informants.

Different environmental educational programmes (field trips, hiking, camps, adventure activities) are, through personal experiences, aimed to develop student's affective relationship to the natural environment, their environmental sensitivity and outdoor behaviour, as well as their social relationships. The role and possibilities of outdoor education in environmental education and natural studies are emphasised in schools as well as teacher education.

Environmental education must be carried out at all levels of the Finnish formal and informal educational system.

THE PROBLEMS OF NUCLEAR AND COAL POWER STATIONS

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Energy is the ability to do work or to cause a heat transfer between two objects at different temperatures. Work is what happens when a force is used to push or pull a sample of matter.

The quickest, cheapest, and most cost-effective way to meet projected energy needs is energy conservation – primarily by improving the energy efficiency of houses, cars, and appliances so that less energy is wasted unnecessarily. Reducing the waste saves money and decreases the environmental impact of the use of any energy resource, because less is used to achieve the same amount of work. Conservation also extends supplies of fossil fuels, makes countries such as the United States less dependent on oil imports, and eliminates or sharply reduces the need to build additional electric power plants. Meanwhile, it buys time to phase in a diverse and flexible array of decentralized, mostly perpetual energy resources based on direct sunlight, wind, biomass, and falling and flowing water.

The vulnerability of the United States to nuclear attack would be significantly decreases if we switched from large, centralized power plants, which can be knocked out by a relatively few missiles, to a widely dispersed array of small-scale energy systems based primarily on locally available energy resources. All forms of nuclear power should be phased out because this method for producing electricity is inefficient, uneconomic, unsafe, and unnecessary compared to other available alternatives. It is also unacceptable the increased reliance on coal and coal-based synthetic fuels. The massive amounts of carbon dioxide released into the atmosphere when these fuels are burned could bring about undesirable long-term changes in global climate patterns.

I must say that coal-fired plants release air pollutants such as carbon dioxide, particulate matter, and sulfur and nitrogen oxides. Concerning to the nuclear power stations they have their own peculiarities. They are:

1. Construction and operating costs of nuclear plants have been much higher than projected, even with massive government and consumer subsidies;
2. Conventional nuclear power plants can be used only to produce electricity;
3. Although large-scale accidents are extremely unlikely, some have already occurred as a result of a combination of mechanical and human errors, and these have eroded public confidence;
4. The net useful energy yield of nuclear power is low;
5. Safe methods for storing high-level radioactive waste for hundreds to thousands of years have not been developed;
6. Nuclear power commits future generations to safely storing radioactive wastes for hundreds to thousands of years;

7. Its use spreads knowledge and materials that could be used to make nuclear weapons.

In addition, the cost of producing energy in this way could be enormous compared to other already available alternatives. Even if everything goes right, nuclear fusion is not expected to be a significant source of commercial energy until sometime between 2050 and 2150.

That's why building more nuclear, coal and other electrical power plants to supply electricity is unnecessary and wasteful.

BLOCKBUSTER FILMS AS AN EFFECTIVE SOURCE OF ENVIRONMENTAL INFORMATION

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Nowadays, ecological problems seem to be among the most vital and complicated problems. But to solve them, people need to support ideas, which they might not understand completely. At the same time human activity, as the conscious citizens' one, play the greatest role in decision-making. This situation provokes ambiguity in the society. Because people can make the government to change the environmental legal base and precipitate necessary decision-making, but they have no reasons to do it. People need more information to act correctly.

Because some global environmental issues are incomparable to social and political problems, they present special challenges to mobilize public action. Though many ecologists are currently raising alarm about necessity of policy changes, it is very difficult mission to capture and maintain public attention to the issue. It is especially difficult for the public to observe the consequences of environmental problems on an everyday basis. For example, attention to climate change decreases and wanes based on the emergence and following aftermaths of dramatic events, including droughts, hot summers, or mild winters; political developments, such as an international summit; or dramatic images such as a picture of a melting arctic ice sheet appearing on the front page of Ukrainian newspapers, and not only on Ukrainian ones. The problem of explanation to average person all the complexity and urgency of the environmental issues at the same time persists. The challenge is to demonstrate the issue existence not only in clips from TV screen, but also as routine face-to-face problems.

Aspiring to solve this situation, researchers face the problem of lack of information. They confront with this question every time while investigating public opportunities for participation in making substantial decision. This situation is acquainted to most of scientists because exists in every country in the world. To spread information ecologist should use very reliable and common way. There are many proposals how to disseminate information and to do this by the highest possible effective method, but the best one seems to be exactly film making.

To understand all films' influence on public activity, simple chain, which consists of public, journalists, and political actors parts should be investigated. All parts of this chain play very important role in spreading information, and it persuades publicity in necessity to draw great attention on environmental problems.

The most of people have learned about environmental issues by means of the media. It can be found out of regarding to a Eurobarometer-survey (Reusswig, F. Schwarzkopf, J. Pohlenz, P. 25), the most important source to gain "scientific" knowledge in Europe is TV (60,3%), followed by newspapers and magazines (37%), the radio (27,3%), schools and universities (22,3%), scientific journals (20,1%) and the internet (16,7%). It might be clear to see that audio-visual media reaches more people than print-media. Moreover, Fritz Reusswig, Julia Schwarzkopf, and Philipp Pohlenz provided survey, which proves fact that people agree, "that at least in part the coverage [information] of the media is exaggerating," but films were recognized as the best method to reach some knowledge by the most frankly way (Reusswig, F. Schwarzkopf, J. Pohlenz, P. 32).

Beyond shaping knowledge and perceptions, the film may also impact public behaviour. Audiences in anticipation of the film release after viewing the movie may be motivated to pay closer attention to news coverage of environmental problems. Or, as environmental activists' groups hope, they may even be inspired to find out more information via a Web search. The public could also be motivated to discuss the film and the issue of environmental problems with others. These kinds of behaviour are likely to shape additional learning, or even channel individuals into direct participation related to the issue, by donating money to an advocacy group, contacting an elected official, or adopting more environmentally friendly behaviour.

High public interest might make the representatives of green movements to lobby journalists in order to influence news' materials. Yet, despite the best efforts of interest groups, their attempts are often mitigated in part by the preferences and norms of reporters. As Michael Nitz conclude in his study of media coverage of environmental problems, journalists for the most part are attracted to drama and conflict as central story mechanism in covering science (Michael Nitz). Media coverage of science increases when the potential conflict and drama appear and maximize for reporting. In other words, press attention become sharper when there is an obvious disagreement between political forces, when debate takes place in overtly political contexts as in the Verhovna Rada or the Government, or when natural events such as droughts or heat waves bring an otherwise remote scientific issue like climate change or depleting of ozone layer into dramatic and tangible focus. The result is that coverage is often "episodic," focus public's attention on a dramatic event, and then relatively disappearing for long periods of time, despite the unresolved nature of the problem, and the almost constant release of new scientific studies and findings. Science becomes framed by journalists as a political game, with heavy focus on the contest between interest groups and political forces, with journalists emphasizing who is ahead or behind to win the policy debate.

The political mobilization around the films event has helped generate a sizable spike in overall media attention to the issue of environment. As a good example, climate change problem can be illustrated. After using the Lexis-Nexis, Matthew Nisbet in the article Evaluating the Impact of The Day After Tomorrow mentions that the monthly total number of environmental-related articles appearing in the *Los Angeles Times*, the *New York Times*, the *USA Today*, and the *Washington Post* over the past twelve months (Nisbet, M). Media attention to climate change for the twelve-month period was biggest for May 2004, the month of the movie release; it was about 60 articles. The average for the twelve-month period was 50 total articles appearing per month, meaning that the *Day After Tomorrow* helped account for a 32% increase in media attention to climate change over the previous twelve-month average. In a time of many competing events and issues notably the conflict as during president election in Ukraine and the ratification of Kyoto Protocol by Russia, films serves an important media agenda setting function by focus drawing on the climate change debate (Korneyev).

At the same time, the main target of both public and journalists efforts lead to political changes such new laws exception, correction of existing laws, creating specific committees and other political actions. The last part of the public-journalists-politics chain seems to be the very significant and even the more important than the first and the second. Policy advocates on both sides of the issue use films release as “windows of opportunity” to mobilize attention of politics and support them to except preferred policy options. In the process they seek to strategically frame environmental issue in ways that resonate with the focusing event, promoting interpretations of the issue that favor their preferred policy outcomes.

Therefore, films must be one of the best ways to remember and rearrange information, neither do the others. There are many examples of successful information spreading among citizens with help of films such as *The Day after Tomorrow*, *Jurassic Park* (information about genetic experiments), and *Armageddon* (possibility of asteroids’ collision). Of course, these films were not assigned to inform about ecological situation or persuade somebody of problem existance. Even though everything had been done to make money only, society has received an extra product – powerful source of environmental information.

Films that include environmental information could be the method to influence on every part of above-mentioned public-journalists-politics chain. Mutual interaction between them seems very knotty problem, but every part apparently changes after films viewing. Depth of the issue is arrogated because both journalists and political actors belong to public. Their actions must be investigated not only as professional activity, but also as activity, which come from public decision. Moreover, public impact on mass media may be greater than vice versa sometimes. All these influences can be investigate only in one strict order, which include all parts of chain, but it is really complicated to foreseen all mutual impacts. At the same time, the fact of films impact on public opinion cannot be refused anyway. At the first, films influence on human behaviour, and people may be motivated to pay closer

attention to news coverage of environmental problems after viewing. At the second, films make resonance among journalists; moreover, cinematograph makes them perceive it both publicly and professionally. And the main changes, caused by films, are political changes, which can influence on whole world's state and make it better.

Works cited:

1. Korneyev, R. "Poslezavtra never dies" (The day after tomorrow never dies). March 20, 2005. <<http://www.kinokadr.ru/articles/2004/05/30/tomorrow.shtml?list>>
2. Nisbet, M. "Evaluating the Impact of The Day After Tomorrow: Can a Blockbuster Film Shape the Public's Understanding of a Science Controversy?" June 16, 2004. <<http://www.csicop.org/scienceandmedia/blockbuster/>>
3. Nitz, M. "The Media as a Tool for Communication on the Environment and Sustainability." August 25, 2004. <<http://www.umweltprogramme.de/millennium/papers/paper7>>
4. Reusswig, F. Schwarzkopf, J. Pohlenz, P. Double Impact the Climate Blockbusters The Day after Tomorrow, and it's Impact on the German Cinema Public. PIK Report: Potsdam Institute for Climate Impact Research, October 2004.

POSSIBLE METHODS OF DECISION OF ECOLOGICAL CRISES

Galina Shamota

Complex estimation of intensification economical and ecological conflicts in the modern system of relation of society and nature allows to speak about the really designated general changes of structural character – local, regional, national, global. These changes will determine the future economy of the state of natural environment. Understanding of tendencies and conformities to the law economical and ecological development becomes a necessity for prognostication of the strategic planning and management is social – economic progress. On the basis of understanding of today's economical and ecological state it is coming to form seeing of the tomorrow global ecological system.

Foremost, we will mark that the crisis of relations between humanity and nature exists already many millenniums. In scientific literature this crisis is usually examined as ecological. Thus the last three crises behave to XX age.

During existence of humanity periodically there were the ecological crises of global character that always was investigation of disparity of productive forces and production relations in human society to resource and ecological possibilities of biosphere.

To the most hazard effects of negative tendencies it is necessary to deliver global character economical and ecological conflicts and distribution of destroying

effect economical and ecological equilibrium in a planetary scale are «hotbed», ozone effects, phenomenon of global increase of mineralize of superficial and underground waters, devastation, deforestation of regions of world, disappearance of biological types of plants and animals and others.

By estimation of specialists for the last thirty years the number of natural calamities and catastrophes grew approximately in 10 times, here the number of lost from natural catastrophes for this time is estimated by approximately 3 million persons.

It is necessary to underline that Ukraine also is in the affected zone of global tendencies of intensification of ecological crises.

Ecology executes the role in the decision of general of principle questions of adjusting economical and ecological co-operations and relationship. This science is acknowledged to form economics is ecological world view, to provide economical and ecological knowledges, to be instrumental scientifically in the grounded decision of thorny problems of relationship in the system «man is nature».

An important place in a theory and practice use of natural resources is taken to ecological taxation. In a modern theory and world practice it is examined as cardinal direction on the inclusion of processes of and guard of use of natural resources environment in the system of economic relations.

Presently state normative documents foresee such systems of payments:

1) payments for contamination and worsening of quality of natural environment;

2) payments for the use of natural resources.

In the conditions of catastrophic contamination of natural environment most attention is spared to the system of payments for its contaminations.

But still in national is scientific – the compatible ratified method of calculation of the economic harm caused to the national economy by contamination of environment is absent to the normative base. However so one-sided asserting is impossible, in connection with that above this problem as economists the environmentalists so. And it is possible to say with confidence, that the ideal method of decision of this task will be got .

And presently it would be desirable to affect the methods of calculations of expenses and payments of related to ecology. It is thus needed to say that any enterprise arranges for following payment:

- for the troop landings and up casts of contaminating matters in surrounding a natural environment, placing of wastes and other types of the harmful influencing within the limits of limits;

- for the use of natural minerals.

Ecological insurance and ecological audit is already offered now. With respect to an audit, to Me this measure seems it is necessary, because control and verification of document of subjects of use of natural resources must be produced and will be inculcated.

And what is such ecological insurance? Many articles of this insurance and payment, producible after ecological failures, are clear. Is not that, where indemnification caused damage to the environment will go clear only, and what establishments will be engaged in ecology and its renewal?

Giving an answer for these questions by economic methods, I think, it is possible to improve the state of environment and its influence on humanity. Certainly, answering is needed on remaining questions, and only after it the ecology will be stored for next generations.

THE PROBLEMS OF THE TOURISM REGIONAL DEVELOPMENT IN UKRAINE

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The tourism development in general has carried social, mass disposition in our country before it transition to a market relations. Today's realities allows to set to the concept of national tourism also such epithets as economical and ecological. However, the heart of the tourism problem is increasing the quality of tourist attendance without infliction any harm to the society or environment, – stay as before no less actually.

In the network of general questions of the tourism organization it like to accentuate that among the most resumptive classified indications the last one it possible to choose such as: indication of specialization, social, state, economical, ecological indications. In a view of the most significant following causes development exactly regional tourism in Ukraine presents to date substantial interest:

- the conditionality of the tourism industry development by geographical and climatic circumstances;

- economic conditionality;
- financial prerequisites;
- investment conditionality;
- social prerequisites;
- ecological prerequisites;
- research prerequisites.

Tourism in a regional basis is a outarcic economic link which is concerned in a creation of a national income and develops parallel with others state economics industries. It follows to accentuate the necessity of a system use potential of tourism development in the each region conditions that at the and serves to make a new working places, to improve the quality and preservation environmental and a quality of tourism goods and services. In spite of the fact that the tourism in Ukraine has rise tendencies last years but in attitude to the world indices it stay outsider comparing with other industries as before. Thus, in state at 2002 the tourism industry

contribution in GDP(including neighboring services which created restaurant and hotels business) in the aggregate to average in the country only 0,96 %, whereas in Switzerland or Austria this index equals 8 %.

Thus, it can be concluded that tourism regional development in Ukraine characterized by slow rates and sufficient problems in many regions. One of the prospective decisions on these problems are creating agro and green tourism at that territories. This kind of tourism may become a new coil of huge tourism industry because it prevent environmental degradation, develop service structure, social field. But it is possible only at neatly considered investment policy and government support.

THE MECHANISM OF NATURE USAGE IN FORESTRY

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The forest is one of the most important types of vegetation, consisting of total combination of wood, undergrowth and grassy plants, including animals and micro-organisms, biologically connected in their development and influencing each other and the environment. Alongside the fact mentioned above the forest is a constituent and very important part of biosphere, an element of landscape. The forest is a source of raw materials often identified with timber. The forest is an object of forestry management, the basis of the state forest reserve of Ukraine. So the forest is a versatile notion. It can be investigated in natural-historical aspect, in technical, economic, legal, historical and medical aspects.

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.

ECONOMICS AND ECOLOGY: THE NEED FOR COMPROMISE

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The most important problem facing our species in the current century is how to reconcile our insatiable drive for development with the limited resources of our planet. Attempts at resolution, which should involve collaboration between economists and ecologists, have often deteriorated into adolescent debates between "traditional ecologists" and "traditional economists."

The solution to THE problem of the 21st century requires interdisciplinary détente. The premise of my paper is that synthesis can be founded on the realization that economic theory predicts how this particular species responds to its resource environment, and ecological theory predicts how the system reacts. The two sides of the controversy are simply two aspects of the same integral feedback process.

It is shortsighted to consider ecology and economics as diametrically and irreconcilably opposed on issues of economics and environmental quality. It has long been understood that neoclassical economic theory does not incorporate all relevant human values.

The intimate relationship between economic activity and the ecosystem is particularly clear in the management of renewable resources (Hamilton 1948, Watt 1968). One of the best examples is provided by the fishery industry.

One impediment to integrating economics and ecology is the manner in which each field abstracts the human-environment system. The economic model isolates the intricate interactions of the market, abstracting the environment into a box labeled "resources" on the input side and a box labeled "effects" on the output side.

The ecological model isolates, in its turn, the intricate interactions of the natural system and abstracts human activity into a box labeled "disturbances." As such, the environment becomes external to the economic activity.

The goal of integration is also impeded by the sweeping assumption that the role of ecologists is "valuation." The hypothesis sounds reasonable on the surface. Ecologists should find a way to place a monetary value on the environmental effects of economic activity. Values for these "externalities" can then be inserted into the economic model. However, the strategy is limited because the environment is still not a dynamic entity within the economic model. The feedback loop between the human species and its ecosystem is still not complete.

Neither economic nor ecological theory has been exceptionally successful in predicting large-scale events. We will need an integrated theory that uses each in the areas where it is best, but uses both and develops innovative approaches that lift the most serious limiting assumptions.

The ecologist endeavors to understand system dynamics by isolating the "natural" ecosystem, i.e., the system "undisturbed" by man. However, the desire to isolate can become counterproductive when humans become the dominant species in the ecosystem. The simple fact is that there is no longer any natural ecosystem unaffected by man. So, the fact that ecologists should concentrate on the study and preservation of the natural world is fallacy.

The key to synthesizing economic and ecological theory may be the simple observation that, as the scale of development increases, economic activity becomes connected to more and more of the environmental dynamics. Many phenomena can still be studied in isolation. There is still room for an isolated economic theory and for controlled ecological experiments. At some scale, however, connectivity increases to the extent that externalities must be internalized into the dynamics of the economic activity. There are already many papers in the literature that consider economic and ecological systems as a dynamic unit. The critical challenge for science, and our species, demands that we abolish intellectual barriers, crush limited paradigms, and take the broadest possible view of the problem.

ISO STRATEGIC PLAN FOR 2005 – 2010: STANDARDS FOR SUSTAINABLE DEVELOPMENT

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The *ISO (International Organization for Standardization) Strategic Plan 2005-2010* outlines the global vision for the Organization in 2010, together with the seven strategic objectives set and stakeholders and the results ISO expects to achieve. This Strategic Plan identifies the actions to be pursued or undertaken to achieve the results.

ISO's International Standards and deliverables support:

- facilitation of global trade,
- global dissemination of technologies and good practices,
- Improvement of quality, safety and security, environmental and consumer protection, as well as the rational use of the natural resources

All of these contribute to economic and social progress.

ISO has developed over 13 000 International Standards on a variety of subjects.

ISO standards represent a reservoir of technology. Developing countries in particular, with their scarce resources, stand to gain from this wealth of knowledge. For them, ISO standards are an important means both of acquiring technological know-how that is backed by international consensus as the state of the art, and of raising their capability to export and compete on global markets. In addition to this general benefit of ISO standards, ISO has a specific programme for developing countries which consists of training seminars, sponsorships/fellowships and publications. ISO also has a policy committee on developing country matters, DEVCO, with a membership of nearly 100 standards institutes from both industrialized and developing countries.

The ISO 9000 and ISO 14000 families are among ISO's most widely known and successful standards ever. ISO 9000 has become an international reference for quality requirements in business to business dealings, and ISO 14000 looks set to achieve at least as much, if not more, in helping organizations to meet their environmental challenges.

ISO 9000 is concerned with "quality management". This means what the organization does to enhance customer satisfaction by meeting customer and applicable regulatory requirements and continually to improve its performance. In this regard, ISO 14000 is primarily concerned with "environmental management". This means what the organization does to minimize harmful effects on the environment caused by its activities, and continually to improve its environmental performance.

The Strategic plan for 2005 – 2010 includes the following tasks:

1. Developing a consistent and multi-sector collection of Global relevant International Standards.
2. Ensuring the environment of stakeholders;
3. raising the awareness and capacity of developing countries;
4. Being open to partnership for efficient development of International Standards;
5. Promoting the use of voluntary standards as an alternative or as a support to technical regulations;
6. Being the recognized provider of International Standards.

The implementation of the ISO 2005-2010 Strategic Plan capitalizes on, and strives to consolidate and promote the added value that ISO has demonstrated and built since its creation in 1947. Its relevance and success is demonstrated by its increasing membership.

References:

1. The ISO Survey of ISO 9000 and ISO 14000 Certificates, A companion publication:
The Directory of ISO 9000 and 14000 accreditation and certification bodies - fifth edition.
2. ISO Strategic Plan 2005-2010: Standards for a sustainable world.

ENVIRONMENTAL ISSUES

Andrej Spilak

We are members of Youth Club of Velika Polana, a youth organization that combines a lot of youth interests. Everything – from sport activities, informal education, to actions to protect rare species is included. In the society it has a effect of an “interest group”.

Recently we have added another topic: Environmental issues. Main causes for opening this issue were tendencies of our municipality to make an application for building nuclear waste storage, which would increase municipality’s budget. The topic is still actual and it caused very hot polemics. The other cause was increased pollution of the brook Črnc, which also provides the drinking water out of some its wellsprings. The level of pollution exceed the acceptable standards, so the water isn’t drinkable any more.

The youth wants to make a plan, with which we would show, that for better tomorrow we do not need a nuclear waste storage, but that we are able to make a perspective plan.

Municipality Velika Polana is located on swampy land, which was pretty dried up in the past in order to increase agricultural surface. Though Velika Polana swanks with title “European village of storks”, has the biggest “black alder” forest in Europe and some very rare animal and vegetal species, the intensive farming and reclamation of land by drainage heavily loads the ecosystem.

"Clean Črnc – everything clear" program

The base of our program is ensuring the clean water in brook Črnc, which is being polluted by uncontrolled sewage, use of aspergillums and artificial manures. And after that: the redirection to eco farming. This would be really necessary; because Pomurje region (most North-Eastern region of Slovenia) used to have Hungarian principle of inheritance (this means that every son/daughter inherited some of the land), so the fields are splitted among many farmers which won’t be able to endure the market rivalry against big farmers...

We have developed our program into 3 categories:

Project 1: Cleaning

- Ensuring the clean water that flows into municipality Velika Polana by achieving the agreements of acceptable swill level in neighbor villages

- Improving the ability of self-cleaning the brook
- Improving the self-cleaning of the nature in general

Project 2: maintenance of cleanliness

- Building the vegetal purifying plant for decomposition nitrates and phosphates and enlarging the swamp, because the excessive drying was harmful to the nature
- Prohibition of toxic substances and absolute conversion to eco farming or at least making a zone of strict eco farming

Project 3: marketing

Municipality Velika Polana has 16% unemployment, and yet it is increasing, because in Pomurje region there are some big factories with no perspective. In the near past people have occupied themselves with farming, but these days it doesn't pay off any more, because low produce (which is the cause of aforementioned Hungarian inherit law). We would like to awake the farming in Velika Polana, but on very other way at it was known so far.

Citizens and farmers needs to be educated, and show them different approach to farming. There is much brighter future in growing the vegetables and fruits for little farmers, than grain, corn etc., which dominates these days. And what is more: our vision is in growing vegetables and fruits which are resistant to diseases, unlike the new sorts are. These sorts have grown already in our places, but the farmers have replaced them in order to grow more. With appropriate selection of sorts we will achieve, that use of aspergillums and artificial manures won't be necessary any more. In the long term we will lower the production costs and we are expecting that our products will reach up to 5-times bigger value, than wholesale products.

For selling these product we will engage the cooperative society "Pomelaj", which is non-profit organization, with headquarters in Velika Polana which is already launching similar program (with authentic Pomurje products in general). Pomelaj will have to found "eco farming section", and employ an inspector which will have to watch for quality standards.

In the summer time when rainless period accours, most neighbor towns and villages have problems with sources of drinking water, therefore is an interest to build a common aqueduct in Velika Polana. If Velika Polana will achieve a goal to have faultless water in wellsprings of Črenc (because we will lower the pollution) and will gain a concession to supply water for other municipalities in dry period, we would gain a lot of money in our municipality budget. Without installing the nuclear wastes in Velika Polana.

There is also a big perspective for tourism (we had also very known writer Miško Kranjec, realism) and forming a park "Genetic bank" where we could present a lot of authentic species that have already extinct elsewhere.

MAIN COMPONENTS OF QUALITY OF LIFE CATEGORY

Traditionally *quality of life* depends on economic and social indicators: a salary, in particular, a minimum wage (on subsistence minimum level), people's income, real GDP per head, the level of unemployment, life interval, reached level of education, development of social services market, number of playgrounds etc. At this, ecological indicators are considered as not really important: condition of air, water, soil, woods and landscapes, number of public green zones, parks, flowerbeds, view from your window (either trees with thick green foliage and birds twittering in it or chimney-stalks puffing off and transport noise), clean streets, number of recreational areas in the region etc. And here all the indexes should be considered with reference to their close interrelationship and interdependency. For instance: capacity (the economic indicator – a salary) and ability (the social indicator – if an employee or a worker has weekends ensured by law) of spending Sunday with your family in nature (ecological indicator – if there are clean recreation zones: woods, parks, squares).

World's tendency of regional development policy testifies to the fact that ecological and economy development of regions in the conditions of economical relations' transformation depend to a great extent on amount of the regional resources in the area and possibility of their exploiting.

During the years of Ukraine's coming-to-be an independent state the problem of a region's development transformed into the major problem of social development. It doesn't confine itself with economic, social or ecology problems only but does involve a wide spectrum of problems. In the current situation to provide conditions for the regions so that they could realize their own economic possibilities with a glance at historical and sociocultural tendencies and ecological propensity, proves to be one of the existing problems in the named branch. At this if we form a model of a region's development, it's necessary not to choose some ready-to-use model tested in any other country or region, but to form an absolutely specific structure that would synthesize economy, social and ecological peculiarities of this very region in correspondence with social and economic, ecologic and economic, ecologic and social relations.

INTEGRATION OF SLAVIC PEOPLE INTO THE EUROPE

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In world globalization process rough development of an information society proceeds, domination of an economic oligarchy and a technocracy, and also aspiration to general totalitarianism, to the unipolar world, monolinguism amplifies. In

Europe integrational processes proceed. Now most actual of them is association of the European West with the European East.

Contradictions inside the Slavic peoples are, that contrary to world(global) globalization and the European integration, it is still broken.

Misunderstanding between the slavic peoples, XX centuries shown in last decade, are present at the certain degree and now.

Despite of existing contradictions, we can believe that globalization as the global phenomenon, and in particular, the integration processes proceeding in Europe, may affect the slavic world positively. As a result of this influence interslavic antagonisms may be overcome, and unintegrational processes inside Slavic peoples to be transformed to processes of slavic integration.

Now one part of Slavic peoples stands " on a threshold to Europe ", the second part with huge enthusiasm gathers " in a way to Europe ", and the third part, the biggest, contrary to obstacles, difficulties and the European xenophobia, well concerns to Europe and intensively cooperates with it.

As association of Europe means new, truly friendly relations and widespread cooperation between slavic peoples it is necessary to expect increase of interest to closely related peoples, to their cultures and languages. And it needs distribution interslavic many-linguism.

The slavic community will occupy in the incorporated Europe conducting place on many parameters: first of all, on quantitative structure of ethnically close population (300 million), on market space and raw material. In the future will be created and to be increased not only slavic diaspor in the incorporated Europe, but also West-European peoples ones in slavic territories. It will demand intensive functioning of slavic languages, first of all Russian, and also knowledge of slavic cultures in all Europe. Taking into account the mentioned factors, in the Western Europe growth of interest to studying slavic languages, and also the valid attitude to slavic cultures in the near future should begin. Hence, on Slavic philology of the Western Europe the huge responsibility lays - to bring in the true contribution to business of rapprochement of the West-European world and the world slavic.

To achieve significant results in distribution of slavic languages, literatures and cultures and to provide with it equal in rights position in integrated Europe, slavistic organizations should expand mutual cooperation.

Slavists and their organization may promote in many respects to such European integration at which the West would be in the East, and the East in the West at which Europe spiritually, with the help of culture and language not would began the United West. Otherwise, in Europe there will be new antagonisms, and imaginary integration of the European East and the West will result not in true new progress, and to an apocalypse as Europe, and all mankind.

PROBLEM OF ECOLOGY IN TRANZITIV ECONOMY

The most general(common) philosophical sense appropriate to modern broad understanding of an ecology as of a field of knowledge, consists in consideration and disclosure of regularities of development certain populations of organisms, subjects, components of communities and communities in interactions in systems of biogeocoenoses, noobiogeocoenoses, biosphere point of view; from the point of view of the subject or object (as a rule, alive or including alive), accepted for central in this system.

Now roughly develops ecologization of various disciplines, which is understood as process of steady and sequential introduction of systems of technological, administrative and other solutions permitting to increase efficiency of use of natural resources(safe lives) and conditions alongside with improving or even by preservation of quality of a natural medium (or generally of a medium of life) at local, regional and global levels.

Now many branches of an ecology have a brightly expressed practical directness and have large significance for development of various branches of a national economy. In this connection the new scientific - practical disciplines on the junction of an ecology and orb of practical activity of the person have appeared: an applied ecology called to optimize of mutual relation of the person with a biosphere, engineering ecology investigator interaction of company with a natural medium during public production and etc.

The consequences of violations of the natural phenomena pass the boundaries of the separate states and require(demand) international gains in protection not only separate ecological systems (woods, reservoirs, bogs etc.), but also all biosphere as a whole.

To Ukraine till second half 80th years of the decision on development and accommodation of industrial forces were accepted practically without taking into account ecological factors. In this connection in the country there was intense ecological conditions, and in separate areas and cities was created crisis, and under hour and catastrophic position. In a number of places irreversible degradation of an environment has gone so far, that they became unsuitable for a life and economic activities.

Slump in production in key economic branches of economy has not given appreciable decrease{reduction} in a background ecological load in industrial centers, city agglomerations. Growth of breakdown susceptibility because of stressful loadings (nonpayment of the salary, threat of unemployment) increases, outflow of qualified personnel (from zones of instability), difficulties with updating the equipment (especially import), that worsens ecological conditions.

The economy of fuel and energy resources now becomes one of the major language pairs of economy on a way of intensive development and rational wildlife management. Significant opportunities of economy of mineral fuel and energy resources are available at use of power resources. So, at a stage of enrichment and

transformation of power resources about 3 % of energy are lost. Now 4/5 all quantities {amounts} of the electric power in the country are made by thermal power stations which work mainly at a corner. At development {manufacture} of the electric power it is useful 30-40 % of thermal energy are used only, other part dissipates in an environment with smoke gases,.

Important value in economy of mineral fuel and energy resources plays decrease {reduction} in the specific charge of fuel on manufacture of energy.

Thus, the basic directions of economy of power resources are: Perfection of technological processes, perfection of the equipment, decrease in direct losses of fuel and energy resources, structural changes in "know-how", structural changes in made production, improvement of quality of fuel and energy, organizational - technical actions. Carrying out of these actions is caused not only necessity of economy of power resources, but also importance of the account of questions of preservation of the environment at the decision of power problems.

ECONOMICS FOR ECOLOGY. GENERAL ANALISYS

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Economics

Present views of economics developed at a time when the primary needs were for production and distribution of goods and services, on the one side, and adequate but not excessive work, on the other. Economists guided policy-makers in the United States through remarkable progress on these fronts. As a result, Americans now have sufficient productive capacity to meet all their needs and many of their wants. They have a forty-hour work week which, together with holidays and vacations, seems to be a satisfactory balance of work and leisure. Backbreaking and degrading labor has been greatly reduced.

Nevertheless, problems remain. Too large a portion of those who want to work cannot find employment. A segment of the unemployed has given up and adapted to life on the dole or turned to illegal activities. Economic advance has been accompanied, it seems, by declining stability of families.

Also, progress seems to have slowed. Given the adequacy of production to meet real human needs, this might not be critical if it were not that the economic system that has been developed over the past decades requires growth for its health. In individual companies, unless sales increase, profits are likely to decline. Efforts to maintain profits involve increasing the productivity of workers. Those who are displaced can find new employment only if new jobs are being opened up. If the economy is not growing, or is growing too slowly, it cannot provide the required jobs.

Economists differ in their explanations of the slowing of growth, but most see the lack of gain in productivity as the main culprit. Productivity increases as capital is substituted for labor or places more energy and technology at the disposal of workers. To get an increase of capital investment, taxes have been lowered, especially on those in higher income brackets. Yet the anticipated growth has been slow to materialize. Economists are puzzled. The time is ripe for fresh thinking about the economy.

Ecology

Ecologists view the world in quite different categories. Their concern is with the interconnection of the myriad of activities that jointly constitute our environment. In recent decades by far the most important activities have been human ones. These are changing the environment at a rate inconceivable in earlier centuries. Furthermore, whereas the interactions of other creatures generally have contributed to biospheric growth, overall the human impact has been destructive.

Deleterious effects of human activity on the environment are far from new. Thousands of years ago human beings overgrazed once lush pastures, turning them into deserts. They deforested mountains in which great rivers rose, leading to silting and flooding below. Whole civilizations disappeared as they destroyed their environments. Nevertheless, our situation is different. We now do in decades on a global scale what in the past required centuries on a local scale.

Recently it has become clear that, in addition to rapid desertification and deforestation produced by traditional methods, we are also poisoning water and soil and air. As a result, even carefully managed and protected forests are dying, and many lakes and rivers are incapable of supporting fish life. The rate at which species of plants and animals are disappearing is accelerating.

Equally critical is the effect of human activities on the weather. There is no longer much doubt that unless there are unforeseeable changes in human behavior, the greenhouse effect will trap more heat and global temperatures. Winds, ocean currents, and patterns of precipitation will change, reducing agricultural production in some areas and increasing it in others. Even more dramatic may be the effects of the rise in the level of the ocean. This rise may flood the great river deltas of the world.

The Relation of Economy and Ecology

As long as the world was large in relation to human activities, as long as resources and sinks for the disposal of wastes were abundant, economists could ignore these aspects of the economy. Economics, after all, deals with what is scarce, and resources and sinks were not scarce. Nevertheless, economists did develop ways of treating the side effects of economic activities whose costs were borne by society as a whole rather than by the producers and consumers. Many economists argued that efficient use of resources requires charging to the producer the full cost of producing goods. This would include the cost of disposing of the product when it is no longer useful. Of course, the producer would pass this additional cost on to the

purchaser in the form of a higher price. In this way, goods would be priced at their true cost.

Although the calculations of the real cost of the natural resources are difficult, they are not impossible. Natural scientists and economists have the tools to work out together realistic figures. These would determine some combination of regulations and taxes through which social costs would be borne by producers and consumers. Large additions to costs of certain industrial processes would encourage changes to less polluting ones. And large additions to costs of certain goods would encourage substitutions. The free market would then work to generate a less polluting industry, and pollution taxes could be used to counteract the continuing pollution.

The most difficult calculations would be those where the destructive effects will be delayed for some decades. In particular, the contribution of industry to the greenhouse effect will not have important negative consequences for fifteen or twenty years. However, calculations are possible even here.

Let us suppose the best estimate is a three-foot rise in sea level in about fifty years. What losses will be experienced? The value of the world's beaches can be estimated along with the cost of protecting cities like Cairo and New Orleans from flooding. Much of Venice would be uninhabitable, and its value would be included in the losses. Considerable low-lying farmland would be lost, and salt water would poison some irrigation and drinking water supplies. When total losses or costs of preventing losses have been added, the contribution of a given industry to these phenomena could be calculated according to its emission of carbon dioxide, chlorofluorocarbons, waste, heat, and so on. The tax would be based on the percent of the total loss attributable to the particular industry. The figures would be corrected to determine how much would now have to be deposited to reach the appropriate amount in fifty years. Obviously, figures for anticipated interest rates and inflation would be introduced into the calculation. In any case, the amount paid for this purpose would be placed in a trust fund for the future. It would contribute to the economy because it would be invested. But the principal and accumulated interest would not be spent for fifty years. The tax set aside each year would be made available for expenditure just fifty years later. Thus our grandchildren would have funds each year to help them cope with their mounting crises.

We could hope that as we paid the full costs of our industrial activities we might find ways to meet our needs that would slow down the heating of the planet. If so, we could reduce our payments accordingly. In the unlikely event that we stop the process altogether, the system would, indeed, have proved a success!

ACTUAL QUESTIONS OF THE MANAGEMENT OF POLYMERIC MATERIALS' WASTES

The economy of Ukraine during decades was formed without taking into account ecological features of its separate regions. The state policy of handling wastes is not formed until now.

In an accident a campaign on abbreviation of wastes is conducted a long ago and mainly directed against the superfluous packing, because the considerable part SDW consists of packing materials: about 30% wastes on weight and 50% on volume make different packing materials; 13% weight and 30% volume of packing materials makes a plastic (synthetic polymers). In the countries of East Europe the general volume of wastes of polymers approximately in 7-8 times is below, however higher the rates of their growth are in 1,5-2,0 times.

At consideration of the problem of polymeric packing materials' accumulation it is necessary to take into account the considerable stake of wastes of consumption. A consumer after using of commodity, uses the unique method of handling wastes of packing, - throws out in the specially taken containers for domestic wastes. The bigger share of wastes of packing throws out on illegal dumps, which, in same queue, have negative influence on surrounding an environment.

In the aspect of the given problem absolute interest is been of by polymers, consisting of monomers able to collapse and be synthesized under action of factors of natural environment.

Also for the decision of the problem of accumulation of packing materials' wastes it is necessary to improve consumer's understanding about «ecological» of packing and bring unjustified demand down.

There are following recommendations to the consumers for the decision of the problem of excessive demand on packing:

- To avoid the unnecessary packing;
- To give preference to the products of the multiple-use;
- To give preference to the minimum packing;
- To give preference to packing which is made from the second time processed and ecologically harmless materials.

Information about the commodities, which made from the given type of materials, is carried by the «green icons» inflicted on commodities and packing in many countries.

Successful decision of the problem of packing materials' accumulation depends on activity of the businesses related to production of packing. Forming of ecological policy on the enterprises of packing industry is a step ahead on a path to sustainable development.

QUALITY AND ECOLOGICAL STATE OF GROUND WATER

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. 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. 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. 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.

The chemical contamination of high toxicity caused by the sewage waters of industrial enterprises poses another danger to the environment. Ion forms of such microelements as mercury, manganese, copper, lead, zinc and chromium are most hazardous for human health. The impact of economic activity on the hydrosphere of

Ukraine differs from region to region. In the north-western oblasts of Ukraine contaminating substances in the ground waters occur mainly within limits of permissible concentrations, and their composition correspond to the standard 2874-82 "Potable water". Ground waters with a moderate level of contamination characterized by a small excess of contaminating components are scattered around Ukraine in an island pattern with a larger concentration in the north and the east. A dangerous level of contamination of ground waters is characterized by a high content of noxious substances and is attributed to a considerable technogenic impact on the geological environment, including ground waters in the south and east of Ukraine. A high level of contamination characterizes ground waters in the highly populated and industrially developed regions, such as Donbas, the Dnieper area, and the Crimea. Noxious elements several times exceed permissible levels, and water does not correspond to the standard 2874-82 "Potable 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.

ECOLOGICAL MANAGEMENT IS AN IMPORTANT COMPONENT OF SUSTAINABLE DEVELOPMENT

Vasylychenko Svetlana
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Ensuring of sustainable development in Ukraine is based on the political, demographical, geographical, social, economic and ecological features of the country; that is why the main purposes of sustainable development are: economic development, environmental protection, social fairness, rational using of natural resources, stabilization of the number of population education, international cooperation.

Sustainable development is a process of harmonization of productive forces with providing of satisfaction of all people's needs and with a condition of saving balance between environment and people's needs.

Ecological management is an important component of sustainable and ecologically safely development in Ukraine. It is a difficult science, which is directed to finding ways for providing decision in management of environmental protection activity.

In Ukraine a system of eco-management is defined and formed in a coder of the Law "About environmental protection", which was founded in 1991.

The legal mechanism of eco-management must further to regulation of relations in ecology with using operative, stimulating and compulsory measures to people for breaches of legislation.

On the standard level the main the main role is played by rules of ecological behavior, which determine common obligations of enterprise in following ecological demands and standards, and on the strategic level – the system of planning and management.

On operative level many systems and instruments are used, they help to calculate and to control ecological effectiveness of enterprise's activity – it is a form of getting results, which gives an opportunity to reach aims with minimum costs and minimum loading the environment.

Enterprise's behavior in the field of environmental protection can give it the real chance to strengthen its position on the market. For its effective using enterprise has to consider external conditions and internal strategy in the field of staff and production. This strategy has to include three main levels – management, organizational structure, information and control system. Success depends much on ability of managers.

There are five instruments, which form a base of internal system of ecological management: ecological balances, accounting, control, total management of the quality of environment and audit.

Modern investigations in the field of ecological accounting foresee systematic and detailed marketing; value the loading on environment and using old methods and means of accounting.

System conception of ecological control transformed into three ways:

- Control of financial results of ecological influence on environment;
- Control of influence of firm's activity on environment;
- Integrated economic and ecological control with accounting the financial effects.

The main stages of ecological control are: forming of ecological aims; forming of budget; elaborating of plans of operative and strategic measures; accounting and controlling the results; analyzing the deflections; forming new plans of measures and aims.

The term “ecological audit” is very much alike the term “ecological examination”, its main aim is a diagnosis of “ecological health” of enterprise, ability of its “technological organism” and productive system not to pollute the environment and to be engaging for investments.

Forming of ecological management system gives an opportunity to create pre-conditions for organization of new working places for workers of investigations' sphere, ecologists, leads to forming of ecologically oriented business and to effective sustainable development of our country.

PROBLEM QUESTIONS OF THE ENTERPRISES OF SMALL BUSINESS

Orest Vihopen

Considered actual for today's time questions of efficiency of functioning of the enterprises of small business, are described principal causes of occurrence of a complex economic situation of small enterprises, and also decisions of these questions from the point of view of logistics and sequence of carrying out of modernization business-processes of the enterprise are offered.

Dream of each businessman, both in Ukraine and in the whole world, the minimal expenses and the maximal profits are. In case of when the market situation does not allow it to reach owing to a firm competition, imperfection of the legislation and corruption at all levels of authority, each proprietor of private business tries to reach the purpose any by irrespective of how much it is legally.

In conditions of fast development of the market attitude the important place borrow specificity of operation of business. One of modern variants of improvement of functioning of the enterprise is the non-standard approach to management. It is based on young, more modern thinking which is full contrast to outdated views.

Its essence develops in the simultaneous analysis of many factors of influence on the enterprise and its production, from the major to less important. For more careful analysis we shall consider the organization and activity of the typical domestic enterprise which by own strength produces and realizes production. Rationality of the organization of work on them depends, basically, from competence of a management. Almost all innovations or improvement of the organization of work, in particular those which demand additional capital investments, encounter unwillingness something to change and improve. Near to it the significant part of means can be spent for unnecessary things for the enterprise: accumulation of stocks, irrational expansion of commodity assortment, frequent personnel changes.

Significant accumulation of stocks as raw material and finished goods, leads "frozen" means which probably to use as the tool of investments. With increase in degrees of processing of raw material and its transition to finished goods these expenses will increase. Near to increase of expenses for preservation term of their suitability decreases and economic value is lost.

Negative aspect of expansion commodity assortment is greater capital investments and rather low фондоотдача are. The strong frequent enterprise uses the incomes not for development and development of new, more perspective kinds of the goods, and for support obsolete, demand on which is at a stage of recession.

The unwillingness to spend means for increase of wages leads to dismissal of highly skilled workers with an operational experience and перенимания their functions by others which often enough have no even the focused concept about the

future duties, not speaking already about an operational experience. As a rule, one expert can replace several skilled workers and about ten not qualified. Accordingly, at dismissed the expert and for support of a usual operating conditions there is a necessity of expansion of workers on one and those post, nevertheless it does not guarantee the full decision of the given problem, and in particular, deduction of such level of wages.

For the decision of each of these problems there are separate subitems and services, nevertheless instead of qualitative management there is a transfer of the duties to another, less to qualified employees. It leads to that problems are solved long enough period of time, and causes increase of internal conflicts and deterioration of a working rhythm.

Recently in the countries with developed by economy and the market attitude, in conditions of a firm competition and constant search of advantages above competitors, the new science - logistics has arisen, efficient control all streams at the enterprise, both material and financial, information and allows to carry out uses of which scientific concepts more.

Advantage of the manager from logistics is the system approach to the analysis of the organization of activity of the enterprise. Gathering and analyze business though also busy enough also demands a significant amount of the information many efforts and works, nevertheless it to the full gives the characteristic of object, allows to find The latent capacities to use possible reserves.

Let's consider a divergence of thinking concerning stocks of raw material and finished goods at the usual economist and logist. The Stock rate, from the point of view of the economist, can be such which would allow to work smoothly to the enterprise during the long period of time without threat of a stop, even during time of a untimely concession of raw material, or any other unforeseen situation (for example, blockings of travel through border owing to change of a political situation). From the point of view of logist, the stock rate can be minimal, or absent as stocks are though also stability of manufacture, nevertheless this unjustified freezing of turnaround means.

The given question is solved by the detailed analysis of all possible suppliers and a choice of several, with the best conditions of supply. The type of transport, proceeding from need for raw material and accessories, volumes of transportations, expenses for transportation, expenses for warehousing and preservation gets out. The minimum level of a stock which will guarantee uninterrupted maintenance of industrial needs, even during the moment of failure of terms of supply is simultaneously defined. Strategy of actions on maintenance with raw material in hard predicted situations is developed. In the given situation the stock rate will be the minimal, developed schedule of supply stable, with the least expenses, and at occurrence of failures in supply always it is possible to take advantage of the developed strategy of extraordinary maintenance.

As to stocks of finished goods - system of the analysis similar, nevertheless the minimum level of stocks is formed on the basis of seasonal prevalence of de-

mand for production, specificity of manufacture and available warehouse capacities.

For improvement of activity of the enterprise as a whole will improve only system of warehousing or system of manufacture insufficiently. Desirable minimization of expenses not always it is possible having provided even optimized all processes on manufactory. It is explained that specificity of each process is different and consequently optimized one process it is possible to cause increase in expenses on another. In general there will be a situation, that the enterprise will work much better, nevertheless the level of expenses remains high enough and there will be no problems liquidated all. For achievement of optimization of activity of the whole enterprise necessary system thinking, that is the simultaneous analysis of all activity of the enterprise irrespective of its sizes and specificities of activity. It is busy enough work which demands many expenses of means and time for the analysis of work of the enterprise. Nevertheless on its termination it is possible to reach advantages and economy.

Minimization of a stock rate stimulates their constant control and operative reaction to changes of the market environment, minimization of expenses of means for purchase of raw material and its preservation. Re-structuring of system of manufacture resolves fuller use of capacities and reduction of terms of production.

The system analysis allows to make qualitative decisions not only at planning manufacture and warehousing, and and expansion of commodity assortment, necessity of additional attraction of warehouse, industrial and transport capacities, personnel selection... Near to an economic gain the enterprise receives also such competitive advantages, as fast reaction to changes of an environment, simplifications of conducting the account and the control, an opportunity of reduction of price on production, achievements of financial stability.

For all this work necessary qualified employees with the long experience of work and comprehensively developed thinking.

Unfortunately, in our young state the organization of activity of the enterprise occurs in the short-term period, and orientation - on minimization of all expenses which does impossible qualitative work of experts. The given situation will proceed down to those times, yet will exchange thinking of directors and there will be no desire to receive not only time advantages, and stable profits during the long period of time.

INNOVATIONAL WAY TO ECONOMIC SUSTAINABILITY

Zakharova I.V.

Now in the world the leading countries have already achieved the postindustrial level of economy, and Ukraine is still struggling with crisis of an industrial

economy. Therefore, our country should search for its own way to economic sustainability. The surest one is innovational direction.

Innovations are a certain novice in engineer, technology, work organization or management spheres, based on science research and best practice exploiting. The new or advanced product sold in the market, or new technological process used practically results innovational activity. Innovations are led in all spheres of activities: organization, commercial, production, and primarily environmental.

In fact, innovations are one of some economic directions that bring high benefits with the minimum of investments: country prestige is growing, state budget receives additional sums from the introduced projects, the employment level is higher, environment friendly productions succeed. The most illustrative example of the benefits from innovations is a technopark. The west technopark model implements science development funding and marketing.

Today there are four technoparks really operating in Ukraine. They are conducting about 64 innovational projects. In the recent two years technoparks produced innovations for over grn. 292,8 billion, including products of grn. 102,9 billion for export. But, unfortunately technoparks today are the only working mechanism of the state innovational policy realization.

World leading countries spend over GDP's 3 % for science needs, half of their enterprises are conducting new production, using novice technologies and scientific advances. So their product assortment is renewed biennially, and Ukrainian enterprise products – in five years or even more. Besides, domestic innovation products, processes and technologies are not in line with the latest demands, that's why they can't compete at the global market.

Today, in fact, Ukraine has disappeared from researching and innovational world map. It has only 0,1 % of the total world trade of science products. Inward market situation is a little bit better, but businesses prefer buying the technologies being used and tested already.

Despite the legislative problems in innovational regulation and stimulation, some Ukrainian entrepreneurs realize benefits that can be received from innovations. 902 enterprises of Ukraine were carrying out innovations in 2004, they have sold their products for over grn. 6,6 billion. The major activity direction for the most of innovative businesses was technologically new or advanced products creation and introduction. In 2004 new and advanced process creating and introducing have been expanded (process innovations). 350 enterprises worked in this innovation activity direction. Almost every second new technological process introduced by them was resource-saving or less-wasting sources process.

For improvement of enterprises economic activity we need to carry out some stimulating measures for their innovational activity:

- a) increase efficiency of the state regulating policy in the business development;
- b) provide business-incubators and the innovational centres with the state support;

- c) promote investment attraction into small business development by stimulating their activity in the information/communication technologies;
- d) deepen scientific and methodical maintenance of small business.

Ukraine has significant research and technology potential. Therefore we can't allow the economic situation and insufficient poor legislation to stop its further development.

PREVENT GREEN ENVIRONMENT AND ECOLOGY WITH ANALYZING THE SUITABILITY OF SPECIES FOR WOOD – BASED PANEL PRODUCTION

Zeki Candan

The purpose in this study was to investigate the possibilities of use of some tree species in Wood-based Panel Industry. For example, Vinestem Wood, Pinus Brutia e.g. after analyzing studies concerning this topic and evaluating data gained we came into the important decision. It demonstrated us vital hints to understand whether such species are suitable or not for panel production.

This study aimed to contribute to optimized use of forest resources in forest product industry. Nevertheless, it would help to protect forests and prohibit the waste and misuse of “green” resources in Turkey and in the world as well.

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