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

8th International Student Conference

"Economics for Ecology"

Sumy, Ukraine,
May 3-8, 2001

VIII Міжнародна студентська конференція

"Економіка для екології"

м. Суми, Україна,
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INTERNATIONAL STUDENT CONFERENCE

"ECONOMICS FOR ECOLOGY" (ISCS'2001)

May 3-8, 2001

Sumy, Ukraine

The conference organisers:	Sumy State University Economic Research Centre Sumy Regional Youth NGO "ECO"
The official sponsors:	JSC "UkrRosMetal" (Sumy, Ukraine) NPO "Eco-Product" (Sumy, Ukraine) JSC "Sumykhimprom" Sumy State University
Support:	Grigoriy Dashutin, Ukrainian Parliament Deputy
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 languages are English, Ukrainian and Russian
Conference place:	Sumy State University

Please contact Organising Committee for information:

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Oleg Balatskiy	Professor, Head of the Management Department, Sumy State University
Leonid Melnik	Professor, Head of the Department of Economics, Sumy State University, President of Economic Research Centre
Leonid Plyatsuk	Professor, Head of the Department of Ecology, Sumy State University
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PROGRAM OF THE INTERNATIONAL STUDENT CONFERENCE "ECONOMICS FOR ECOLOGY" (ISCS'2001)

May 3-8, 2001

Sumy, Ukraine

hursday, 3

00 – 16.00	Registration of the participants (Sumy State University)
.00 – 16.00	Sightseeing (Sumy downtown)
.00	Departure from Sumy to the conference place (Recreation Center "Zvezdniy", 15 km from Sumy)
.30 – 18.30	Accommodation
.00 – 19.30	Dinner
.00 – 24.00	Welcome party

riday, 4

15 – 8.45	Breakfast
15	Departure to the Sumy State University
.00	Opening Ceremony. Lectures of invited speakers
.30 - 11.45	Coffee Break
.45 – 13.45	Students' lectures
.45 – 15.00	Lunch
.00 – 18.00	Students' lectures
.00	Departure from the Sumy Sate University
.00 – 19.30	Dinner
.30 – 23.00	Ukrainian party

turday, 5

30 – 9.00	Breakfast
30 – 11.00	Workshops
.00 – 11.30	Coffee break
.30 – 13.00	Workshops
.00 – 14.00	Dinner
.00 – 17.30	Round table
.30 – 19.00	Supper
.00 – 23.00	International party

unday, 6

.00 – 9.30	Breakfast
.00 – 11.00	Workshops
.00 - 11.30	Coffee-break
.30 - 13.00	Round Table
.00 – 14.00	Lunch
.00 - 18.30	Eco-excursion

18.30 – 19.00	Dinner
20.00 – 23.00	Camp-fire party

Monday, 7

9.00 – 9.30	Breakfast
10.00 – 13.00	Conclusions of the workshops
13.00 – 14.00	Lunch
14.00 – 16.00	Press conference
16.00 – 18.00	Sport competitions (table tennis, football, etc.)
18.30 – 19.00	Dinner
20.00 – 23.00	Farewell party

Tuesday, 8

8.30 – 9.00	Breakfast
10.00 –	Departure

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nvironmental and Economic Education: Learn from Nature

***Leonid Melnik, Dr.** , Sumy State University, Sumy, Ukraine*

The biosphere of our planet consists of complex interrelated components and can e characterised with systemic properties. They are:

self-organisation (i.e. self-supporting the current metabolism, energy and nformation exchange process between the system's components);

homeostasis (i.e. the state of dynamic balance of physical and chemical rocesses);

self-regulation (i.e. amending and tuning the appropriate mechanisms as a eaction on recurring changes);

self-development (i.e. ensuring the conditions for system's improvement).

The properties mentioned above are ensured by a set of mechanisms. The main f which are: *system's hierarchical organisation; interdependence of system omponents; natural selection; ecological limitations.*

The hierarchy of the biospherical type managed to solve an important cybernetic ask, but the governing structures of the commanding type failed to solve it. The natter is that according to one of the cybernetic principles of management, *the omplexity of a managing system must be higher than the complexity of a managed ystem*. Because an eco-system of the lowest level serves as a managing system for he biological species (the managed sub-systems). In its turn an eco-system of a igher level can serve as a managing system of the eco-system of the lowest level etc.

Only the systems organised according to the biospherical principle are able to urvive in nature and society. Run ahead we should say that the market "managed" o realise just this principle according to which each consumer can be "a tsar". It is very important to comprehend the meaning of the principle of the ecosystem of any level. It means that the lowest level of the system's hierarchy which determines its life, development and action (the dynamics) is in the centre of the system. Hierarchic organisation of the biosphere is one information miracle of Nature.

What lessons can we get to be able to improve the regulation of the socio-economic systems?

Lesson 1. *To be a viable one a system must be self-organising*. The viability of any system is determined by its ability for self-improvement and adaptation to any changes in the environment. On the market model it is this way by which each manufacturer (an enterprise or an individual) independently solves all the problems concerning the organisation of the production, the search for the consumers of the produce (in this aim in view improving it constantly) and the search for the suppliers of raw materials. Thousands of producers and general effectiveness of a system. *A released energy* of the economic system promotes the appearance of the new economic subjects, favours the growth of the system's diversity, and its sophistication. The automatism of functioning and self-organisation of the system

makes pre-conditions for its purposeful correction with the help of the economic instruments (taxes, credit mechanisms, payments, etc.).

Lesson 2. *A system can be regulated if an authority is decentralised.* The given analyses revels a failure of the commanding system because its functioning is completely determined by the higher "centre".

The permanent complication of the contemporary economic systems demands the adequipment of the higher level of regulation. Nowadays databases which are required for the normal regulation of the economics of a small region is estimated by an astronomic magnitude. In the history of the mankind it is this objective discrepancy of the necessity with the ability of the regulation system (hut not the mistakes of separate leaders) that led to the collapse of all commanding economic systems. It is not accidentally that any total regimes gravitate towards the maximal simplification of the social organisation. Because it is easier to govern this way. To be more accurate only having simplified the system maximally it is possible to control it by means of the commanding methods. In the regulation of the regulation of the eco-system type "decentralisation" of power does not mean losing the control over the regulated system. It is just the other way round. When the higher levels get rid of the routine functions of the current and even efficient regulation it "unties hands" of the political management and allows it to concentrate on the strategic tasks. It is not accidentally that the mathematics modelling of the hierarchical structures organised according to the eco-systemal principle, shows that the complexity of regulation and the quantity of entropy (the measure of the chaotic state of the system's behaviour or its disorder) diminishes with each hierarchical level (form the foundation to the upper levels) (Kulish, 1998).

Lesson 3. *A system will be effective if it is complicated enough.* In the nature the complication of eco-systems, the growth of their diversity, the appearance of new hierarchical levels is a consequence of the surplus free energy accumulated in the system. Still this is the cause of the increase of free energy because the complication of the system means the beginning of new connections of symbiosis between the biological species which help to increase the effectiveness of the existence of the each separate species and to reduce the correspondent expenditures of energy.

An example

The poor sails of tropical forests. This can be explained the following way. The diversity of the inhabitants of this eco-system practically does not leave any wastes, which are necessary for the formation of the soil. Contrary to this the unbalanced (and what is more important, less closed) character of the steppe biocenosis is a cause of the fertility of soils.

By analogy with this only economic systems with a high degree of variety (the poly-structural economics; different forms of property; the differentiation of sizes of an enterprise, the differentiation of kinds of business, and others) have a chance to achieve a high effectiveness by economic subjects. In its turn it forms preconditions for the progressive development. The economic co-operation is one more important factors. The liberation of trade (international trade including) is one of the conditions for

the formation of the economic profit relations; for the deepening of labour division and growth of the effectiveness of the economic system.

Lesson 4. *A system can develop progressively if its "free energy" is preserved.* Even the market model itself does not prevent the economics of a country from degradation and destruction. The excessive burden of taxes, the racket of officials and the criminal sphere can become the factor which "pumps out" the free energy of a system. This can lead to its stagnation or even degradation.

Lesson 5. *A system will perfect itself if the mechanism of "natural selection" functions in it.* Like in the nature, in economic selection of the most effective links is a necessary condition for the perfection of a system in the whole. Absence of the competitions is harmful for the economics. No matter how painful for the Ukraine the opening of the borders was, it is this fact that allowed raising the effectiveness of the production here during the latest decade. This resulted in the variety of goods, which immediately appeared first of all in the counters of provision shops.

It is extremely important to learn these lessons of the nature under the present conditions in Ukraine. Because only in this case we can expect the progressive development of the society and the successful solving of economic, social and ecological problems.

JSC "SUMYKHIMPROM"

During its semi-centennial history Joint-Stock Company SUMYKHIMPROM changed its name and form of property several times, but its policy, directed towards advanced technologies, unique operating development and competitive products development, remained unchanged.

The largest in CIS and in Ukraine, our chemical and power complex is capable now to produce up to 50 items, which are competitive in Europe, Asia and America.

We go hand by hand with modern requirements and one step before our competitors. Therefore, we know exactly our needs and the ways to achieve our objectives. We face the future with optimism, as we have the needed trained and skilled staff potential. With its help we'll cope with any production challenge.

During last years our workaday routine is regulated by truine objective: to develop and to implement production technologies and equipment for the sake of competitiveness on the world market, to maintain energy-saving and stock-saving policy and to create environmentally friendly production facilities.

Being the leading enterprise of Ukrainian economy in the sphere of phosphate fertilisers, which are used in agriculture, our company is in position to perform the order of any customer on the amount of deliveries, as well as on N:P or N:P:K tailor-made products.

JSC SUMYKHIMPROM was the first chemical enterprise to implement the energy-saving project within the TACIS program. It made possible to explore the stockpiles for energy utilisation efficiency and production cost reduction.

We were the first among chemical enterprises in CIS to come into North African raw material market of phosphate rock. It paved the way to our stable work in future.

At the same time we develop and widen business contacts with neighboring regions in Russia in the sphere of manufacturing and sales. By this means we recover our historically fixed sales market.

Together with successful execution of all the governmental orders in the field of phosphate fertilisers supply to Ukrainian agriculture, we regulate our direct relationships with certain Ukrainian regions and provinces to shorten the way from manufacturer to end user and to reduce the production self cost.

We highly appreciate our nowadays partners and associates and will be happy to cooperate with new ones for the sake of prosperity of Ukrainian economy and well-being of Ukrainian people.

The Cost of Life

Darya Samuseva, Belarusian State University, Belorus

I believe that every action I make has a consequence somewhere... Every action has its counteraction. It's the Law. And everybody knows that all physical processes on our Planet and in the Universe submitted different laws... and the Nature ruthless to those ones who try to break them... But also everybody knows that man is Man not because he has a head, two legs and two hands... but because he can THINK! Not just act but predict its consequences... And an Economist has the best opportunities and means (which is very important) to minimise the costs and to maximise benefits from using these or those resources. So, I think it's the best time to start intensive using of our economical knowledge.

There was a time when it seemed that the natural resources of our Planet were unlimited and people used them the proper way. But that time have passed and now mankind faces not only the problem of decreasing in the quantity of resources but also disastrous worsening of their quality, the corollary of which is but again the proportional diminishing in the quantity of good for consumption resources nowadays and in future. And even if present-day people don't feel this "lack of sources of Life", future generations will experience it fully.

To continue, I can say that the environment we live in is not only the "place of our living" but also the indispensable condition of Man's Existence. No nature – no people. And by using our environment wastefully today, we put a question of probability of life tomorrow.

So, nowadays I think economy is inseparably linked with ecology and ecological problems. And as the task of economist is to derive maximum benefit with minimum expenses, I think a great deal depends on people who are responsible for economical policy, their awareness of ecological situation and means by which it could be influenced.

I'd like to designate one more aspect that is substantial from my point of view. I should say that it is very important that not only economists but all people and each person taken separately would be aware of ecological situation, understand the

ible consequences and had a wish to leave their children opportunity to enjoy ir lives. For example, someone (consumer) drops a paper into a street; but what uld he do if he would have to pay a definite sum of money from his pocket for ry such dropped paper? I don't think that there are many people who would cinate such an idea. But let everyone think about it!

What concerns producers, they are aimed at gaining maximum profit. But in at way? What is the price of this profit? Someone got more money this month n previous by saving on utilising of the waste products and dropping them into nearest river. So, now he can buy some better things for his children and arrange m holidays somewhere on Cyprus!.. But instead of all these he will have to spend ice more sum on medicines to treat one of his child from some disease that ppened to him after swimming in that same river... It is banal and well-known ample. It's obvious. And what is more profitable then?.. The problem is that not rybody has come across such example and sometimes producers even don't pect that due to their fishy business they suffer themselves or someone will suffer some years... I would like to sum up that this is lack of ecological education or ybe its not very good quality. And it is a problem that needs solving. It is much ier for everyone to give his money for something, that he know is necessary and big importance personally for him...

Do we value The Life of Mankind by thousands? Or millions of some "coins"?.. uld anybody create something like river or sea, rocks or mountains full of untless plenty of animals, birds and other living creatures for some thousands or illions of dollars (for example) in a hundred or thousand year period??? I don't ink it's possible... But the price of their rescuing could be counted by such sums nbodied in educational, research and environmental projects governed by skilled ecialists and in less period of time...

Place and role of Croatian forests and forestry in relation to principles and criteria for issuing wood products certificates

Ivan Juriši, Tomislav Deak, Hrvoje Posavec, Mario Hrnjak, Miljenko Horvat Matok, University Of Zagreb, Croatia

The Forest Stewardship Council (FSC) was founded in California in 1990, by a oup of users of sawn wood, traders and representatives from organisations for the otection of environmental and human rights. The Group expressed an interest and need for a reliable system of forest supervision. After a number of meetings, a mprehensive list of principles and criteria, including the Statute of the Council as made in 1994. FSC is an international body, which grants permission for issuing rtificates to organisations. According to FSC, forest certification represents a ocess of forest control, the purpose of which is to check forest supervision. For a oduct to obtain the FSC logo, a chain process starting from forest supervision, to anagement of wood processing and manufacture, to final products and their users,

must be undertaken. FSC wrote principles and criteria of a Programme for responsible zones. Also, one of the FSC's aims is to engage in educational and training activities to raise social awareness of a need for better forest management, and for including total stewardship and production costs into the pieces of forest products. Furthermore, the aim is to promote the best ways of using forestry resources, reduce damage and waste and prevent overuse and cutting of forests.

If we view these introductory notes on the foundation and functioning of FSC from the point of view of Croatian forests and forestry, we could notice a number of things. First, it is interesting that FSc was founded by those who use forests and make a profit from wood final products, and by those who love woods but do not possess sufficient scientific and professional knowledge of them. Undoubtedly, the FSC founders love the woods, but it largely due to this layman's love that forests and forestry is endangered.

Behind the well financed associations, founded by those who say have good intentions and love and cherish the woods, there often lies a single goal – to effectively place products on the market. There is usually an aura of love towards forests that surrounds the product, while it is likely to be bought by those who genuinely think that buying the product will save the woods. It is more than obvious that behind the scene there lies pure business interests.

Forestry is both a profession and a science, having more than 230 years of existence in Europe, and therefore in Croatia as well. Besides, the Croatian woods are among the most natural and diverse in Europe. Although we do respect Mexico as an important and rich country, we can hardly agree that this country alone should supervise the forests in Europe, simply because they do not have sufficient knowledge and education of European forestry, forests, traditions and cultures. Likewise, we can hardly believe that the same principles should govern and direct the development of all forests in the world, as the FSc would like to do. In our opinion, it is the buyers and the markets that are the real concern of the FSc, which has set a goal to reassure the buyers that the products having the FSC logo come from the well managed forests, even if they are supervised by the Council founded without forestry scientists, professionals and foresters.

Ecology and economy

Irina Velichko, Dneprpetrovsk National University, Ukraine

Since ancient times Nature has served Man. For thousands of years people lived in harmony with environment, but with the development of the civilisation man's interference in nature began to increase.

Now the problem of environmental pollution becomes actual enough as it was never before.

Economy is one of the main branches of national economies (facilities) in each country. Economy, ecology... what connection is between this notions, how they influence on each other.

Large cities with thousands of smoky industrial enterprises appear all over the world today. The by-products of their activity pollute the air we breathe, the water we drink the land we grow grain and vegetables on.

Every year world industry pollutes the atmosphere with about 1000 million tons of dust and other harmful substances. Many cities suffer from smog.

The pollution of air and the world's ocean, destruction of the ozone layer is the result of man's careless interaction in nature, a sign of the ecological crises.

Environmental protection is of the universal concern. That's why serious measures to create a system of ecological security should be taken.

Some progress has been already made in this direction. As many as 159 countries - members of the United Nations Organisation - have set up environmental protection agencies. Numerous conferences have been held by these agencies to discuss problems facing ecologically poor regions including the Aral Sea, the South Urals, Kuzbass, Donbass, Semipalatinsk and Chernobyl. An international environmental research centre has been set up on Lake Baikal. The international organisation Greenpeace is also doing much to preserve the environment.

But these are only the initial steps and they must be carried onward to protect nature, to save life on the planet not only for the sake of the present but also for future generations.

At the end I'd like to add that we must to initiate a new ways of balance of economy and ecology in the modern world, that economy must not upset Nature.

Economic and ecological efficiency of increasing an arcfurnace work on the base of new technical designs

Tishchenko Anton, Donetsk State Technical University, Ukraine

Metallurgical industry is one of the hardest energy and working source consumer. It almost requires high capital investments for keeping ecological safety.

Ferrous metallurgy of Ukraine includes 12 metallurgical integrated plants and 3 ferroalloys plants.

New technologies, aggregates and equipment may be progressive, economically effective only taking into account environmental provisions.

The air basin may be protected not only with erection of gas cleaning units, but with transformation and elaboration of existing metallurgical aggregates.

Metallurgical arc furnace is forceful source of dust laden gases ejection (about 50000 m3/hour and quantity of dust up to 10-100 gram/m^3). Composition of dust is follow: Fe_2O_3, Al_2O_3,SiO_2,ZnO and others. Dust outcome (8100 ton/year) leads to irremovable losses of high ferrous raw materials which may be used repeatedly.

Importance of lowering dust emissions into atmosphere is stipulated by high ecological restrictions and demands according safety of environment.

1. Owing to above mentioned the new concept of water-cooled roof (hood of a furnace) was proposed. Usually for lower gas-dust ejection gas-trap over furnace is used. Disadvantages: - high value due to gas evacuation not only from furnace, but

from working shop atmosphere. So this is require high fan capacity and capital investments. So was presented match of roof and gas-trap. Herewith for uniform gas sucking from different furnace zones the roof is made with water-cooled gas distribute grid. The pace between tubes is variable for uniform gas distribution. Benefits: this technical design allows to lower gas stream velocity and reduce dust ejection up for 5..6 times.

Such water-cooled roof was assembled in Donetsk Metallurgical Plant and Danieli's Plant in Italy.

2. Very important element of gas tract system is roof's elbow. New construction is designed by us and assembled in some plants. In the bottom part of elbow the water-cooled grid is made. This is allow to air sucking for CO combustion and reducing of temperature in the filters, eliminate of residuals in elbow. Benefits: without high capital investments this kind of elbow allows to increase normal process duration (without stopping for clean elbow), implement more range of filters due to going gases with lower temperatures.

3. Another more effective design is elbow-cyclone. Centrifugal forces play main role in process of dust particles staying in elbow and falling down into working space of furnace. It is special kind of filter that is erected right in roof and practically without additional payments.

Ecological audit as a method of rational natural resources management

Illya Shekshuev, Kharkiv State Academy of Municipal Economy, Ukraine
Igor Dunaev, NTU «Kharkiv Politechnic University», Ukraine

Ecological audit is one of forms of the inspection in many developed countries. However in modern conditions of ecological problem escalation the market motivates rational management and business combination with ecological problem solution. According to point of view of representatives of big European companies "Green image" is caused by commercial emergency, its elasticity of "look far ahead". This is the way of protecting of their own business. A lot of firms consider that such an ecology-oriented business appeared to be a sort of investment directed to getting control over a large sector of market.

The main goals of eco-audit are output information gathering about production operation and generating conclusions based on real conditions of an object (e.g. waste capacity, eco-capacity, eco-disbenefit, ecological appraisal of equipment and technologies, quality of product).

The functions of ecological audit while monitoring is being procedured are to be many-sided and to cover all the ecological-and-economic sets within "production – environment" system.

In our state the ecoaudit might be an effective market instrument in the making and inculcation of present-day management practice, being supplied scientifically

with normative basis and methodical elaboration in the form of the system of ecological, economic and technological appraisals. They allow full controlling of industrial process as a whole and controlling of operations as well, and stages and processes separately.

Findings of ecological-and-economic, technical-and-technological appraisals in the aggregate will allow to auditors not only to find out the ecological safety conditions of the object and its eco-management but also determine the problem areas of the object, and to propose to company's top managers the elimination efforts and ecological expenses reduction.

That is why topical question is the development of ecological audit methodological base which meeting requirements of resource-saving, protection of natural resources pollution, but also retaining competitiveness and profitability of enterprises.

Whereas an indication system defines fact in whole and its structure, there all the indicators must be expressed one-dimensionally. The integral index is to associate with the private indices. The indices system will be met the principles of system approach only in this case and stipulated for objectivity of appraisal. Systematic basis of the ecological audit should be based upon appraisal system of technological, ecological and economical effects.

Economics in ecological development under transitional conditions of Ukraine

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The present day situation in economics of Ukraine creates complex conditions for the formation of the new ecological policy. The transition to the market will complicate this process much more, since the state allocations for the ecological purposes will be lowered, and the mechanism of the corresponding market relations has not been established yet. But it is necessary to note, that without this transition there would be no capabilities for the improvement of the ecological situation in Ukraine.

The solution of ecological issues can considerably be sped up, if the credit mechanism will be designed for these purposes. It should provide the soft loans to the organisations executing nature protection and measures of natural resources preservation. The policy of preferential crediting can be conducted both through special ecological banks, and other commercial or national banks. Credits of such kind and also credits for the change of the nature disrupting specialisation of some enterprises can given by local government authorities. In the highly-developed countries before decision making about the issue of the credit the quotes of a creditor bank carries out careful examination of the conforming enterprise. During the examination maintenance of the established requirements in technological treatment and skill level of the staff of ecological services conducting work with

waste are revealed. The progressiveness of the used technology and qualities of the issued products are analysed. The availability of the scheduling of ecological measures. Its fulfilment and maintenance of the nature protection standards are also considered. These measures allow to reduce to the minimum at issue of the credits and obtaining the maximum nature preservation effect of financial resources usage. The new effective direction of stabilisation of ecological conditions can be the development and support of nature preservation enterprises with the help of different investments. The investment support should be combined with public ecological judgement and independent ecological expertise. The main body of the profit from the invested projects can go through the back of ecological development by way of soft loans or interest-free loans for support and creation of the enterprise frames, specialising in the field of ecological business. The main outcome of the investment activity should be the formation of new ecological branches and production activity and the top priority outcome should be the formation of the bank of ecological development. As the world practice shows, that without organisation of a similar system it is impossible to supply market control of the nature treatment and creation of the ecological industry.

The return and the accumulation of money resources in ecological banks provides their participation in the distribution of the profit from production activity of invested organisations.

The theory and the practice of the progressive countries of Western Europe and the USA testify that the operation of the indicated mechanism is the effective enough factor of their ecological well-being. Outgoing from this point, it seems advisable to evaluate everything critically, to take the best and to transfer the above-mentioned experience, adapting it as much as possible to our conditions.

Control vs. Freedom: means to combine environment protection with national welfare

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Independent Ukraine is facing the problem of creating effective system to protect nature from being polluted. The main danger for our ecology is industrial waste. So we need system to control ecological parameters of enterprises and the compromise between environment changes and national welfare.

Existing system is expensive and ineffective. Government institutions assigned to predict that environment pollution lacks sufficient funding and stuff. Private enterprises are under burden of inconsistent application of law and lack of transparency. Procedures for obtaining various licenses remain complex and unpredictable, significantly rising cost of doing business in Ukraine, and encouraging corruption and development of shadow economy. We have a plenty rules to punish entrepreneur, but weak system of protecting their rights, which make

operation of government and business almost impossible. Such policy is ive for both economy and ecology.

the hard time of economical crisis we have to consider that system providing ment protection should be extremely cost-effective and not burdensome for ises. It must provide basic environment protection features for people of our y. We should find a way to combine benefits of economic freedom with strict ment protection. This means that abilities are to be provided to honest co- ion of producers, traders on the one hand, and environment protection ities on the other hand, bringing all benefits to those who use ecological riate technologies.

is necessary to work out detailed procedures, which will keep officials under of law. We must define groups of goods or enterprises controlled, set of ntial characteristics measured, marginal approval time, set of reasons for ive conclusion, limitations of work check-up procedures.

is reform should cover all government ecological institutions. Measures l can be directly applied to most of ecological management methods, both mical and administrative. Also for some methods of influence small lications needed, but the idea remains the same. To secure direct dependence n environment pollution and punishment we must reduce personal influence cial by clear and stable law.

ese changes might bring transparency and predictability for approval and l procedures. Also transparency will be a heavy weapon against powerful ial-industrial groups able to influence government institutions and decreasing osts at the expense of polluting the environment. This reform can help us to e all benefits of both economic freedom and untouched nature.

The Role of Social – Ethical Concept of Marketing, Student Activities and NGOs in Solving of Ecological Problems

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here are some aspects of the modern economic science, which for last 20 years got the special popularity in professional groups. Such aspects are strategic gement, behavioural approach, the new paradigm of innovations, coordination nomic processes with ecological and social - ethical problems etc. All these d find a reflection in modern Social - Ethical Concepts of Marketing (SECM). ly the ecological component of this concept gains in paramount importance as ion of an environment, exhaustion of natural resources, progressive use of omagnetic waves continuously lead to global ecological catastrophe. fore, solution of ecological problems predetermines necessity of the SECM mentation by the agents of economic system, both world and national level.

Ukraine perception of ecological problems and their settlement, and as a quence the SECM implementation is complicated by an orientation of social lousness onto solution of problems, as a rule, connected to primary needs

satisfaction, sometimes to struggle for existence. Another obstacle for SECM implementation is the unstable economical-political situation, which compels the agents of a national economy to aspire to reception of the maximal own benefit, ignoring not that global, but even national interests.

Thereupon it would be expedient to displace an accent in the governmental programs from manufacture to the field of distribution, in particular to adaptation of global experience in the field of marketing and to development of national marketing culture. It is necessary to coordinate the world tendencies and requirements with national interests. Approaching ecological calamity on the one hand and necessity of development of the marketing relations in Ukraine on the other, result to generation of national marketing strategy which predetermine the following:

- Implementation maximum ecologically clean manufacture;
- Small business development, which, firstly, most operatively reacts to the crisis phenomena, especially characteristic for unstable economy of Ukraine, secondly, gives to the market economy necessary flexibility;
- Granting of tax privileges, financial and technical assistance to the enterprises implementing innovations by and large, connected to the sanction of ecological crisis;
- Formation of social perception aimed at maintenance of ecologically pure environment.

The last point is to be emphasised, as the social problems are associated with efficiency of economic activity. It would be expedient to create some kind of favourable " social mood" by means of cultural and public activities, which in turn would facilitate appropriate perception and solution of ecological problems. Such activities can appear as the following:

- Every possible trade fairs and exhibitions dedicated to ecological subjects;
- Competitions (among businesses, schools, any other institutions) aimed at pure environment maintenance in a region, a city, a street etc.;
- Conferences, seminars and any other projects, ones of an enlightening point – exposing the real situation in an environment, and others of an applied point – uncovering new developments on improvement of an ecological situation in that or other region; the bright example is the ISCS itself;
- Introduction of bills limiting any activities, manufacture and sale of any goods, fatally influencing on an environment;
- All propagation and introduction just SECM, instead of others, as most appropriate business philosophy for our days.

The special role therefore should be allocated to student's activities and organisations, and also to non-profitable public organisations, which could serve as the direct executors of the activities above mentioned.

Perspectives of environmental management system (EMS) in Ukraine within ISO 14000 series

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In 1992 in West Europe was approved standard in the sphere of environmental management system BS-7750 series (Specification for Environmental management System) developed by the British Institute for Standardisation. Then this standard was complemented by Ecomanagement and Audit Scheme or EMAS. Besides that Technical Committee (ISO/TC 207) of International Organisation for Standardisation (ISO) developed standards ISO 14000 series in which basis was laid for EMS of BS-7550 and Monitoring System for Quality of ISO 9000 series. This standard was approved as the international standard and officially accepted and published at the end of 1996 year.

The Ukrainian state committee for standardisation officially has accepted the ISO 14000 series on the territory of Ukraine on January 01 in 1998. Ukraine was the first state of former Soviet Union, which entered standards of this series in its system of standardisation. Simultaneously Ukraine have met a lot of complexities and uncertainty in this important step towards EU.

Aims and tasks: The author puts a task to define these problem of integration ISO 14000 in the State Standardisation System.

- To consider the terminological problem which has appearing when document was translated. Essentially important term environmental management was translated as environmental ruling. This concepts have certain distinctions which are the basis for incorrect interpretation of the aim and task of the given standard in general.
- One of the main aims of the standard is to create the uniform basis for environmental policy of companies from different countries on international level. But the standard creates the basis for "the export of the pollution" too. That is transferring of dirty manufacturing to the developing countries. The company can be certified in the country with more "soft" normative base in the field of environment protection and receive international status.
- The standard does not establish quantitative requirements for protection of environment. And this fact does it "strongly flexible" for Ukrainian polluters.
- The Introduction of the standard gives the profit for producer in uncertain future and this is good, but Ukrainian manufacturer is interested in "fast money".

This list can be continued but the process has a lot of positive sides as well. The comparative analysis of costs - benefits and urgency of implementation of these standards in present time is the general aim of this paper.

Sources and methods of research:

- ISO 14001-97. Environmental Management System (Specification with guidance for use), ISO 14004-97,ISO 14010-97,ISO 14011-97,ISO 14012-97. Official edition of State Standard of Ukraine
- comparative analysis of scientific literature.

✓ Ukrainian legislation.

Importance of issue: The process of implementation ISO 14000 in Ukraine is the hard, inconsistent, but very important and necessary for Ukrainian production on European arena. Therefore it requires deep and careful analyses.

Social and economic appraisal in environmental assessment as a tool for sustainability

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In my work I compared social assessment and economic appraisal in environmental assessment in the Ukraine and Western Europe. I think that conflict between economic development and environment does not exist. Social assessment and economic appraisal in the environmental assessment are one of the tools for sustainable development achievement.

At present stage the problem of sustainable development is very important for our world. Especially for countries which exist in transitional time. We should find a new way for the sustainable development achievement. The way, which will take into account all specific features of each countries in full measure. I think, Environmental Impact Assessment is an universal mechanism for sustainability.

Environmental assessment is different in Ukraine and Western Europe. Environmental assessment in Ukraine consists from two parts: Otsenka Vozdejstvija na Okruzhayushchuyu Sredu (OVOS) and State Ecological Expertise (SEE).

OVOS is demands from the first stages of projecting of any enterprise to define how particular object or action will change society of people and influence on preservation of environment.

SEE is type of scientific and practical activity which is based on ecological investigation, analysis and estimation pre-project, project and other materials or objects, influence of which can harm people's health and direction on preparation of conclusion about corresponding of planned or implemented activity to the rules and demands of environmental laws, rational use and renewal of environmental security.

In Ukrainian documents is notes that OVOS and SEE account for priority of environmental factors in their interaction with social and economical factors. When I was on practical work I had a chance to see it has only formal view. It is real obstacle for carrying out the right and impartial solution. OVOS fulfil it's main task, namely to define adverse impact on environment but it doesn't enough in such economic and social conditions in Ukraine. In such way it is impossible to achieve the sustainability. Ukrainian environmental assessment still hold some features of purely technical approach to environmental problems. It lacks evaluation of complex significance, attention to whole chain of possible effects of impact, especially social and economic, taking into account view of local community.

In Western Europe we can observe another situation. Environmental Impact Assessment (EIA) is a process designed to identify adverse impact of proposal and to mitigate them through appropriate site selection, design and working practice.

EIA taking into account social and economic impacts besides the impact to ronment. In EIA experts try to find a balance between environmental, social and nomical factors. It means that EIA is a complex process. The main task of EIA is fine the economical expedients and environmental acceptable of planning ity. It is possibly to do by the means of accounting of maximal wide spectrum tors with selection of optimal alternatives for reaching the goals. In fact the e potential of EIA is based on economic interests. It is minimisation (as a imum it is prevention) of unproductive expends of investments for achievements desirable goals.

Key component of sustainable development concept is the principle of generational equity, under which the capital stock passed on to future erations, must not diminish. When there is any significant risk of serious or versible damage, the stock of natural capital must be maintained (strong tainability). When there is no such risk, natural capital may be converted into ial or economic capital (weak sustainability). Under weak sustainability it is not sible to make a decision regarding the environmental acceptability of the project olation from social and economic factors. The decision-making process must efore weigh the social and economic benefits of the project against it's ronmental costs, which requires the integration of all three forms of assessment.

Proceed from aforesaid we can make the conclusion that EIA is such system ch assist the most for achievements of sustainable development. EIA helps to id the conflicts between socio-economical and environmental development. EIA duced on practice it's environmental, social and economical efficient and antage to another systems of environmental assessment.

At present time of its development Ukraine to aspire to enter to European Union. of the conditions is harmonisation Ukrainian's environmental legislation with opean legislation. Restructurisation of Ukrainian system of environmental tment up to the level of world standards it is such necessary step, which help ains to achieve the sustainable development and to find a compromise between o-economical and environmental developments.

Environmental consciousness at East

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We all know how actual and important is issue of environmental consciousness . The reason is that the future of our environment depends very much on way of king, culture of behaviour and peoples' stereotypes toward nature. That is why of the important things to do in contemporary situation is to find as many rent ways as possible how to rise our environmental consciousness. Therefore it ery helpful to look attentively on world cultural traditions, to find out the most ntial and wise concepts, ideas and to learn more about other countries erience in order to adopt them to our Ukrainian experience. I suggest turning ntion to the East. It is absolutely another understanding of the world and the

place of human being in it, that is why their tradition can teach us a lot about nature conservation.

Understanding of human being as an organic part of the Great Nature, as a micromodel of the World, eastern people treat their environment in a very "polite", "careful" manner just like equal living creature which apprehend and react properly on human behaviour. Eastern people try to develop themselves by amalgamation with nature, understanding and respecting all its rhythms in order to reach harmony, while West used to interfere in life of nature, conquering and changing it for own need and comfort.

Japanese's have interesting from point of view of ecologist **"art of bonsai"**. It is traditional art of planting miniature trees, creating real unique views of natural harmony. Each "bonsai" (**bon** – dish, **sai** – small tree) seems so realistic, natural like a very distant peace of wild nature, although it is hand-made. It has been carefully planted and formed year after a year by bonsai master. Practising such a kind of art makes your soul "greener".

Apart from that Japanese believe that all around is full of gods and spirits (kami). Kami inhabits every object of nature and people also – just in different proportions. Such a belief leads to forming environment consciousness.

Another eastern tradition that is worth to be mentioned – jainism, whose followers are perhaps the most environmentally conscious people on the Earth. Their attitude to the nature is so much penetrated with idea of "making no harm" to every creature that they care about life in any forms from animals (especially cows as a saint animal) to flies and micro-organisms. "Not killing animals" is one of the ways how the problem of "British cows deseases" can be solved very effectively, saving a lot of money.

Thinking of all the said above we can come to the conclusion that we may absorb in our culture some of the eastern thoughts about nature conservation. If we want to change something, to improve state of environment – we should start from ourselves, we should change our psychology because "our life is what we think of it" as an ancients said. So let's bring up our consciousness in such a way that we will see the result around us.

Application of Game Theory in Ecological Economics: Mathematical Models of Decision-Making

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The study of interactions between economic and ecological processes includes sustainable and optimal use of renewable resources, land use and physical planning, maintenance of nature areas, acquisition of nature areas, etc. Processes of effective economic decision making with regard to nature and ecosystems are associated with notions of capital theory and intertemporal trade-offs, decision making under uncertainty and irreversibility and cost-benefit analysis.

Game theory is the study of interacting decision makers. The theory of optimal decision makes by a single agent-a firm/ organisation (governmental or non-governmental) / state etc. Game theory emphasises a study of cold-blood 'rational' decision making , since this is felt to be most appropriate model for most economic behaviour. Game theory is concerned with the general analysis of strategic action. It can be used to study political/ business negotiation, economic behaviour and ecological problems.

Mathematical models of games with defined pay-offs or probability function of pay-offs of agents can be built as repeated games (agents makes decisions under uncertainty several times), sequential games, agent can make decision simultaneously or one by-one depending on mathematical design. Assigned/estimated probabilities of chosen strategies reflects real-life situation of decision making under uncertainty.

Application of mathematical game model is usually used in industrial organisation, which basically is the economic theory of firm strategies. The question can proposed for application of game models is corresponds to strategies connected with taking into account ecosystem changes, resource management, international trade development. The pay-offs functions in this case should be connected with taking into account of ecosystem performance indicators and their probable change under one/or other decision. Thus the interrelation between company's/ organisation's/ state's strategies on efficiency and resources, ecosystem conditions can be examined, with use of ecological and value indicators in integrated modelling.

Such mathematical game models, with taking into account ecological issues, open opportunity for the analysis on stability of agent agents' strategies, and further development (corresponding to notion of Nash equilibrium), so linking with investigation of ecosystem sustainable development.

Thus, the proposed approach of game modelling of agents' decision making under uncertainty with taking into account ecosystem performance indicators provide a basis for the analysis of interrelations between economic and ecological processes.

International Conventions on Bio-diversity

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As far as pollution doesn't care about borders, very many environmental problems can be solved at international level. One of the international instruments are conventions. As soon as Ukraine had become in 1995 a member of Council of Europe, it developed very active policy in order to become a member of main international conventions on environmental conservation. Conventions are first of all agreements among states, so national legislation should be harmonised with the conventions ratified by the state. In my paper, I would like to describe the main

Conventions, ratified by the Verkhovna Rada of Ukraine in the field of bio-diversity conservation and economic mechanisms of their implementation.

1. **Convention on Wild Flora and Fauna and their Habitats Conservation in Europe (the Bern Convention)** created in 1979. Ukraine ratified it in 1996. The main objectives and obligations of the Convention:

- Development of national policy on flora and fauna conservation and its inclusion in environmental programs,
- Migrating wild life species (later there was a special Convention established - **The Convention of Migrating Wild Life Species Conservation (the Bonn Convention)** (1979)
- Prohibition of intentional murder, catching of animals (licenses, limits).

National and international NGOs play crucial role in monitoring of the Bern Convention implementation because they can come up with case files (complains) to the Secretariat of the Convention if their state doesn't fulfil its obligation. Especial places to be protected in Ukraine are Carpatians, Crimea and the delta of Danube.

2. **Convention of Wetlands of International Importance (the Ramzar Convention)** created in 1971. Ukraine ratified it in 1996. In the framework of this Convention, the Verkhovna Rada gave a status of international importance to 22 wetlands in Ukraine, majority of those are situated in Azov/Black Sea region. As a facilitating organisation, international environmental organisation "Wetlands International" works, that helps Ukrainian NGOs, who sustain and restore wetlands with developing project proposals, fundraising and so on. One of the last projects of "Wetlands International" together with National Ecological Centre is establishment of Ukrainian River Network.

3. **Pan-European Biological and Landscape Diversity Strategy**. The Strategy fosters concerted action aimed at protecting the genetic diversity of wild and domestic species through measures relating to habitats, and thus offers a European response in support of implementation of the **Convention on Biological Diversity.** The Strategy aims to stop and reverse the trend towards the degradation of the assets that make up Europe's biological and landscape diversity. The 54 member states of the United Nations Economic Commission for Europe (UN-ECE) are taking part. It establishes a co-ordinating and unifying framework that enables existing schemes and programmes to be strengthened and expanded. It sets out not to introduce additional programmes or regulations but to fill the gaps in areas where existing instruments are not implemented to their full potential or do not meet the relevant objectives. One of the main action directions of Pan-European Biological and Landscape Diversity Strategy is establishment of **Pan-European Ecological Network,** which would connect by 2005 protected areas, ensuring genetic exchange between populations and the free migration of flora and fauna and buffering the effects of intensive activities there. In the framework of the Convention on Biological Diversity, National Program of Biodiversity Conservation and National Program of establishment of National Ecological Network for 1999 - 2015 was prepared in Ukraine.

Principles of the Strategy: principle of careful decision-making, principle of prevention, principle of environmental compensation, principle of environmental integrity, principle of renewal and restoration, principle of the best of existing technologies, principle "polluter pays", and public participation and Public access to the information **(the Auhus Convention).**

The issues of biodiversity conservation become especially actual in connection with the Fifth Ministerial Conference "Environment for Europe", which will take place in Kyiv in 2003.

Appropriate Water Policy for Climate Change

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Some of the keys of appropriate water policy for climate change are: no-regret policy, planning for sustainability, planning with water instead of fighting against water, planning for multiple objectives, and integrated planning.

'No-regret policy' means adaptive, flexible measures and strategies that are undertaken as a response to ongoing water management problems in combination with the possible impacts of climate change. Many systems and policies are not well adjusted, even to today's climate and climate variability, as demonstrated by the increasing costs, in terms of human life and capital, of floods, storms and droughts. At present, many measures are being proposed or have been implemented to improve water supply or flood protection. Where possible, these strategies should be defined by combining the primary aims of the measure with other objectives. Adaptive measures and strategies, which aim is making sector more resilient to today's conditions are at the same time beneficial in adjusting to future changes in climate.

Planning should be robust: it's not worth to implement measures or build infrastructures that are designed to function and operate only within a very specific range of conditions changes, these measures might need very expensive modifications because they will not function correctly under future conditions. Or, even worse, the measures might prove to be very expensive solutions for problems that no longer exist. Measures should be taken in a pro-active way: in the time to come the flexibility of the system and of the water management practices should be increased to deal with an uncertain future. This also involves that the existing plans and design assumptions should be re-examined under a wider-range of climatic conditions.

Planning for sustainability means that we should seriously consider the boundary conditions that the water system imposes upon us. These boundary conditions define the range of problems that might be solved by implementing relatively uncomplicated measures. Beyond these boundaries, only very expensive and complex techniques could offer some solution. By implementing measures well inside these boundary conditions means 'planning with water' rather than 'planning

against water'. Water should be a leading principle of planning instead of being th last in our list of other activities, functions and wishes and desires.

It is becoming increasingly clear that water management should be integrate management. Integrated planning for water management should focus on a functions and cross-sectoral water resources management. Integrated plannin should focus on the river basin as a resource management unit, and includ groundwater as well as surface water, water quality as well as water quantity, socio economic conditions and processes as well as physical and hydrological condition and processes. Integrated management should weigh the pros and cons infrastructural strategies against other alternative solutions, such as changes in lan use and urbanisation. Above all, integrated management should focus on both th subject, the river basin and on the management practices themselves.

Integrated management should address issues on different levels: fo management of the entire river basin there may be some problems to be addressed a a local level, some issues to be addressed at a regional or catchment level and som issues which should be dealt with on a national or continental scale. Integrate planning should try to provide a framework in which it is possible to implemen measures in the upstream areas which would benefit downstream regions. Althoug there are many examples of these types of measures, there are also numerou examples in which neighbouring countries do not recognise each other's interests.

Integrated water management should include water demand management an risk management. Water demand management should deal with the prospects fo limiting the growth in the demand on water resources and the management o general water consumption.

Risk management deals with society's opinions related to anticipated risks Examples of risk management include the analysis of inappropriate land-use zonin and/or subsidised disaster insurance, which encourage infrastructure development areas prone to flooding or other natural disasters, areas that could become even mor vulnerable as a result of climate change.

Financial mechanisms of protection and development of National reserves

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Everybody knows that today the state of the National Ukrainian reserves i becoming worse as a result of well known causes. Somebody guess that solution o the problem is in widening of the reserve territories or increasing of financin Thinking over these suggestions we can say that the quantity of the Governme level reserve objects and their territory is increasing constantly (Table 1). Thi process was made more active in the last years, appreciably heading of the economi growth. That is why scientific and technical supporting completely does not provid the reserve territories.

Table 1.

Years	Reserves and national nature parks						
	1985	1990	1995	1996	1997	1998	2000 (початок)
Quantity of reserves and national nature parks	18	21	19	23	24	27	31
Their area (thousands hectare)	368,7	407,0	415,0	712,0	761,9	768,5	877,1

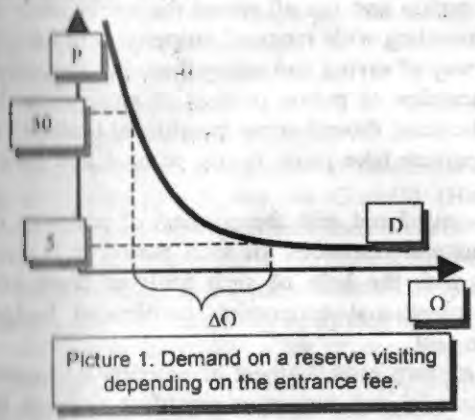
For economists solution of this problem is obvious. It needs to fix the high price for entrance in a reserve.

Under high budget deficit conditions all agents of natural reserve have to look for the ways of self-financing their activity. Unfortunately in our country people have got into the habit of budget financing and supporting for all natural reserves. In Ukraine budget maintenance costs for reserve is from 64,3% to 90,9%. As well known government subsidies are negative for each project because it is create irresponsibility.

Today you can get into the reserve territory without any impediments or with small financial expenditure (as bribe). It is not so strange in that reserves very often are overcrowded especially in the summer time.

Hence the main function of the National reserve is decreasing and it's need maintenance.

We perceive to the gifts of nature and history as free boon. We ignore exploitation expenditure and visiting regulation but when a reserve become too much polluted after anthropogenic influence we start to use administrative controls



Picture 1. Demand on a reserve visiting depending on the entrance fee.

Establishment entrance fee for visitors about 50 grivnas will lead to decreasing reserve visiting (picture 1) and will stop the worsening of ecological situation. From other side fixing the high price will be able stimulate entrepreneurs to open private parks. So far businessmen did not such opportunity because their government competitor sold its "good" in the dumping prices.

I have made the analysis of practical arrangements that traditionally are used in an economic practice for solving such questions. I investigated five directions, which can improve the situation such as economic, juridical, organisational, institutional, financial, social.

So totalitarian time has already-gone away and we have to make our choice. Th first we have to rate highly "pearls" of nature, which is left yet and will not compla of the real entrance fee. The second for us it does not matter the fate of reserves an we do not to feel sorry about their future.

Property changes is a necessary condition of effective using natural resources in transitional economy

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This problem can be solved in some directions:

✓ Organisational direction means solving this problem by organisi committees for saving of environment, committees of effective use of natur resources, but it wouldn't be efficient, because as we considered "green" didn achieve any success except closing important and necessary for our econom manufactories.

✓ Economic direction means establishment of ecological tax. But if governme does it would receive nothing except going of entrepreneurs in the shadow.

✓ Social direction means establishing of some rules of behaviour, prohibition doing harm to nature. It happened so that Ukrainian mentality was made historicall and nothing except penalties or harsh punishments don't influence. Thus th direction is not very influential.

✓ Institutional direction means changing of property.

As it turned out the last direction is the most efficient and influenti Historically developed that natural resources of maintenance in conditions of lack exclusion technologies of their redistribution and use all round the world were public property. Economists propose providing wide range of property as to natur resources-use. In this we see the main way of saving and safety them from preda consuming which connected with conception of public product of consuming. Ukraine natural resources belongs to the state, though some transitional (collectiv share-holding) properties even up to private take place in use of land and fore resources.

All countries with transitional economy faced with the problem of pollution environment and unpractical use of natural resources. In such period it is ver difficult to influence these processes with the help of such tools as taxes an advantages. But in countries with transitional economies unbalanced budg considered, presence of deficit and state debt.

Therefore, the optimal way of out is sharp establishment of property on natur resources. Pollution in environment, harmful and dangerous manufacturing can b considered as negative externalities. And according to theorem of Ronald Cau establishing property on natural resources can solve this problem. In transition economies the government doesn't fulfil the duties as it was before. It means th distribution of resources is made not from the centre; there is no plan and direct

to use of profit of enterprise. Each enterprise decides independently how to use its money. Now entrepreneurs try to maximise their profit and minimise expenditures. They don't think about providing natural-safe and ecologically safe technologies, because it isn't anticipated by our legislation. And if the expenditures for use these technologies are higher then if we don't use them, nobody will use them voluntarily.

Taxes on pollution of environment are important tool of ecological policy in transitional economy. But we have not to increase taxes, but reform tax policy on the base of conception about "double dividends".

The Way of Rural Areas Development in Transition Economies

***Oleksiy Balabushko,** Mikolayv Branch of the National University of "Kyiv-Mohyla Akademy", Ukraine*

Community Supported Agriculture (CSA) is an opposite to industrial agriculture way of agriculture development. Industrial agriculture faces now problems of dependency on inputs, greater transport costs, fewer jobs in countryside? Greater strain on nature and environmental pollution.

CSA means the following things:

- farmers produce for a known consumers;
- consumers buy from known farmers;
- everyone knows what the production methods are;
- food production and supply kept local;
- a producer-consumer association means a shared understanding.

In my presentation I will consider the following types of CSA:

- Share farms (consumers pay the farmer costs and set production that will be delivered to them for a year).
- Regular box schemes.
- Delivery schemes.
- Farmers' markets.

There are several examples of successful CSA farms. I got acquainted with one of them during my stay on Godollo (Hungray), where Godollo Agricultural University made an experiment and for the several years it is successful. Some other examples could be found in the USA in Minnesota.

In the context of people awareness of great importance of nutrition quality this could a really effective way of solving of many problems.

Of course there are a lot of economic problems with implementing of this agricultural scheme but still, healthy, fresh, environmentally friendly food and farming means healthy people and healthy environment. That is really important thing that is worth of all efforts made to achieve it.

In my presentation I will also consider possibilities to create CSA in Ukraine and the ways in which it could impact agricultural problems in present Ukraine.

The market methods of waste control

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Institute of Business, Econo
and Informative Technologies, Ukra

Today's unfavourable ecological situation in Ukraine is redoubling of that observed descent of production volume growth the wastes accumulation increa and their utilisation level in production and consumption comes down.

By 1.01.1999 the total mass of the accumulated at the territory of Ukraine to wastes amounts 4,2 billion tons, that nearly for 52 million tons more than 1.01.1998.

The basic sources of wastes formation in Ukraine remain the enterprises mount-industrial, fuel-energetic, building and agronomic complexes. Seeing th nearly 70% of our country gross product falls on metallurgic and oil-chemi complexes enterprises, the most part of wastes forms at these complexes.

The basic part of 1-4 danger levels toxic wastes in 1999-2000 forms in Donet and Dnepropetrovsk regions and forms 84,7% of overall mass in Ukraine, t accumulation volume of these wastes 90,6%.

The conditions of wastes keeping and removal in our country often don't satis the sanitary-hygienic requests, that leads to pollution of the superficial a underground waters, ground and atmosphere.

In majority regions of Ukraine there are no any grounds for centralised wast keeping and removal. In many regions forms hard standing with dangerous wast placement and remaking. In 1999 the dangerous wastes of 3-4 danger levels majority (66,6%) were directed to the superficial receptacles, nearly 5% of thes wastes get into the non-organised keeping places.

Observing of the wastes disposition places indicates presence in the count nearly 2760 wastes localisation places among which dominate enterprises' slag- a stern receptacles, household and mixed household-industrial wastes dumps (near 700). The area occupied by wastes in mucks and receptacles, which are on t enterprises' balance is 31,5 thousand hectares.

In 1999 1,9% of toxic wastes were neutralised, directed to the organised keepi superficial receptacles 66,7%, including to the unsatisfied receptacles 22,9% directed to the unorganised keeping places 4,9%.

So, I think for the solving of problems in sphere of waste control it's needed:

to inculcate the new technologies of wastes gathering and selective screening o costly components and also industrial technologies of it's utilisation at the domesti equipment;

to work up the programs by industrial remaking and secondary usage o industrial and household wastes.

Commercial approach to the ecological problems in Ukraine

Irene Shevchenko, Odessa Polytechnic University, Institute of Business, Economy and Informative Technologies, Ukraine

The pollution of environment arrives threatening measures in last years. The ecological problems are in the centre some decades yet, but the background in the world deteriorates.

Ukraine regards to the most contaminated countries of the world, at the territory of which exists more than 25% of former USSR industrial pollution.

On account of high industry concentration specifies the growth of the volumes of the industrial toxic wastes accumulation, and the low level of these wastes utilisation leads to their accumulation, therefore, to sizeable pollution and degradation of the environment. That's why Ukraine was announced as a zone of ecological disaster.

In accordance with the disappointing results our country must busy with working out the ecologieal politics in the area of wastes treatment and neutralising with the goal of reorientation to the ecological, economical and social-effective commercial wastes utilisation.

I think that the most effective ways in solving the problem of the environmental pollution are working out and realisation of the most optimum scientific-technical program, directed to the descent of waste formation, their recycling and recirculation; formation of normative-juridical financial base (payment for the environmental pollution, organisation of the favourable investment climate; financial formation of the projects by treatment, utilisation of the wastes and so on); and also important factor is the international collaboration, particularly, maximal usage of the positive foreign experience, methodical and material-technical support of the developed countries.

Achievement of the ways enumerated above will lead to the economy of a lot of material resources; to the decrease of environmental pollution and ecological damage; to the reception of additional gainings, a part of which can be used for the recompense of the ecological damage.

The given results promote to the solving of the ecological and economical problems in Ukraine.

Understanding the Technical Change in Central and Eastern Europe: The Peaceful Coexistence of the Structural Adjustment and Actor-Network Theories

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1. Introduction:

CEE faces various problems related to the technical change with its policy, economic, social and environmental implications.

Dimensions of technical change:

- Related to the advancements in the Information Technologies
- Related to the economic restructuring and replacement of the technolo base of the socialist enterprises in general
- The problems of the environmental issues appeared, despite the (already assumption that Environmental values develop in societies, achieved level development comparable to the post-industrial ones.
- These are two aspects of technical change with seemingly different prof They will be examined as cases, allowing constructing appropriate gen theoretical framework

Paradox: CEE faces problems, similar to these of the developed countr despite the big gap and different paths of development.

The problem of the appropriate theoretical framework.

2. Technological Paradigms and Trajectories. The change of the tech economic Paradigms

Problems: The basic prerequisites for the change of the techno-econo paradigms model are missing in CEE; Such as:

- Institutions in charge of technological assessment and implementation
- Stable market environment, allowing
- Cumulative development and deployment of the new technology

In the same time developments, typical for the western countries can witnessed

- Fast development of the information infrastructure
- Environmental issues taken into serious consideration

Theoretical advantages of the model:

- Reliably represents the structural characteristics of the process

Disadvantages:

- Lacks concepts which could explain the great variety of patterns, throu which the technological changes happen
- As a result this is only a descriptive category; The factors of change a embedded in the very model of structural adjustment. It becomes visible when th model is applied to realities, where the change happens, but in the same time bas prerequisites of the model (stable and differentiated markets etc.) are missing

3. The Actor Network Theory

No systemic model can explain these developments. Actor-network, as a gener framework can help and even can be combined with the structural adjustment mod despite the big difference in the 'scales'.

Steps that could be implemented:

- Studying the very process of change – for example registering the variety non-coordinated activities of interested parties without stepping on system presuppositions

Not description, but analysis through the Actor-network concepts

Presentation of the basic Actor-network concepts:

- Actor network
- Translation

- Mediator
- Entity

4. Conclusions

Implications of the combination of the two approaches in the analysis of the development of the technological change and environmental issues in CEE.

No need neither to stick, nor to embed these issues in a "transition models".

Evaluation of the various social, economic, institutional etc. mechanisms and relations of actors, engaged in the deployment and development of the different socio-technical networks, engaged in the processes of technical change.

Opportunity to overcome disciplinary and epistemological borders between disciplines, dealing with these problems and to follow the "Co-evolution of technologies and society" (Callon M. 1987. "The sociology of Actor Network: The Case of the Electric Vehicle")

New ways of economic and environmentally life

***Bitea Cristian**, National School of Political Studies and Public Administration, Romania*

To preserve the environment we need new ideas about how to organise the foundations of a sustainable economy. As the study of wealth and welfare stands at new crossroads, we need to make life-style choices, define new organisational goals and policies, new methods of measurement and valuation and research on new theories. People need to be empowered to conserve resources instead of making them dependent on public regulations. There are some big issues concerning economy and ecological action within local, regional and international level.

Environmental issues require an initial investment but in the long-term they are beneficial. Companies that pollute must pay to restore the environment, which has been damaged.

There are a lot of public factories as well as private, which pollute, but they have, in the mean time, many problems with employers, funds, old and non-ecological technologies. Are "green taxes" necessaries for polluting companies or other kinds of measures like subsidies and financial aid? Many voices say that it should insist upon the enforced use of efficient and up to date scrubbers and filters in industry, supported by subsidy system to allow for their installation. They recommend a reduction in the taxation of environmentally friendly products to encourage their use and increasing taxation on fossil fuels and other pollute sources.

The "waste" problem need endorse a waste disposal system whereby: consumers pay in proportion to the amount of domestic waste they produce and recycling is free of charge and accessible to all.

Endorses co-operation between countries regarding recycling and economic environmental education in relation to the consideration that ecological problems are border-less.

International community should provide knowledge and technology to count who continues to have environmental problems as well as at national le government to public companies.

Media influence is recognised and it will be a real help to continue to prom environmentally friendly products and stands for the incorporation of both pract and theoretical economic environmental awareness classes in schools.

Encourage companies to use alternative energy sources which are those ene sources other than fossil fuels and nuclear power, like hydro-electricity, wind pow solar power, bio-gas, geothermal and bio-mass. Supporting sustainable develop projects based on ecological components by international community and m rules for using recycling materials as a component for final products. It is a prio to continue research into more environmentally friendly modes of transportation encourages the possible mass production of such vehicles; to improve the stand and lower passenger cost of public transport systems by loans and grants if necessary.

As a conclusion it is necessary to establish that when a new technology planned and adapted, not only its technical and economical qualities should considered, but also its multiple direct and indirect influence in ecological, soc and human fields.

Economic activity should respect the nature, balance between environment a social progress and economic development should be build in link with environm laws.

Economics and Ecology on the West and in Russia: Union o Confrontation?

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NGO «Centre for Independent Social Researc
NGO «Ecologist», Russ

At first sight economics and ecology are seemed to be two contrary orientat disciplines – one advocates the industrial development of society and the technic progress, another fights against the consequences of the industrial growth. In the l century humanity got into some kind of «vicious circle» – complexity a permanent accumulation of social needs stimulates the active industry developme causing the pollution of the environment, which rises with the development o society, asking for bigger amounts of the production. Every following effort in th hope of escaping the next ecological problem disturbed the potentially available rat of industry, and its restoration inevitably caused damage to nature. So the humanit definitely moved to the ecological disaster without coming to the unified decision o this question, without trying to consolidate the efforts of different people, but actin only in the political and economical interests of their countries or enterprises.

Agreeing that there can be no economical activities without causing damage the nature, about 30 years ago people tried to regain balance between the economic

and ecological activities. They understood that without a protection of the environment not only the serious ecological consequences could come, but also economical ones - breaking the process of production and consumption of material wealth. In 1968 the Roman Club was organised, which unites the representatives of different countries in the name of the common purpose – to save and to improve the life on the Earth. Problems and the ways of their solution of both disciplines started to be considered from the opposite point of view. New disciplines such as nature economics rapidly began to develop, studying the interaction between the society and the environment. Ecology has become interested not only in the conservation of nature, but also in the sustainable development of a society, i.e. development with the gentle treatment of the available nature resources. The environment by itself can be a factor of an economic growth, if people conserve the unrestorable nature resources and increase the investment for environment protection. So on the West the contrast between economics and ecology turned out to be a survival of its own time, which has nothing in common with the contemporary notion of the goals each of these sciences.

But Russia radically differs from the West countries because of the long stay of society under the communist regime, and in this case it's better to talk about the differences and the contrasts in the sphere of economics and ecology. For many Russian enterprises their own income is still a main value, but not a population health and environment state. Since with a rise of the society democratisation, the possibility to remove the pollution increases, this issue is gradually decided by giving licenses and arranging ecological audit of the enterprises, by launching the special taxes and payments concerning the pollution of the environment, by making obligatory the ecological quality control of the production and the way of its manufacturing. However the pollution can't be removed absolutely, it can be presented in the other form, be diminished or just be transferred to somebody else, as it happened with the Third World countries by appearance the high technologies in the well developed countries. Here the «vicious circle» also can be talked about – the low per capita income – the low level of savings and consumption – the low level of investment – the low level of the labour productivity – the low per capita income. And in case of the present political situation, namely an acceptance of three bills by the State Duma, which actually allow wasted nuclear fuel importation and storage on the Russian territory, it's feared that wouldn't Russia by this way turn into the wastes repository of the other countries.

Provisional account of cost of realisation of a complex of measures on improvement of a condition of an environment in city Izhevsk

Alexander Shirtanov, Izhevsk State Technical University, Russia

Izhevsk - powerful industrial centre, where 49 large enterprises are located. On volume and assortment of let out production it borrows one of conducting places in

the Ural region. On all country and behind its limits it is possible to me automobiles, motorcycles, sports and hunting guns made at factories of Izhevs Capital of Udmurtiya - one of the largest Russian advanced centre of blac metallurgy. Rolling and foundry manufactures are advanced. Besides at th enterprises of city is made complex systems of communication (connectio medical complexes of diagnostics, wide spectrum of radio equipment, various kin of plastic and other.

At the same time ways of protection of an environment are on a low level. It ha resulted that the enterprises using absence of the control on the part o administration do not give due attention of a condition of an environment. For toda it is possible to allocate the basic line of problems requiring immediate intervention

1. Pollution of air first of all by large industrial enterprises.

2. Pollution of water of the Izhevsk pond and rivers, proceeding in a cit boundaries. It is necessary to note, that water of a pond is used both in the industri purposes and as a source of drinking water for one of areas of city. Besides the pon is a favourite place of rest of the townspeople and requires clearing of silts.

The plan of measures on improvement of a condition of an environment wa developed and the provisional account of required money resources is made.

The complex of measures on improvement of a condition of an environme consists in the following:

1. Clearing a pond of silts and installation at the enterprises using water in th industrial purposes of clearing filters.

2. Installation of clearing filters at the enterprises which are carrying ou emission in an atmosphere of harmful substances.

The possible ways of research of money resources on realization of a complex o measures on improvement of a condition of an environment were revealed. Source can serve:

1. Means allocated by the budget of the Udmurt Republic
2. Attraction of means of the population of the Udmurt Republic
3. Money resources withdrawn as the penalties from the enterprises
4. To oblige the enterprises to establish clearing filters.

Financial regulation of applied science

Broussina Anna, State University of Management, Mosco

The object of innovation management has three components: fundamental applied researches and research of practice approaches. The distribution principle o resources between these three elements is 1:3:9. This distribution is a characteristi of the initial stage of production intensification (the middle of XXc.). In that perio scientific and technical progress was extremely carried out by real offers in order to solve obvious problems of economic development.

In 1996 in Russia this ratio had the large overweight in practice research. The distribution was 1:1:4,3. On the one hand it is caused by acceleration of a cycl

Science - Production - Consumption. As soon as a new approach or an idea of a new product appears in an applied science, it gives start for variations of the approach to apply in practice. On the other hand, such distribution change is a characteristic for countries with declined economy. The explanation of the process is that real and fast money can be only brought with a final stage of R&D (Research & Development), where we speak of goods production for the concrete consumers on the basis of the recognised scientific theories.

Organisation of favourable interaction between applied science and production, establishment of legal and information base for innovation business are major activity for Russia in modern circumstances. Under centralised control system it was difficult to trace the connections between market and scientific works, since the government didn't pay enough attention to marketing researches during the process of planning. In result in the Soviet time there was a number of dead practice designs.

In the 80th west countries spent for a science about 3 % of GIP, while the expenditures of the USSR were near 5%. The results of economic development have shown, that the decisive moment was not the considerable quantity of money, but the reasonable system of finance management and the variety of control systems. For instance, in the USA there are quite sustainable small innovation enterprises, which are entirely guided by the needs of the market. System of small business has been developing for many years already.

One of the main modern goals for Russia is to carry out the policy of R&D stimulation in all industries. Enterprises can accumulate money in the specialised **Bank of Innovations** to pay for scientific agreements chosen by enterprises itself. Today there is an item of expenses on new engineering development in a product cost price. The new principle provides a similar item of expenses on R&D cost. For the state we recommend reducing taxes.

Marketing and Bank of Innovations can provide some kind of feedback between the market and innovation enterprises. The Bank of Innovations can carry out credits on innovation projects on a competitive basis with small interests. Enterprises will return credits at the expense of the profit from realisation of the new product after they have developed new production. The effective investment and increases of assets of Bank of Innovations will provide having "free" means for financing of venture projects with preferential interest rates.

Such financial regulation of innovation process will allow establishing optimum rates of deductions on R&D from cost of a product and will reduce the unjustified costs on R&D activity. Thus, the interaction system of the infrastructure participants of innovation business will accept a decentralised kind. The strengthening of Bank of Innovations will allow paying attention to important ecological projects, in a result influencing on all production infrastructure.

Historical aspect of national environmental administration the Baikal region

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Russian-American NGO "Tahoe-Baikal Inst

The territory under study is the Baikal region that includes the watershed of L Baikal within the Russian Federation, nearly the whole territory of the Repub Buryatia and the adjacent areas of the Irkutsk and Chita regions.

In every field of economical, industrial, social and environmental activities i given region, elaboration of new schemes of cooperation and coordination bet the regional subjects and the centre of the RF as a whole is a vital issue that h take into account the following:

- the territory under study is distributed between the administrative subje the state;
- Lake Baikal has a status of the World Heritage Site;
- the bioregion contains an outstanding variety of natural values;
- the existing production-technology structure is incompatible with the mo environmental requirements.

The problem of optimum and efficient regulation of interrelations within "n - economics - society" pattern needs adequate planning and monitoring, per control and, even more importantly, correlation between the interests of re subjects.

About 15 years ago, an idea to establish a united inter-regional bod environmental administration of the Baikal region was put forward to addres above problem. Since then , it has passed through several stages of developmen

The idea was first announced by the Decree of the Central Committee o Communist Party of the USSR and the Council of Ministers of the USSR of 13, 1987 "On measures to ensure protection and rational usage of natural reso of the watershed of Lake Baikal from 1987 to 1995". According to this decre inter-agency commission for control over the state of the natural setting in the Baikal watershed territory was established within the structure of the Committee for Hydrometeorology and Environmental Control. The objectives of the given state body were to formulate and implement a un environmental policy in the Lake Baikal watershed territory, to conduct re monitoring of implementation of environmental activities by industries organisations, to control observance of specific regimes of natural usage.

The period from 1993 to 2000 can be considered the second stag development of national environmental administration. Two bodies for nat environmental administration, the Baikal Ecological Parliament (BEP) and Governmental Commission on Lake Baikal, were established.

The BEP was created at the regional level; for a certain period of time, i functioned as a coordination-consulting organ of the legislative power. Its mem

represented people's deputies of the Republic of Buryatia, the Irkutsk and Chita regions. Its main goal was to participate in elaboration of regulations and norms, in implementation of inter-regional programs of environmental protection and rational usage of natural resources in the Baikal region.

The activities of the Governmental Commission on Lake Baikal were restricted to the most important ecological problems of Lake Baikal. Its staff included 27 experts, one third of which came from the Baikal region. Its working schedule was considerably dependent on activity of its members who volunteered in the Commission. Therefore, it was problematic for the secretariat and working groups of the Commission to provide continuous and efficient accumulation of the relevant information and to ensure proper analyses of the available information for stable environmental administration of the Baikal region.

In May 2000, the Governmental Commission on Lake Baikal ceased its activities since the State Committee of the Environmental Protection was abolished, its authorities being committed to the Ministry of Natural Resources.

Despite the stable increase of public environmental concern in the Baikal region, the regional ecological situation is not being provided sufficient attention from the state authorities, in the author's opinion. Moreover, the regional environmental situation is likely to worsen in future due to the following reasons. The major concern is that the authorities of the state environmental administration body responsible for nature protection has been transferred to the state body that has been historically more oriented to exploitation and commercial usage of natural resources rather than to nature preservation and protection. Another reason is that the environment protection measures are not capable of direct and immediate improvement of the current economical situation in the region; moreover, nature protection is aimed at the long-term sustainability of the most important environmental processes and thus oriented to the future. Consequently, in terms of the short run, there is an essential prerequisite to favour immediate economical achievements rather than environmental requirements or measures. Unfortunately, examples of such environmental policy can be already noted in the Baikal region, such as the scientific project of drilling for gas prospecting in the Selenga river delta and the continuation of production at the notorious Baikal Pulp and Paper Plant.

In the author's opinion, an inter-regional environmental administrative body needs to be re-established in the Baikal region to eliminate the situations when economical values are preferred over environmental ones, to ensure coordinated functioning and development of economics and ecology as regional subsystems of equal rights.

Ecological Aspects of Economic Development: methods an problems

Kuanysh Baimagambetov, Bilkent University, Tu

The economic development of a country is dependent on its environm conditions as well as on ecological conditions of the whole world. The proble environmental pollution has caused a number of theoretical and practical prob in Economics. In this work the most important ones of the arising are studied an attempt of solving them is made.

In particular, the regions with good environmental conditions have m "chances" to develop its economy than those, which have relatively bad. investigation of theoretical matters of the like as well as its consequences and consequences of other practical matters will be offered for this conference.

As a resource for study, the region with well developed economy such as Eu is taken in comparison with the countries with undeveloped economies economies in transition (CIS countries), paying regard to the specificity of t ecological conditions and policies conducted.

Also the report presents a variety of traditional policies and methods used i countries, appearing problems and discrepancies within the framework, develops new theoretical methods on this basis, the consequences of which ca used for further research in the field.

Urban explosion in under developed countries-the centres environmental destruction

Doni Blagojevic, University of Belgrade, Yugos

At the beginning of the third millennium, the world is facing global ecolo problems. Pollution of environment requires engagement of experts from var fields of work to help decrease pollution, or put it under control.

We are going to make very little progress in solving the problem of poll until we recognise it for what, primarily, it is: an economic problem, which mu understood in economic terms. Of course, there are non-economic aspec pollution, as there are with all economic problems, but all too often, such secon matters dominate discussion. Engineers, for example, are certain that pollutio vanish once they find the magic gadget or power source. Politicians keep tryi find the right kind of bureaucracy; and bureaucrats maintain an unending searc the correct set of rules and regulations. As important as technology politics law ethics are to pollution question, all such approaches are bound to have disappoi results, for they ignore primary fact that pollution is an economic problem.

Various non-governmental organisations have big influence in spre information about protection of environment and arranging campaigns ag various kinds of pollution. Financial resources for non-governmental organisa

were provided by large international funds and organisations. Their goal is to unite all human population against pollution.

However, in underdeveloped countries activity and enthusiasm just of people from the non-governmental organisations and small number of experts (primarily ecologists) is not enough.

First, there are essential differences in industrial and urban development between developed and underdeveloped countries. In developed countries urban development had economic support. In cities, both industrial and adequate housing and many other objects have been built. Adequate infrastructural objects were built, too. That has provided normal and comfortable life. Those cities are result of balanced development.

In underdeveloped countries, cities are growing fast, but they are not developing equally in all directions – infrastructure, housing projects, health and other institutions. For example, Mexico City and Calcutta have over ten million inhabitants. In these cities almost one third of population lives in cottages without water, sewerage system and basic life conditions. It is estimated that, in the next few years, this number will increase up to the half of population. Also, industrial sections are not modern as in developed countries. Therefore, they are a source of a great deal of polluters.

Lately in developed countries, a lot of research is held. Scientists are trying to find economic models according to which pollution could be decreased. However, all models are supposed to be used in countries that have good economic base, while in underdeveloped countries there is no base for their use. It is easy to draw a conclusion that use of these economic models requires money investments. Underdeveloped counties have no financial resources for investment.

That is why we have to find the ways to stimulate underdeveloped countries to invest in protection of environment. Otherwise the centre of pollution will only be transferred to underdeveloped countries. But, at the same time, global pollution will not be reducing. In future, more attention should be given to this problem because the greatest pollution danger lies in these areas.

Using Computer Ecological Information System (CEIS) for decision- making in administrative economic activity

Volodymyr Voytenko, Zhytomyr Institute of Engineering and technology, Ukraine

Nowadays the management of regional ecological systems is considered on the base of mathematical modelling with intense using of computer techniques. In our computer project CEIS 2.0 (Computer ecological information system), which support distributed systems, we offer the building of regional models on base object-matrix approach. A regional system of ecological processes includes four main sets of subsystems of first level: biological subsystems (ground, micro-organisms, flora,

fauna, etc); subsystems of surrounding ambience (the climatic conditions, n
soiling the objects etc.); subsystems of social development; economic subsyste

Any subsystem presents one- or two-measured space, which contains the
characteristics and is open for addition and development. The space dime
depends on the number of independent factors. So, the distribution of a n
parameter (for example, pollution level, energy using or viruses activi
presented by data matrix named the data layer. The parameter dynamics depe
the following positions: own time dynamics, horizontal relations (relations
layer matrix distribution) and vertical relations (relations between different lay

The modern ecological researches show that the change of ecological condi
of biosphere leads to the changes of a viruses properties. Viruses are strong m
genetic systems, therefor the problem of ecological instability gives today als
problem of sharp changes of pathogenic viruses properties. From what is menti
above, it follows that the researches should be close to probable flares of viru
ecological unstable zones of our planet. CEIS system is able to simulate diff
ecological processes. For instance, let us consider the viruses' influence on
plants development in different ecological conditions. Our Zhytomyr region i
most reach in hop seeding areas in Ukraine.

For these purposes we choose the following data layers: an independen
factor 1 - the data of the soil types; an independent data factor 2 - the data o
viruses spread power; layer 3 - the data of the hop crops; layer 4 - the data o
bitter substances and alpha-acid numbers; layer 5 - data of the grains size.

First two layers characterise independent data, which are the gradations of
factors of the influence on the other layers. In this case we can deal wit
horizontal relation (the data layers distribution) and vertical relations, w
simulate the dependencies between data of layers 3-5. With help of factor ana
we can say that the hop crop depends only on the data of viruses spread and ca
described by the following formula: u(v)=16-11,5v, where 0<v<1 - the power
viruses spread. Unlike this the number of bitter substances depends not only fr
but also from interacting this factor with the factor of soil type. Thus, for descr
this dependencies we can write: g(v)=16,7-6,1v for dark-grey soil and g(v)=1
3,37v for black soil, where g(v) - per cent of ratio between bitter substances nu
and dried substance. By these formula we can see that the viruses power acts al
in two times more at the dark-grey soil then at the black one.

Thus, with help of CEIS system we found the dependence of hop crop fro
viruses distribution (layer2 - layer3). Secondly, it is proved the influence of soil
on bitter substances number (layer1, layer2 - layer4). Consequently, we can pro
the quality of such final product as beer in dependence on ecological factor
surrounding ambience. Our recommendations are offered to the interested prod
of our region. The investigating the state energy distribution is based on inter
of two structures - power manufacturers and energy consumers. The manufact
offer energy services, distributing in some types (k=1..26) of the energy car
. The power consumers are represented by sectors of economy (j = 1..13), which
energy and receive its own profit. There are 9 energy transformation processes

1..9). Also there is basic exogenous variables: price of energy k in sector j; sharing of energy k in sector j; produced production by sector j.

The main parameters of energy distribution (k and j) consist of two-dimension space in CEIS system. The other factors are the investigated different layers. The share of energy carrier k in general energy consumption of sector j depends on time for the forecast; the coefficients, which are found by the least squares method, using experimental data. It is required, that the properties of additivity, symmetry and homogeneity should be carried out in different translog-functions.

Thus, it is possible to research of the processes of energy producing, transformation, and distribution in closed system in different economic sectors. For example, we can solve the problem of the optimal use of energy resource, especially for economic enterprises or for the state economy.

Economic ways of solving ecological problems in Ukraine

***Olga Lozovik**, Dnepropetrovsk State University, Ukraine*

The purpose of my report is to tell about economic measures of ensuring of environmental protection. First of all I want to tell that today ecological security is regarded as one of integral elements of national security.

Today Ukraine is a country with transitional economy, that goes through the period of ecological and economic crises. The main reasons are: excessive technological loading; high concentration potentially many dangerous factories ; great worn of main industrial funds ; increasing of numbers of cases of infringement the securing technology and exploitation of dangerous objects as a result of decreasing of discipline upon all levels of production ; excessive maintenance of toxic substances in the components of environment ; unsatisfied state of keeping utilisation and burial of high toxic radioactive and domestic waste.

Nowadays ecological situation in Ukraine needs more fundamental, urgent and serious interruption of economic mechanisms for providing the protection. Economy plays a great role in deciding ecological problems providing it with needed measures. This mechanism foresees the following economic aspects :

- Interconnection the whole managing, Scientific, Technological and economic activities of enterprises, Organisations with rational using of natural resources and efficiency of measures on protection of environment on the basis of economic levels
- Establishments of limits on using natural resources Wastes of products which cause pollution of environment and accommodation of these wastes and other kinds of products with harmful influence
- To give enterprises, Organisations and citizens tax credits and other advantages if they inculcate efficient technologies
- Compensation of damages by organisations in established order in case the law about protection is infringed and many others

For Ukraine going out of the critical situation the reform must be b on the following principles:

- The optimisation of structural and functional organisation of governi managing of using the nature and protection of environment
- Technological processes in the sphere of material production correspond to ecological requirements

In conclusion I'd like to put your attention at the fact that you ignore the point of view that the increasing of expenditures on environm protection narrows the opportunities of further development of productio social sphere of society/ deceleration of the races of economic develop can happen, on the contrary, if the attention to questions on rational us Protection and reproduction of nature resources is not put in full manner.

NATO: the New Dimension of Security

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The new dimension of security, which since mid-60s includes not military political approaches only have made the Alliance create the ultimately new stru – the Committee on the Challenges of Modern Society (CCMS). Its establishi 1969 was seemed to be the real recognising the environmental challenges facin international community.

Member countries have participated through the CCMS in co-operatio tackling problems affecting the environment. Under the auspices of the Comm there have been undertaking projects – the main form of the CCMS activity such fields as:

- Environmental pollution
- Noise
- Urban problems
- Energy and human health
- Other defence-related environmental issues.

So, we can see, that NATO tries to change its priorities from military i themselves to those which occupy the issues involving civil-military relation particular the control over the military activities that could cause the threa environment and human heals).

To important concepts characterise the CCMS activities:

1ly – it should lead to concrete action

2ly – its results should be entirely open and accessible

The last evidence, namely the DU-scandal over NATO operations out o 'sphere of the responsibility' (Iraq and Balkans), have showed the wide elements of openness in those spheres. But one more point we need to pay atte to is the use of radioactive elements itself. Could we hope that the results of

would not be of threat to human heals. So that issue should be of special for the Committee.

one more point to be of our attention is co-operation with NATO-Partners the PfP-countries and EAPC (Euro-Atlantic Partnership Council) -ones on issues of so-called military ecology. Meetings of the CCMS with EAPC country representatives take place annually – but it seems to be too rare taking into account involvingness the countries in NATO-led actions.

The key problem of the usefulness of those structures in the solving the problems military ecology is of financial matter. The modern army being very expensive it is difficult to find the means needed. But the new dimension of international safety makes it necessary. And the activities of CCMS – pilot studies on "Defence Environmental Expectations", "Environmental Security in an International Context" and "Environmental Management Systems in the Military Sector" – set a good example for those states and organisations for whom such activities are of less interest than for the highly-developed Euro-Atlantic ones.

Allow me to express my strong hope that the weak Ukrainian economy would pay an attention to those issues and the military budget – one of the weakest – would be environmentally safe and our partnership with NATO will help to reform our army and make it as safe for environment as possible.

The essence and systems of ecological marketing

***Alexandr Fedishin**, Crimean Academy of*
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The increasing anxiety of humanity about the quality of the environment results in the necessity to take into account ecological factors by entrepreneurs and to re-consider existing conceptions of management. As a consequence, theoretical basis of the ecological marketing concept is being developed.

When revealing the essence of ecological marketing it is necessary to note that this concept is expedient to be considered from two points of view:

- ecological marketing as a way of thinking;
- ecological marketing as an activity.

The concept of ecological marketing as a way of thinking is a compound and an integral part of a broader conception - socioethical marketing propounded by P. Kotler. In this concept the main goal of an enterprise is gaining profit due to satisfaction of needs and wants of a target group of consumers more effectively than competitors do, and simultaneous raising of the quality of ecosystems that are used.

Ecological marketing as a way of thinking demands imagining an enterprise as an ecological sub-system. As a result, the key attention is devoted not to the processes of value creating but to the ones of loss inflicting caused by the former processes.

In this case adaptation of organisation's mission to the ecological reali including the ecological goals into the system of organisational goals are so forms through which ecological marketing can reveal itself.

For the purposes of consideration ecological marketing as an activity th useful definition of it is the one offered by R. Putchert. He defines eco marketing as an aggregate of measures for realisation of exchanges with groups in order to attain the fixed quantitative and qualitative level of ecosystems.

The above mentioned definition allows to earmark the range of important First, it gives the opportunity to indicate the functions of ecological marketi its functions can be united in four blocs:

- analytical functions (for example, researches of demand for ecolo "clean" goods and services);
- production functions (for example, organisation of production of ecolo "clean" goods and services);
- sales functions (for example, organisation of ecologically safe cus service);
- functions of administration and control (for example, creation o information system for ecological marketing).

Second, the given definition makes possible to identify the elements o system of ecological marketing, such as enterprises that manufacture good services, "ecological mediators", consumers of goods and services, society controlling bodies. Analysis of exchanges between these subjects give opportunity to establish the essence of a product in the conception of eco marketing. As we think, the product here is understood as a sum of ecolo "clean" goods or services, contribution to maintenance and raising of the qua environment, and trustworthy information about enterprise's activity.

How they realise environmentally friendly building technologies while constructing at the recreation areas of Crimea

Andrey Grechka, Crimean Academy of Environ Protection and Resort Development, U

It is generally admitted that Crimean economy is highly influenced by touris gives Crimean budget some 7-10% of its income and this figure is to be incre Crimean government accepted a lot of programs of tourism development in the All these programs have at least one thing in common: they all state that tourism well as consulting services, is a highly prospective field of Crimean economy.

One of the mentioned programs direction is constructing in the recreation are many hospitality industry objects as possible, which will enable economy to re

sufficient volume of services that are still in deficit now. This means we should expect a great construction boom.

However, the distinguished gentlemen from the government did not find it necessary to indicate how exactly to realise this direction, which means one can build almost wherever he wants and the way he wants. We all know that construction, as well as redecoration, itself may be very dangerous for environment. Many construction in the recreation area may be even more dangerous for it concerns both nature and tourists (who may or may not leave us some money from their wallets depending on satisfaction).

Fortunately, those in charge of both construction companies and hospitality industry do really care about nature they are surrounded. Construction companies offered environmentally friendly technologies (gypsum board, wooden constructions, ready mixed water and acrylic-based coatings etc.) to hotels and sanatoriums that are now being redecorated or are under construction.

These new technologies touch on different fields of construction and so do not have any specific name. The biggest advantages of theirs, comparing to conventional construction, are as follows:

- Possibility to conduct construction only in cite borders (not polluting adjacent areas).
- Impossibility of toxic evaporation, since all finishing materials are based on acrylic resins and water.
- Long-term service life of the materials which enables to save money on reconstruction and redecoration of buildings.
- Rich and good looking finishing effects of the building, which gives guests total satisfaction.

Top management of hotels and sanatoriums willingly accepted the offer. Using these technologies top managers of Crimean hospitality industry showed that they can value natural resources in their disposal and take care of them, no matter if government tells them to do so or not. Co-operation of construction and hospitality industries shows us that our Crimean managers evolved to the state when they realise that without proper concern of the environment they can not make any far going plans for their companies.

Ecocycles

***Anna Gubar**, Sumy State University, Ukraine*

The modern civilisation has exhausted (settled) an existing ecological niche and promptly enters into a corkscrew of global crisis, which penetrates all aspects of our life: climate, ecology, genofund, international relations, morality, family, social organisation, technology. The crisis can have only two solvability: fast degradation of mankind with an opportunity of its disappearance as biological kind, or resolute transition to a new ecological niche, which provides qualitative change of the attitudes relations:

"Man - God",
"Man - Man",
"Man - Nature".

For a long time modern civilisation were taking decisions based mostly o logic account without serious consideration of general laws and ethical princ Therefore "successful" decision of one problem mostly resulted in appearan several others. As a result our present life reminds «Gordeev's unit» of prob and disagreements, which cannot be solved at existing system of thinking.

So, during production of minerals 93 % taken from mountain material go wastes. At the further cleaning of raw material 5 % more leave in wastes. Thus useful product, used by the man, makes only 2 % from general weight of extr raw material, others 98 % are industrial wastes, which often can't be recycled.

The decision of a problem can be found only with transition in upper syste the fourth level of thinking, to the fourth level of outlook, social organizatio technologies. To a civilization, in which the spiritual values are not only beau words, but also the essence of daily life – new human information society.

The planet the Earth together with all mankind goes now into the next cy evolutionary spiral. « The Heaven wheel » has finished a complete revolutio has returned human to origin of wisdom of ancestors, which should hel understand present day... According to the laws cycles, «The hub of the univ can give again the a beginning of qualitatively new race and new civilisation — the further distribution on the whole planet. And the location of Ukraine corresponds to a that place (due to ancient legends), where "the hub" of civilisa should be.

The territory of present Ukraine long time ago belong in special Cyrkum (Prichernomorye) zone, where the Indo-European were generated (Indo-Euro race) – community gifted with the most powerful civilisation-making qualitie this « The hub of the universe» there were first Indo-European states, a reprodu way of managing, today's best organisation of public life, came from there as basis of outlook of present.

Ecotaxation

Denis Igitov, Sumy State University, Ukr

In the 1st World Congress of Environmental and Resource Economists in Ve 1998 the declaration of close connection of World's economy successes in 2 century and increasing role of stimulating influence of affective econo instruments of ecopolicy was declared.

The most actual and important problem of ecopolicy now days is a reform of tax policy to increase the role of ecological taxes. This conception has got a n "binary dividends" The idea is to transform tax system to get double succ economic and ecological.

The main points of it are:

- "Binary dividends" are extremely actual in Europe because of order of the European Commission to industrial countries to reduce discharge of such matter, which force the Greenhouse effect, to 15% till 2010 comparing with 1990.
- Taxes on pollution of environment in developing countries should be the main instrument of eco-policy (they should not be increased, but the whole tax policy of the country should be reformed with registration of "binary dividends")
- The transformation of tax system in Ukraine may give even 3 positive results: economic, ecological and social.

The role of ecological taxes in the developed countries increases. The percentage of eco-taxes from all tax-return are, for example, in Ireland – 11.9, Portugal – 11.5, Great Britain – 8.2, Japan – 6.5, France – 5.4, Germany – 4.9, the USA – 3.2.

In Ukraine the eco-taxes are very limited. Such percentage in our country is only 0,008!!! For example why the firms should not pay the tax for ecologically polluted products as it is taken in the most of developed countries and this is not the only point should be mentioned about Ukraine. But ecological problems, I'm sure, won't be successfully solved till the economy is in crises.

Experimental methods of estimations of danger and toxic character of solid wastes

Galina Borovik, Sumy State University, Ukraine

Last time people of many countries pay much attention to the research in the field of wastes reusearbility. But even with the using of modern technologies minimally 65% cheaper than any another way of their liquidation. At the same time dumps maintenance very often leads to the significant environment pollution primarily of neighbouring territories that makes them dangerous sanitarily & epidemiologically. Because of this influence extent valuation of dumps to the environment is actual problem.

For valuation of the dump state & character of processes running in them substances mass temperature of the dump & organic compounds biodegradation extent is used. The feature of dump normal functionality is temperature increasing to 80°C that leads to the downfall or inactivation of pathogenic micro-organisms such as Salmonella spp, viruses, insect grabs & plant seeds.

An important indicator that let the valuation of ecological dump danger is the biodegradation extent of organic substances situated in the dump. The best methods of biodegradation extent valuation of organic substance as a dump condition indicator is based on the difference between allulose lignin decomposition speed.

The ratio of cellulose maintenance the lignin's one makes:

- for unoverworked wastes - 4,0;
- for partially overworked wastes - 0,9...1,2;
- for completely decomposed and stabilised wastes - 0,2.

The lowering of ratio cellulose-lignin is connected with higher lignin stabil and gradual slowing down of its decomposition process.

Nowadays not only in the Ukraine but practically all over the world ea express-methods of ecological danger wastes toxicity valuation which are needed in complex equipment does not present.

Ecological and Economical Advantages and Problems of Biomass Usage

Iryna Sotnyk, Sumy State University, Ukra

Today all over the world the usage of different types of biomass provides ab 15 % of global need in primary energy. If the mankind creates the condition renew the biomass, these type of resources will become practically an inexhaust source of clean energy.

The prospects of biomass energy usage are determined by the achievemen significant ecological and economical benefits in the case of its applying. ecological effects of such technology implementation are the agricultural industrial wastes' utilisation that positively influences on the environment. The m complete organic wastes' utilisation provides the reduction of the dumps' are decreasing of air contamination and reduction of water resources' pollution, cau by the processes of organic wastes decay and decomposed materials' getting into soil and groundwater. The usage of coal and biomass co-burning technol provides the reduction of greenhouse gases emissions, that is favourable for climate.

The economical benefits of biotechnology implementation are the reductio organic wastes utilisation' costs (in particular, the reduction of costs on wa pickling up and transportation, neutralisation of negative ecological effects, cau by the dumps' activity). Besides the usage of biotechnology for the conversio agricultural wastes provides the obtaining of non-polluting fuel, electri biohumus etc. and the additional income for agricultural firms. The produc ecologization on the basis of biotechnology usage allows the enterprise to gai "green" firm image, that makes the access to financial resources' obtaining m easy in developed countries. The important factor testifying the benefi biotechnology, is that the bioenergetics can become an effective mean unemployment prevention because of new working places creation.

Despite the above-mentioned ecological and economical advantages bioenergetics, many economical problems being very important for the widesp implementation of these non-polluting technologies have not been solved till to The main of them are:

- the reached advance in the sphere of production technologies on the bas biomass still cannot provide the sufficient cost reduction of fuel production f biomass up to the level of the fossil fuels production costs;

- the absence of the conditions for the development of biomass conversion modules production because of high production costs of products received on the basis of such technologies;
- problems of investment support of the biomass usage programs;
- the restricted biomass reserves will lead to the gradual increasing in prices and decreasing in quality of biomass.

Thus, the conducted analysis testifies, that the successful solution of the ecological and economical problems of bioenergetics will be depend not only on the rates of scientific and technological progress in this sphere, which will allow to find the cheapest and economic methods of organic wastes conversion, but also on the active state support of these processes, creation of the favourable investment climate.

Greener Transport Management

Liliya Vovchenko, Sumy State University, Ukraine

One of the ways in which logistics can affect the environmental is transport management. The logistics manager has a variety of a distribution modes at his or her disposal. Consideration of the environmental impact of transport strategies and their effect on Stakeholder relations must be integrated into the decision- making process. Where the logistic manager does not directly control transport decision making, the manager should use his or her influence within the supply chain to ensure that environmental consideration are taken into account.

The estimation of the modes of distribution in Ukraine shows the next: Rail transport is the most developed in Ukraine. By total length of track Ukraine takes fourth place in the world after USA, Russia and Canada. Road transport dominates the distribution market in the amount of goods carried. Pipeline and water modes are excluded from our discussion here because of their specialized applications. Transport by air causes significantly greater environmental impacts than all other modes of transport, and it also dominance of road transport have been summarised

- speed
- reliability
- cost
- flexibility

To attempt to answer the question: "Which mode is greener? ", we must evaluate the environmental impacts of the different modes of distribution. To compare benefits and disadvantages of rail with the same of road, we'll consider a number of environmental impact such as emission, noise & vibration, accidents, visual intrusion, congestion and use of resources.

Fuel is a major operation cost of road transport. Depending on the types of operation, fuel usage has been estimated at 8-23 % of total vehicle costs. The

financial benefit of improved fuel economy and load planning are clear , as are t environmental benefits.

Improved aerodynamics reduces the effect of air resistance, particularly at high speeds, reduces the power requirement and thus reducing fuel consumption as w as the environmental benefits of less exhaust emissions.

One of the factors of economic increase in Ukraine is usage of the advantage its transport – geographical situation as a transit country. It may be possible condition of modernisation of its transport infrastructures and creation of network transport-warehousing centres after example of interports, which efficiently in Western-European countries.

Efficiency, sustainability and global warming

Nadezhda Kostyuchenko, Sumy State University , Ukra

Today the problem of global warming is vital. We should expect that hav such pace of energy growth its quantity will be soon commensurable with amount of energy getting from the Sun. By the way, the danger of global warmi increases because of the raising of carbon in the atmosphere. This leads to greenhouse effect.

Certainly a lot of time will go before people will start to feel those aw consequences to which the problem can lead. But we can hardly hope compensation from our grandchildren to pay us back for sacrifices we might make reduce global warming today. As a result it can be global warming of the clima That means that the level of the world-wide ocean will raise because of the melting.

Much of the economic discussion of global warming to date has focussed on efficiency by comparing benefits and costs or finding the optimal level of warmi Even the effective functioning of the economy can't solve the problem. But should not stem from a desire to more efficiently produce the goods and services consume. Rather, we must do everything to allow future generations have at least same economic opportunities that we have today. This is what sustainability mean

Thus, two opposing forces are shaping the future endowments and the prospe for long-term economic opportunities. On the one hand is the depletion a degradation of environmental and other natural resources. On the other hand social progress in the form of growth in human and physical capital, technolog improvements, and evolving institutions. Determining the net effect of these t forces is extremely difficult. And at the same time it's not easy for modern society refuse from the progress and economic advance.

Efficiency and sustainability are rather economic aims. And choosing strategy you should remember that these two concepts are not necessarily in confli Efficiency criteria help us to eliminate inefficient policies, but they cannot be u to pick among the many efficient policies. The sustainability constraint could help make that choice.

Carbon tax is used as a strategy for decrease of future climates' degradation. Any economic activity that causes carbon to be emitted into the atmosphere would be taxed based on the quantity of carbon produced. The increased marginal cost of producing greenhouse gases would diminish their production and thereby decrease the costs of global warming. By the way, revenues from the tax would be dedicated to augmenting the endowments of future generations. But the rate of the tax is not enough to prevent global catastrophe.

The problem still remains unsolved.

Creation Of Healthy Sustainable Cities In Ukraine (Analysis Of The System Of Healthy City Indicators).

***Olha Lukash**, Sumy State University, Sumy, Ukraine*

Our post-industrial anthropological era is characterised by urbanisation. The main factors which are in the systemic relationship with the human health now are environmental. So, we should analyse environmental indicators, their influence on the human health in order to improve the quality of the environment. To do this, first of all we need a system of the comprehensive indicators, which would contain all environmental factors but be numerically limited.

The 'Healthy Cities Project' has been conceived and proposed by the World Health Organisation (WHO) Regional Office for Europe in 1987 in order to implement principles and methodologies of human ecology in the management and promotion of urban health.

According to this project there should be:

1. intersectional action of the city's public and private agencies dealing with the factors of the 'total environment' and with the health determinants.
2. community participation in supporting the control and promotion of environmental health and the promotion of healthy life-styles.

Many cities (nearly 40) of Europe adopted the project. But in Ukraine, unfortunately we don't have this system to work.

The system created by the WHO suggests indicators which measure both the physical, social and economic environment. But the main difficulty of implementing it in Ukraine is an instability in the all spheres of our life.

Up to now the European 'project-cities' use a set of 53 indicators, while some cities are adding other indicators corresponding to their particular concern.

In Ukraine it is possible to use some of proposed indicators. Like following:

A. Health Indicators: Mortality: all causes, Causes of death, Low birth weight.

B. Health Service indicators: Percentage of population covered by health insurance, Availability of primary health care services in foreign languages, Health information communication, Number of health questions examined by the City Council every year and others.

C. Environmental indicators: Atmospheric and water pollution, Chemical and microbiological quality of water supply, pollution level indicators as perceived by

population, Quantity of drinking water used per inhabitant per day, Relative sur area of green spaces in the city, Comfort and hygiene and others.

D. Socio-economic Indicators: Number of square meters of living spac inhabitant, Percentage of population living in sub-standard dwelling, Percenta families below the national poverty level, Crime rate and others, Abortion rat relation to total number of birth and others.

In an effort implement the modern concepts of health, the principles and va of current public health are synthesised in the well-known and effective slo Think globally and act locally. This slogan points to the combination of the gl approach of human ecology with the practical needs for action.

The expediency of the Dnieper reservoirs' drainage

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Due to the creation of the Dnieper reservoirs, such problems as: the mainten of population, industry and agriculture with the water, the increase w consumption volume and its more even distribution in the course of the ye maintenance of hydroelectric, nuclear, and heart power stations activity widening of water transport, recreation industry were solved. Simultaneousl creation of big reservoirs was connected with the submergence of large area land, modification of hydrological, hydrochemical, hydrobiological river condit with its deceleration of water interchange self cleaning.

In the 1/5 of the reservoirs territory (132 000 hectares) the concentrati algas' biomass is about 20 – 100 milligramme per litre. This is the course of plague. In the Kiev reservoir the accumulation of the radioactive silt is 100 mi tons. Due to the creation of the reserve water stock the agriculture lost 600 hectares of rich soils. The length of the banks, washed away, is about 1200 k future these losses will increase in 2 – 3 times.

Considering such ecological situations of the Dnieper reservoirs some sch propose to drain them.

According to the calculations of Ukrainian national centre of water resource drainage of the Kiev reservoir will lead to the increase of water pollution organic substances by 3-4 times. In Dnepropetrovsk, Dneprodzerzhinsk Zaporogye regions the Dniper river will look like a gutter with 20-30 mg per l organic substances. In the case of all reservoirs' drainage it will be necessa rebuild the system of water maintenance in all settlements long the river. 45 water consumers will not have water all year long. The water used by the eco will decrease by 2 times. 1/3 of energy consumers will not get energy. The de the Dnieper river will not be higher than 1.9 meters. The passenger service w the same as it was in 1955 (in 5 times less than now). As the most of "Ukrflot" won't be able to be used. It will be necessary to create new railways and junctions. The annual losses will amount to about 50 million UAH, without s anything about fishing and recreation industries.

In such way, if we calculate the losses of our country and nature, connected the stopping of a half of the industry outputs and the decrease of productiv most sewage-farms, it is easy to summarise that the way of ecological improve

the Dnieper reservoirs is not the drainage of them but the right way is to realise purposeful ecological policy of the government, correctly directed to the ough sanitation and maintenance of the ecologically safety functionate. This is be provided by the National program of the ecological sanitation of the Dnieper

Is it possible to achieve Sustainable development?

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The end of the XXth century is the point of global historical process which mines long lasting dynamics and directions for civilised development. At this the adequate solving of global and socially-environmental problems are ciated with the Sustainable Development concept.

Sustainability requires a measure of economic self-restraint and limited umption. But in the present world demographic and economic growth alike ease the pressure on the environment making global development unsustainable. further demographic and economic growth pains will include rising sea levels, loration of soil, scarce water, mass migrations from the South to the North, a ng cross-border crime rate as well as wars and epidemic diseases. What hanism is behind this "evolutionary" growth?

Some researchers claim that the engine which drives this "evolutionary" growth humpeter Dynamics: the intense innovative synergy of the economy, politics, nology and consumption. So maybe it is more reasonable to transform or raint Schumpeter Dynamics to make development sustainable.

But after Helmar Krupp there is no control over the way in which Schumpeter namics develops. The most fundamental reason for deficient self-controllability the part of countries, trading blocs or world society is the change in societal tures that has occurred in the last two centuries. Since the Industrial Revolution, rarchical structures have changed into collateral ones. This means that the ergy of Schumpeter Dynamics is generated by the side-by-side interaction of the nomy, politics, technology and consumption. The fundamental point – that there no centre of control or centre of gravity from which self-control might be exerted. litics and state are only monitoring society's evolution, not directing it.

There is a statement that only systems organised after a biosphere principle could vive in nature and society. Here the most important is the principle of centrism: the biosphere's centre is everywhere and periphery is nowhere. To be naged system must be decentralised. So maybe the absence of centre of control is the fundamental point for deficient self-controllability but a step on the way to sustainable development.

This shows that the Earth's ecological problems can't be solved by technology lf. Further more, technological innovations are necessary but far from sufficient ndition for saving humankind. The fundamental innovations (not to mention volutions) will also be required in economy, political and consumer operation to Earth survive.

Sustainability of sustainable tourism

Valentina Melnik, Free University of Amsterdam, Nether

More than any other human activities, tourism and recreation depend on quality of the natural and cultural environment for their continued success. How as countries or particular resort areas become attractive destinations for tourism recreation, unmanaged environmental impacts may undermine future earnings. tourism and recreation can affect the natural environment to such an extent tha can threaten their own existence. That is why development of tourism sustainable way is mutually important for its further existence.

The need for sustainable tourism has been recognised at the international lev documents such as Agenda 21 and in the European Commissions program "Tow Sustainability" (UNCED, 1992; CEC, 1993), in which the definition of sustai development was formulated as "development that meetss the needs of pr generation, without compromising the capacity if future generation to meet needs". This form of development involves the preservation of resources for fu generations, viable economic development and equitable social development.

Tourism is only part of the whole concept of sustainable development. Tou as it relates to sustainable development, is tourism, which is developed so that nature, scale, location and manner of development is appropriate and sustai over time, and where the environment's ability to support other activities processes is not impaired, since tourism cannot be isolated from other resource activities. The basis for sustainable tourism is seen as a compromise in integrati economic, social and environmental goals. It presupposes a balance among the t major above-mentioned elements.

The main principles of sustainable tourism were formulated in *Do assessment, 1995*

1. **Using resources in a sustainable way:** the conservation and sustainabl of natural, social and cultural resources is crucial and makes the long-term busi sense.
2. **Reducing over-consumption and wastes:** avoids the costs of resto long-term environmental damage and contributes to the quality of tourism.
3. **Maintaining diversity:** maintaining and promoting natural, social cultural diversity is essential for long-term sustainable tourism, and create resilient base for the industry.
4. **Integrating tourism into planning:** tourism development, which integrated into the national and local strategic planning framework and manage plans, and which undertakes environmental impact assessment of projects, plans policies, increases the long-term viability of tourism.
5. **Supporting local economies:** tourism that supports a wide range of l economic activities and which takes environmental costs and values into acco both protects those economies and avoids environmental damage.

6. **Involving local communities:** the full involvement of local communities in tourism sector is not only good for them and the environment in general, but also enhances the quality of the tourism experience.
7. **Consulting stakeholders and the public:** consultation between the tourism industry and local communities, organisations and institutions is essential if they are to work alongside each other and resolve potential conflicts of interest.
8. **Training staff:** staff training, which integrates sustainable tourism into job practices, along with recruitment of local personnel at all levels?, improves the quality of the tourism product.
9. **Marketing tourist responsibility:** encouraging tourists to visit sites during off peak periods to reduce visitor numbers, and when ecosystems are most robust. Marketing that provides tourists with full and responsible information increases respect for the natural, social and cultural environments of destination areas and ensures customer satisfaction.
10. **Undertaking research:** ongoing monitoring by the industry using effective data collection and analyses, is essential to (help) preventing, mitigating and solving problems and to bring benefits to destinations, the industry and consumers.
11. **Providing better information**: providing tourists with information about their destinations in advance and on site (for example through visitor centres).

From gigantic projects towards global thinking

Vladimir Melnyk, Sumy State University, Sumy, Ukraine

The most tragic fallacy of modern person is the definition of a hierarchy of values based on principle of momentary benefit that is accompanied by indifference to the global benefit (in scale of space and time).

It is spoken much about crises and global problems enveloping the world. Air, soil, water, flora, fauna, ozone, minerals resources and climate are exposed to destabilisation under pressure of industrial activity, which is guided by momentary economic interests, increase of a gross national product and extraction of maximum profits. At the same time, problems connected to environmental protection are taken "spoke in wheel" of effective development. Thereupon, considerable fear is also in the sphere of genetic engineering experiments, which often do not take into account the remote ecological consequences.

Till recently, the accent was put on quantitative indicators of economic growth; increase of gross product was the main economic task. Growth limitation conception was taken as false and directed against the progressive part of mankind. Such psychology promoted to gigantic building and nature-changed projects. And their size and prestige were determined just by largeness. The high-power hydroelectric station built on flat rivers excels all world analogues. 2.5 millions hectares of fertile grounds were destroyed under water of only Volga and Kama basins reservoirs. The scale of water conservation cost 209 billions USD on the period of 1966-1985.

The result was the agricultural unfitness of 1/3 (from 23 millions hectare) of drained lands because of nature destabilisation.

The accelerated rates of building and industrial "monsters" in one's turn required more energy and resources. The economy simulate to closed circle, in which resources and energy were spent for growing production of machines and equipment, which, in one's turn, required more energy and resources. Thus, the circle is closing, then new technological turn began also with so insignificant efficiency, in the meaning of procurement benefits for people and with a tragically great losses

The most important lesson of our recent history could be in perception of interdependence between morality and social development of society. Academician Lishachev D. says *"Recent our history severely has confirmed the true: in XX century it is impossible to realise the most bright social ideas by medieval, order methods, not turning into conscience of person, his reason, inter freedom, right of personal moral choice"*.

Today it is obvious, that the idea of straightforward and boundless development generated by industrial revolution, is erroneous. In as much as driving motive of such development is selfish and momentary anthropocentrism, it is inevitably implies the exhaustion of resources and disastrous load on the biosphere. Any hope on new technologies which is capable to rescue the world, is naive. The history shows, that each new turn of technical development entails new unpredictable and dangerous consequences for the mankind and nature. But it does not mean, that it is necessary to negate scientific discoveries. It is senseless to negate science, engineering and all modern civilisation. They need not to be negated, but to bend in spirit.

There is a need in new ethical substantiation of public development, for using of natural resources and advances in compliance with moral expectancies. *"To think globally - to act locally! "* - has become the slogan of sustainable development. An increase of self-descriptiveness of production used factors should become a compass of local acting. The information should substitute of using materials and energy.

Improving information for making decisions concerning ecosystem valuation

Yuliya Konoplina, Sumy State University, Ukraine

Public and private decision-makers want and need better information about the values of ecosystems. The level of public interest in environmental protection has never been higher. Although environmental and business interests disagree about when and how information about the economic costs of achieving environmental objectives should be weighed, all sides are concerned about improving the availability and use of information about ecosystem values in making policy decisions.

However, information often is lacking about: (1) the physical changes to ecosystems and the socio-economic consequences that might result from alternative courses of action; and (2) the "value" of those changes. Information is inadequate because the capacity to value alterations in ecosystems attributes is not well developed, particularly for ecosystem functions and processes. While some progress has been made in valuing certain aspects of ecosystems as commodities – recreation, for instance – much work remains before satisfactory methods for valuing all the services and attributes of ecosystems will be available.

One of the limits to providing sufficient ecosystem valuation information to decision-makers is that it is extremely difficult to measure fully the functions and processes of an ecological system or to predict the ecological impacts of disturbances to those complex systems. Furthermore, even where relatively simple ecosystems are fairly well defined, it is difficult to determine the causal relationships between human actions and ecosystem functions and processes. Much needs to be done before the consequences of human alternations to ecosystems will be well understood or predictable.

Guidance is needed on how to define the valuation information that is most likely to be decisive, on criteria for choosing among the available valuation methods, and on ways to build on existing information rather than to rely on expensive primary data gathering.

Chernobyl Nuclear Power Station Cover

Yulia Opanasyuk, Sumy State University, Ukraine

Chernobyl Nuclear Power Station has been completely covered this year. It has happened 15 year after the explosion. The whole world has been watching that date.

I wonder it has been economically based solution or just an action of the politicians. Lets try to estimate the damage of Ukraine's economy due to The Cover.

The first point is that the budget of our country is counted $ 500 millions less because of not completed power producing (about 1 million kWh). I suppose it will influence the Ukrainian's lives, because present day Ukraine can produce only 60% needed to provide the country with power.

Secondly the money to manage The Cover, to change the laws & to take off the station according the list of power – station has been given by the budget.

The damage inflicted upon Slavutytch is estimated about annual wages of workers. As far as know more than 5 thousand people are without means of existence.

To eliminate Chernobyl zone is to deprive many people ever treated Chernobyl all the subsidies. And the rate grow up also due to this occasion. The vegetables from that zone will be sold cross all the country that can be the cause of unhealthy products on our market.

The main point is that the prophylactic measures have been paid fro amortisation. Nowadays such actions have to be paid by the budget. Bu sarcophagus could be destroyed in the case of not transferring payments & it w result much more pollution of the environment.

The Nuclear Power Stations are considered to be the safest for the environ They don't even produce the wastes. The only reason of the damage could b second explosion. In this case it is greatly damage for the environment. Bu possibility of a new explosion is counted to be not very high.

To sum up the report I want to say that from the economical point of view Cover is not founded. I believe it's been just the political action of the Gover to consolidate the position of the international arena.

I offer the modernisation of the station & possibility to finish the work wi uranium supplement. The modernisation doesn't mean the full rebuilding o station; it is the automatic activity for safe work.

Monitoring, Evaluation, and Control of Environmental Polic and Programs, Sustainable Development in Developing Countries

Yuriy Derevyanko, Sumy State University, Sumy, Uk

The norm of sustainable development has been very popular in the w familiar by politicians, entrepreneurs and public. But the realisation is diffi especially in developing countries, where the backward technology, irrat institutions and low eco-awareness have blocked is implementation and the dile between ecological benefit and economical development can hardly be dealt Experiences in China show that a revolution in value change, scientific method and technological instrument is absolutely necessary to encourage a real sustai development grounded in sound human ecological principles:

1. A value change from cause-effect to network thinking, from physical bei ecological becoming, and from material to man and nature gain in planning, de and development is critical for understanding the complicated social, economic ecological interaction.

2. A revolutionary approach from numerical quantification to relatio identification, from mathematical optimisation to ecological adaptation, and f artificial intelligence of computer to intelligence of ecological man will certa change the methodological of traditional science.

3. Ecological engineering is a strong instrument for implementatio sustainable development, which combines hardware, software and mindware in totally functioning system, and encourage systematic rather than high technol bottom-up and flexible rather than top-down and rigid institution, and helping l people to help themselves through capacity building.

The community is the basic unit for sustainable development. Only when the of government leading, the citizens' participating, the enterprises' supporting, and

and technological guiding is harmoniously played, sustainable is expected to be realised. Informatization, decentralisation and are the main trends in the changing world, no matter west or east,

evaluation and control of environmental policies and programs are important in developing countries. Generally speaking, this process is critical effective implementation of environmental management programs, especially countries where the subject is not yet a tradition. The process of evaluating and controlling environmental programs, however, needs to the policy formulation stage to the implementation of the various emanating from the policy. Using Ghana as a case study to illustrate the monitoring, evaluating and controlling environmental programs in countries, a number of impinging factors were identified.

first is the ability to define appropriate environmental policies within the the prevailing conditions in these countries and ensure internal of the policy at both the micro and macro levels. In the face of the environmental damage caused in Ghana largely because of an absence of a and comprehensive environmental policy during the pre-1990 period, steps taken in 1991 to provide the country with a workable environmental action which now constitutes the basis of her present environmental policy and system. The objectives of the policy, although quite elaborate, are difficult to mainly due to the poor monitoring, evaluation and control of environmental The fundamental reasons accounting for this situation include inadequate lack of basic facilities for the institutions responsible for data collection, down mechanism for archiving data, inadequate funds, lack of requisite resources at all levels, poor co-ordination of multi-agency environmental and mediocre compensation for staff at post.

avoid these teething problems, the paper calls for drastic improvement in the evaluating and control of environmental programs. This can be achieved and implementing strategies targeted at removing the factors hindering The strategies include an effective environmental education program: development of appropriate environmental instruments; the institution of impact assessment, human and institutional capacity building; and the of international co-operation, partnership and network.

Economic and environmental regulation in water industry

Mensikova Michaela, Masaryk University, Czech Republic

Until pipes were invented and laid, there were competitive markets of water. There were sheet vendors selling in medieval times in every town in the world. They still in some parts of the Third World.

Piped systems caused dramatic changes in the industry. Water became cheaper, choice for customers was reduced. Soon there was only one firm in each region

owning water thus becoming a natural regional monopoly (Firstly, there
competing water pipeline systems laid in several towns. But whether as a re
free competition or municipal regulation soon there was only single Water Co
left for each designated area).

Whatever forms of the ownership the Water Company had there was a ne
regulation. Following two well-known concepts namely economies of scal
economies of people we can move natural monopolistic conditions in water ind
But not only this establishes the need for economic regulation. There are
aspects like environmental and quality ones. Quality of water has several par
cannot be recognised by the consumer. That is why some water quality contr
to be maintained. There are usually some standards set which must be maintai
firms. These standards and the achievement could play a role in misregu
mechanism. Talking about price regulation, regulators can choose among di
regulatory schemes such as Surplus Subsidy Scheme (presented in
"Ragulating without cost information. The Incremental Surplus Subsidy Sche
Economic Review by Sappington and Sibley (1986)) or the Incremental
Subsidy Scheme designed by Votgexeng and Fisinger or any other price mech
There can be either two separate or one regulator for both price and quality
opportunities have their positive and negative sides.

Nowadays the most important question is not about the number of regula
what to regulate to ensure the quality and price that allow all customers to co
at least the socially desirable minimum amount of water. These question
greatly among the countries. As was already stated earlier still in some co
where pipeline system does not connect all households water vendors are som
the only opportunity for buying drinking water. Even if there is a good p
network there can arise problems that some households are not able to cover
water.

As water is essential for the life there are a lot of environmental and ec
issues connected with water regulation.

Quantitative estimation of unorganised tourists as the ba optimisation of unorganised rest

Olga Serglenko, Tavrida National University,

One of the most essential problems of future development of tourism
Crimea is optimisation of the unorganised rest. In resort season of 2000 ye
of unorganized tourists stands for about 2/3 of total tourists flow. Generall
some forms of personally organised tourism.

First form is when a tourist comes to the Crimea and then buys a vouch
sanatorium or another institution of the rest. This category isn't so proble
the others but it is the smallest one.

Second forms of unorganized tourism – is tourists, who prefer big or small
resorts with more or less accommodation. They to find such towns and settl

here there is convenient transport, well-grown nets of food and trading shops and
fectly organised entertainment. So at season in the Crimean resorts takes place
erload of enterprises, which connected with the service sphere, overpopulation in
vate sector and breach of sanitary conditions. Also the conflict situation appears
th local inhabitants and personally organised tourists in the sphere of public
nsport, care parking, health-resources of resort etc.

Third form of unorganized tourism is the biggest one. This category is also the
st problematic in ecological, economical, administrative and legal terms. Tourists
attracted by neighbouring territories town and settlement, where there is good
nsport, accessible sources of water and shops with cheap food. The most
active places with all above-mentioned conditions in the matter of fact transform
temporal (2-4 weeks) accommodation, rather than the place of wild nature. At
same time such spots are not adjusted and serve all the needs of an
commodation. The firewood is still used for cooking; there are no enough water
rces and those, which exist, are in poor sanitary condition; there are no toilets
special garbage collectors. Eventually this leads to the pollution of seawater, soil
sub soil waters and destruction of vegetative cover. As a consequence of this
m of unorganized tourism should be said that there is a threat for attractiveness,
logical and epidemic safety of the South Coast of the Crimea.

Quantitative estimation of unorganized tourists as the basis optimisation of unorganized rest (methods of quantitative estimation)

Ponomarev Alexandr, Crimean Academy of Environmental Protection and Resort Development, Ukraine

Paradoxically personally organised tourism is so problematic, but there is no real
ntific strategy optimisation this kind of rest. In the basis of the solution of the
blem management this process lies first of all in quantitative estimation
rganised tourists, coming to the Crimea.

This researches must comprise all form organised rest. Quantitative appraisal
w in future determine qualitative characteristics of personally organised tourists.
in his turn allow elaborate the ways of regulations of process unorganised rest
Crimea.

Following these will lead to:

new injections to budgets of different levels;

increase of attractiveness of the Crimea as a tourism region;

wishes and requirements holiday-makers.

Return to quantitative estimation, it is ought to be said, this index is possible
ive one of some exist methods.

One of them Quantitative Detention of Unorganised Tourists in Specific Point of
e as the basic statistics information about realisation bread and bakery to

population. Well known, bread is the most prefer of the rest product which hum consume.

However, bread and bakery independent of year seasons, is the best diff product, and have consent, equal consume as inhabitants, as visitors.

This method elaborate in 1984, but doesn't loses essential for now.

At the same time, exist 2 problems:

It is necessary to check on some of norms.

It is difficulty follow stocktaking the bread and bakery because there are very small entertainment which make bread illegal or hide ours the volume of works.

Another one of methods definition quantitative is method as the basis on d external passengers flow for frontier Crimea.

Really, if we know dates about passenger who leave Crimea, enter in Crim quantitative of organised tourist, inhabitants and coefficient travels on the fron probably, make inhabitants, we may calculate how many unorganised tourists resorts in any moment time.

But in this method so exist some problems:

It is necessary to research percent children, which come and leave Cri without tickets.

It is so difficult, because count of all visitors is complicated.

Among of other methods quantitative unorganised tourists may pick out me of marketing selective researches.

However, it does not stand comparing with prior ones in terms of res reliability, though it may be used to selectively check results of prior methods. method should play an important role on the following stages of unorga tourism study by means of its quantitative estimation.

As a result of this work is acknowledgement of the fact that even with existing methods Crimean tourism segment under study is actually stays uns neither in quantitative nor in qualitative terms.

Economic influence on chemical disarmament in Russia

Miron Borgulyov, Moscow institute of physics and technology, R

The Convention on chemical weapons prohibition got into force for Ru 1997. According to it Russia is to destroy all its chemical weapons stockpil production facilities in 10 years. To be in time for it some weapons on some ar are destroyed on temporary destroying facilities. These facilities have no devi utilise their waste products and they are stockpiled in the tanks until bui permanent plants. That is not much less dangerous than stockpiling pure ch weapons. However, the permanent plants are not clear too. The technology av today in Russia is supposed to be risky for the environment. Russian state has not enough money for developing technology and evaluating all the ri because of lack of money the destroying facilities are built very slowly. No years no destruction facilities are built. Having the Convention deadli

Russian government is expected to built destroying facilities faster, but of much worst safety or even to destroy all the stockpiles by temporary devices designed for only episodic use for destroying leaking and damaged weapons. Now they have decided to build three facilities instead of seven that leads to necessity of transporting chemical weapons through highly populated territories.

Being late for the Convention may lead to loss of international prestige of Russia. Trying to destroy chemical weapons in time in today economical conditions leads to great harm for the environment and population. To solve these problems lots of funds are necessary. Because of lack of these funds chemical disarmament is provided with great possible risks for environment and population.

Environmental taxes in Ukraine in the process of new tax system formulating: who will pay for environmental degradation

Sergiy Velychko, Kharkov National University, Ukraine

Situation. The main conflict between economic development and environment is considered to be as following: who will pay for environmental degradation under conditions of economic growth. Society tends to internalise costs of environmental pollution while industry wants to make them externalities. Both they strive for leaving environmental debts for future generations. Dealing with this conflict state power makes priorities of further development through establishing environmental taxes. Accepted level of these taxes shows real cost of environmental degradation for industry, society and future generations. Besides, weak and not efficient environmental taxes rise risks of enterprises and reduce capital investments to Ukrainian economy. But foreseeing of more strong environmental regulations pushes potential investors away because in this case they have to bear costs of environmental degradation caused by previous usage. In addition, environmental taxes could have multiple influence on policy in other areas since they can cause or solve social and economic conflicts:

- promote elaboration of new environmentally safe production and improve enterprise competitiveness or rise prime costs and make it bankrupt;
- ensure environmental improving through internalising environmental costs or provide environmentally perverse effect;
- cause impact on employment;
- improve or deteriorate tax system.

It is planned in the paper to assess how existing environmental taxes influence different social, economic and environmental aspects in Ukraine with the purpose to find key disadvantages of them and optimise current tax system to promote maximum possible clear environment for minimum costs.

Current Ukrainian environmental taxes do not ensure needed quantity of financial entrances to budget environmental purposes. Then externalised costs are bought by society through financing environmental measures (especially liquidation of extreme ecological situations) from other non-environmental funds. In other cases

environmental problems solving are left for future and future generations wi for it. In terms of new tax system formulating existing environmental taxes ma have to be changed.

To be effective environmental taxes should account for:

-regional distribution of pollution;

-distribution of pollution between industry sectors;

-distribution of taxes between different social groups;

-environmental taxes in other countries;

-influence on enterprise assets;

Sources and methods of research.

-legislation: normative acts of Verchovna Rada, Cabinet of Ministries, Mi of ecology and natural resources;

-press: review of relevant publications (for example about taxes- free usa wastes as secondary raw materials);

-case-studies research (for example experiment with metallurgical enter about independent usage of 70 percent of environmental taxes for environm purposes)

-statistical data on environmental pollution and economic developm Ukraine regions;

-EU reports about use of environmental policy economic instruments;

-interviews with competent professionals;

-elaboration of propositions for new economic instruments usage such as eff charges for wastewater and tradable pollution permits system for Ukr metallurgical enterprises.

Importance of issue. Use of efficient environmental taxes will ensure alloc efficiency and costs efficiency of natural usage. Besides it can improve distrib and more effective use of all tax system and provide sufficient environm measures needed in Ukraine. Thus they may promote solution of main co between industry and society by internalizing environmental pollution and environmentally safe economic development really possible.

E-Business - myth that came true

Igor Tereshchenko, Sumy State University, Ukr

Not long ago the prevailing view was that the Net would be a parallel P Service or lending library - a new way to write notes to friend: family and colle or to look up interesting information. That is certainly happening world-wide: are five times more e-mails transmitted today than letters sent through the post. the telephone lines today carry more data than voice traffic

Today Internet has become more than a new medium for connecting people sharing information. It represents a transformation far more profound than g people access to sports scores and weather reports. It has emerged as a pow means for parties of every type to conduct interactions of every kind. As a result

Internet has become a very powerful change agent to do business. Organisations are looking through how they can transform their entire business model to serve customers better. In that respect, the Internet has fundamentally altered the nature of competition. Today, competition happens between business models more than between products.

Networking technology changes how things are bought and sold, from individuals comparing automobile prices to government bodies purchasing from their suppliers And the volume c Net-based business in financial services is expected to grow at least fourfold between 1997 and 2001.

But it is not just about buying and selling. That's why at IBM we have coined a slightly more descriptive term, e-business - electronic business. E-business is about all the vital transactions via the Net. Transactions among employees within an enterprise, between business and its suppliers, distributors, and retailers, and the very important transactions and interactions between governments and citizens, students and educators, healthcare provider and patients.

Networking expands the market. Think ofAmazon.com, the world's biggest bookseller. There's a four-man brewery in a remote Scottish hamlet that is now using the Net to take orders from beer lovers all over the world. This shows how the Net can make even a very small company into a global one, expanding its market reach. And the Open University, which operates out of the UK, offers degree courses on-line to students throughout the world.

The Net also slashes the costs of selling. Airlines estimate it costs about $8 to process ticket. On the Net it costs only $1. A face-to-face transaction with a bank teller costs the bank a dollar or more. On the net it can be completed for about one cent.

Networks also dissolve barriers like time and distance that once limited market opportunity. That means networks fundamentally alter the nature of competition. There's a little company in Pennsylvania making industrial workbooks for factory workers. Until now they drove their truck to a factory and sold their boots there and then. That limited their reach. Now they are on the Web, taking orders from Thailand and offshore oil rigs all over the world. They have become a global company overnight

The Net also allows you to extend your brand. Virtually any company with a Web site is positioned to challenge even the most entrenched brands, anywhere in the world.

But perhaps most importantly, it enables you to establish closer relations with your customers. By linking them to your company network, you can find out what their needs are, provide them with information faster, deliver services on-line, and check their satisfaction levels.

European integration as a basic of further environmental protection.

Oleksandr Neprytskyy, Vinnutsya State Pedagogical University, Ukr

The process of global integration is running in the whole world. From the o side such integration leads to new division of the world.

With the end of the cold war, old ideological divisions are over. Virtually nations proclaim allegiance to global markets. But a more intractable divisio taking hold, this time based on technology. A small part of the globe, accountin some 15% of the earth's population, provides nearly all of the world's techno innovations. A second part, involving perhaps, half of world's population, is abl adopt these technologies in production and consumption.

The renaming part, covering around a third of the world's populatio technologically disconnected, neither innovating at home nor adopting fo technologies.

These countries have the most outdated industry and the greatest pollutio would seemed they should the first be interested in protecting environment. Ind these countries have not enough money to put this problem.

Only the most developed states bring up the problems of ecology and tr resolve them. It is the general result of increasing the living level in these soci in the last twenty years. The scientific and political awareness have grown to certain point.

The process of European integration was long driven by matters relati quantity. Efficiency, economic expansion and profit were at heart of the constru of the Common Policy. Although the Treaty of Rome mentioned the need fo accelerated raising of the standard of living", qualitative issues were of rela minor importance in the early years of the Community.

Now, when a lot of governments understood the problems of our ecology some of them have the money to fight for environmental protecting they lea world to healthy production and protecting environment in the name of our chil

Regional cooperation among countries promises a quicker and more effe resolution of transnational environmental problems than any other approach, at l among countries with similar political systems and similar levels of econo development. Isolated national approaches may be handicapped by the fear reduced competitive advantage, bilateral or multilateral approaches have wo only when limited to selected issues of mutual concern, such as the manageme shared rivers, lakes or oceans, broader global approaches are handicapped by Increased likelihood of disagreement and deadlock and by the lack of compe authorities with the power to promote and enforce regulation.

Given the extent to which the causes and effects of environmental proble not respect national frontiers, the EU model may provide the only effective res to such problems, in large part because it encourages different states to coop rather than to adopt potentially conflicting objectives.

Problem of environment pollution: free- market and interventionist solutions.

Dmitry Ulyanov, Odessa State economic university, Ukraine

Economic development brings not only great increases in the standard of living of the people, but also a major problem – pollution.

The problem of externality occurs from the study of pollution. The term externality itself is used to describe any cost or benefit generated by one agent in its production or consumption activities but affecting another agent in the economy.

A Pareto-optimal outcome, which requires that there be no other amounts of clean water and paper that, if produced, would make someone in the society better off without making anyone worse off, is considered while deciding about the mode of intervention.

As externalities can cause the competitive market to determine the wrong set of prices for the products and, hence, cause the market to fail to determine a Pareto-optimal outcome, the followers of both main approaches propose the following solutions: the use of Pigouvian taxes, the use of standards and charges, and the creation of marketable pollution permits (for interventionists); the use of Coasian approach (for free-market followers).

An English economist, Arthur Pigou, argued that, when an externality exists, the government should tax the party causing the externality by an amount equal to externality. This tax will force the causing party to internalise the externality and take it into account when deciding how much pollution to produce. Proofs have been presented that such solution is ineffective.

Another way to intervene in a market with an externality is through a system of standards and charges. The government first determines standard – the amount of damage caused by the externality that it considers acceptable. It then levies charges on the agents causing the externality in order to force them to reduce the externality to the acceptable level.

Finally, the system of marketable pollution permits allows a firm to pollute the environment by a specified amount. To establish the pollution permit market, the government first determines the amount of pollution it considers tolerable, and then offers for sale the number of permits that will result in this amount of pollution. Such approach has some advantages, which has been proved by experiments.

Free-market advocates point out that Ronald Coase argues that, when an externality exists, the agents involved will be able to correct the effects of the externality by private agreement if they can costlessly negotiate among themselves. Coasian solution can threaten with misleading effects of other sorts.

To find an optimal solution to the problem of environment pollution externalities, every approach should be studied carefully and some composition of them should be used in practice.

Student's conference in solution of problem of Dnipro

Berezucky I.V, NGO "Ecoforum", Uk

The modern condition of environmental natural environment in Ukra characterised as ecological crisis. One of basic aqueous sources of our countr river of Dnipro which qualitative indexes do not meet the requireme specifications and water from it arrives in city of Kharkov on the canal.

The participation of non-state organisation in solution of problems of ba the river of Dnipro is one of major problems. To decide this problem it is po by different routes but one of such directions is the scientific work of the stude this direction.

Now difficulty precisely to establish at what stage of developing crisis th our country but who is possible precisely enough to define those is guilty in me! It is those who live, work, growth of children and do not undertake what that how to change those negative processes occurring in a society in the rela with a nature.

The essential role in this purposeful work on change of the relatio environmental natural environment belongs NGO which should influence ch outlook of the population and show as the direction of intensive use of n resources, pollution of biosphere as a whole and its making compone pernicious on which goes now in Ukraine.

The ecological association "ECOFORUM" was created in 1998 in polite university and one of the basic directions of its activity is the work with st youth. Therefore annually members of ecological association "Ecoforum" will out a urban student's interuniversity conference " Applied ecology ". Subject conference: ecological problems of Kharkov - way of the decision, pro ecological aspects of formation and education of the experts 21 centuries; ecolo safety of the enterprises, agriculture, transport; modern engineering and equi of protection of an environment from polluting substances; monitori environmental natural environment; ecology of the man; processing and burial wastage; information and expert systems in ecology; ecological manage manufacture and municipal economy; technology and equipment are preserv nature resource; stable work of the enterprises abduction of water - basis reliable ecological condition of an environment of region. As it is visible fro offered subjects the organizers of a conference have tried to capture as wider of questions is possible which as a whole allows to highlight a condition of n environment in the Kharkov region and to reveal influence of this conditi health of the people, to show ways of the decision of these problems etc. But important is the participation of the students in this work on the decisi ecological problems and formation at them ecological intellection, which allo consider the actions and acts in the world a nature under a corner of the c attitude to a nature and everything, that it is determined in system by "hum nature".

The association plans to continue work on realization of student's conferences. interest to them at students high enough. By results of a conference the theses of the reports of the students and post-graduate students are published which then are transferred in libraries highest of educational institutions and central library of city.

Perspective the realization of the international student's conferences on the above-specified direction is represented. By essential distinctive feature of our conference this free-of-charge participation of the students and the letter of gratitude in administrations for active participation in work of a conference and also incentive gifts.

The significant help in realization of a student's urban conference is rendered by the mayor of city of Kharkov and department of ecology of urban executive committee.

Conditions of wood fund ground privatization.

Vita Andryéyeva, Inessa Mishenina, Sumy State University, Ukraine

The transfer of ground to a private property should answer principles of justice and efficiency.

The first principle of justice consists that each person has the right on wood resources. Therefore, each citizen of Ukraine should have the right to deriving of a plot and right to dispose of it at own discretion.

The second principle of justice assumes that each person which has the ground rights should pay the rent. The ground was created by a nature without application of a human labour. The rent for ground (without cost of improvements) belongs to all inhabitants of region. Rent payments for wood grounds should be going by state organs and be spent under public monitoring for needs of the inhabitants on an equivalent basis.

The use of wood grounds should not contradict requests of efficiency.

The first request of efficiency consists that for those who has the right to use of ground, should be guaranteed, that their rights not will are terminated. Such guarantees are required to make attractive to the people entering of improvements, or in the form of construction, entering of fertilisers, effective turn-over of felling etc.

The second request - the rights on wood grounds should be sold in the market freely. The effective utilisation of ground assumes that the person, who can use it more productively, will be capable to acquire the rights on ground under condition of indemnification to the former holder.

The third request - there should be a system of a solution of problems connected to a situation, when the use of ground by one person influences neighbouring grounds. If the consequences of it are negative, the person should be fined to reduce sizes of similar activity.

The wood resources play the vital role in shaping global ecological and economic sustainability. Unfortunately, really acting programs an effective

utilization of woods are not created on international level. There is an emergency to speed up development of sustainable use of wood resources for global ecosystem.

REGULATORY STANDARDS IN THE WTO Comparing Intellectual Property Rights with Competition Policy, Environmental Protection, and Core Labour Standards

Oleg Negreba, Sumy State University, Ukraine

With the implementation of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), intellectual property rights (IPRs) become, on the part of WTO member states, obligations of commercial policy that cannot be escaped. Intellectual property rights are thus enforceable rules governing establishment and treatment of the rights and terms of competition. Adoption and enforcement of at least the minimum standards required will procure considerably stronger global protection of intellectual assets.

Observers often write about TRIPS as though the rules it contains are comparable to disciplines against trade restrictions. While there are certainly parallels, particularly to the extent that weak IPRs interfere with trade, these two policy regimes differ fundamentally. First, trade restrictions are border measures that inherently discriminate between home and foreign interests. The same cannot necessarily be said about the partial harmonisation of IPRs standards put forward by TRIPS. These standards apply without discrimination to domestic and foreign interests, meaning that the TRIPS Agreement extends the reach of WTO rules into domestic business regulation.

Second, border restrictions amount to inefficient taxes on particular forms of economic activity. Their reduction or removal via trade liberalisation is widely viewed by economists as a movement toward national and global welfare maximisation. Put another way, free trade in goods and services generates the maximum gains from efficient global resource specialisation, with each country benefiting. Protection of IPRs, in contrast, tilts the balance toward incentives for innovation while raising the costs of gaining access to the fruits of innovation. This outcome could raise global efficiency in a dynamic sense but cannot be expected to increase welfare in all countries. Again, there is no obvious benchmark of optimality against which to measure global IPRs agreements.

Third, WTO trade rules are aimed at liberalising trade in products without reference to the processes by which those products are made. While exceptions to this principle are provided in GATT Article 20, they are rarely invoked (Hoekman and Kostecki, 1995). Many of the standards that must be observed in TRIPS, in contrast, are explicitly about production processes. This is clearly the case with respect to process patents, industrial designs, the use of integrated circuits, and plant varieties. It holds also for trade secrets and infringement of software copyrights. Weak protection for these processes produces goods that are not necessarily inferior or dangerous for consumption relative to good produced under strong protection.

Under TRIPS, not only must such goods be excluded both from domestic production and international trade, but the underlying processes must also be modified or ended. In effect, TRIPS ushers into the system of global trading rules an extensive mechanism for disciplining processes (standards) in addition to products.1 This fact raises the question of whether other standards belong in the WTO. Critics of TRIPS wonder why, if IPRs are included in the WTO to protect capital, labour standards are not also needed to protect workers, environmental regulations to protect natural resources, and competition policy to protect consumers.

Landscape-architectural organisation of parks

Rybalko Marina, Sumy State University, Ukraine

An agreeable region provides for its people all types of outdoor recreation: urban parks, plazas and squares which are the public gathering places. These are best interconnected with shaded pedestrian walkways and furnished with fountains, benches and attractive lighting to make them safe and pleasant. There will be horticultural gardens, museums, aquarium, aviary and zoo and for the sports enthusiasts the athletic fields, stadium and arena. There will be the concert sells and amphitheatres, parkways, picnic areas golf courses and swimming pools. Where water frontage permits, one may find public beaches, fishing piers and marinas. There will be hiking, biking, and bridle trails, forest preserves, fishing lakes, hunting lands and plant and wildlife sanctuaries.

To ensure a complete park and recreation system, it is essential that each locality provide for it's own particular local needs.

Regional parks or forest preserves will supplement other community or municipal recreation facilities by providing large conservation areas for natural water sports and picnicking. Development is best limited to the provision of access roads and parking areas, toilets, shelters, water supply and rough-mowed meadows around which picnic tables are grouped.

In acquiring the sites, consideration should be given to depleted and eroded farmlands, refuse dumps, spoil banks, gravel pits, and strip mines. With regarding and reforestation, these blemishes on the landscape may be transformed into attractive properties.

A vast social recreational scale demands great care of the present recreational areas and resources.

While investigating the recreational resources one must appreciate differentially the landscape by these fundamental aspects: A. functional; B. hygienically; C. aesthetically; D. economical; E. protection of nature.

The results of the investigations must be doubled:

a) the present state of the landscape;

b) the estimation of the foreseen changes. The investigation must be differentiated for a detailed designing according to the requirements of the main recreational forms.

The organisation of the recreational landscape must be most important princip of architecture planning, including preservation of natural landscape.

The essential feature of a superior recreation system is that it be complete.

A great attention must be paid to reconstruction, planning, designing an projecting of Sumy parks.

Ecological Concerns in Business as the Third Dimension of Green Products

Nataliya Vakulishyna, Sumy State University, Ukrain

Sustainable development for business as "adopting business strategies an activities that meet the needs of the enterprise and its stakeholders today whil protecting sustaining and enhancing the human and natural resources that will b needed in the future" is one that operated according to this definition on both it operations and products.

The sustainable business has interdependent economic, environmental and socia objectives and understands that long-term viability depends on integrating all thr objectives in decision making. Rather than regarding social and environmen objectives as costs, a sustainable enterprise six opportunities for profit in achievin these goals.

Manufacturers in all areas now realise that price and quality are not the only criteria by which to judge a product. The products which emerge from the new environmental philosophy have a third dimension of the idea of greenness.

The "green" business which are relatively low in number today in Ukrain comparing to the number of companies that are trying to achieve this goal focuse on operations and products that minimise damage to the environment. As the world experience shows, it successfully produces such items as mercury free batteries, energy efficient technologies, natural cleansers and products made from recycled materials and many other environmentally friendly and safe products.

But...a truly green product does not exist. No consumer product contributes to environmental health. The best only cause less harm. Progress in this sphere ove last twenty years has been significant, both in terms of enthusiasm and achievemen as a result of awakening up to the ecological crisis and translation rhetoric into a coherent philosophy which has guided the manufacturing progress.

A smart green company will tap the sensitivities of the consumer and industrial markets by emphasising the environmental attributes of its operations and products. A green company may make the transition to sustainability as it develops the values of preserving or restoring long-term ecological integrity and promoting societal health and well-being.

The role of business in the transition to more sustainable behaviour is to developing and market, at a profit, the products and services that will help solve many of vital problems. Given the scope of change that in necessary, the opportunities are enormous. For that we must reduce our energy and resource use at

least 20-fold, primarily through efficiency advances, if we are to live within the Earth's carrying capacity.

To start green business within the Ukrainian conditions as well as in any other country of the world we should note that product modifications alone will not be enough. Entirely new technologies, designs, concepts and ways of working, living and transporting goods and people will be enquired.

In order to thrive sustainable enterprises need bigger markets for their products, services and technologies. Increased public awareness, enlightened procurement policies and strong enforcement of environmental regulation will increase demand. Overtime, as all products and services are made to pay the full costs of the environmental and social burdens they cause, sustainable enterprises will have a considerable advantage in both consumer and financial markets.

Measurement of the structural post-industrial development towards the information society

Maxim Bryukhanov, Sumy State University, Ukraine

Taking a global measure of the extent of structural change of the major sectors for the main industrialised countries, it is clear that there are basic similarities in the patterns of structural change among countries during the whole period: agriculture is declining while services are increasing as a share of overall employment and GDP. However, countries differ widely in the sectoral composition of employment, in the proportion of structural adjustment, and in the degree of flexibility which work organisation displays in response to changes. On the one hand, from 1960 to 1973, some countries showed an increase in structural changes and industrial employment (Japan, Spain, Italy and France) and GDP shares (Japan and Spain), implying a significant catching-up in comparison with the leader country (US). On the other hand, from 1973 to 1990, the contribution of services to GDP has declined in the two countries with higher productivity growth (Japan and Germany). Furthermore, structural change can be considered as a source of growth. This applies, in particular, to countries in which employment is high in agriculture and productivity is low, since labour can be reallocated to other sectors of higher productivity.

A more accurate approach would be to disaggregate the three-sector evolution of GDP and employment in relation to the different trends in each individual sector, so it would become possible to distinguish growing, medium and declining growth activities. A complementary measurement of structural change in terms of direction could be obtained by classifying the branches according to their R&D intensity as: high, medium and low technology .The latter approach would be useful in helping to evaluate the direction of structural change, but would fail to identify the transformations taking place between industries below the aggregate levels. Additionally, it could not connect the change in the structure to other factors such as shifts in domestic demand, foreign trade, technical change or input productivity.

A more precise definition of compositional structural change considers chang in the sectoral composition of an economy output, value-added or employm shares reported for different sectors, and the changes in the inputs used by them implies a disaggregated examination by sector of the capital and labour used, and th interrelations among sectors (intermediate inputs), both domestic and imported. Th advantage of this method is that it provides a detailed image of how the structure o an economic system and its linkages are at one moment, and how they hav unfolded over time. However, its weakness is that it does not allow the examinatio of the institutional factors behind the compositional change.

Evaluating ecosystem states: Two competing paradigms

Victoria Shapovalenko, Sumy State University, Ukrain

Society faces with problem of environmental management and traditional approaches to resource management because of inadequate today's methods.

The main purpose nowadays is to compare alternative approaches to evaluating natural resources over time. The Multifaceted problem of temporal comparison of values turns of a cluster of conceptually related foundational questions:

1. How should we measure and compare values that are experienced at different times?

2. How should we place a value of the risk of irreversible loss of a natural feature or productive ecological process?

3. How should we evaluate changes in the scale of an economy vis-a-vis its ecological and physical context?

Methodical disputes become from differences in language and methods of measurement reflect differences in beliefs about what are really the constituents of the existing world.

Ecological economists accept an appropriate? mix of natural and human capital. Ecosystem health and integrity into policy analysis are movements to define structured begrust from the current to the future generations.

The main stream economists think that resources are fungible and the main task is defining a rational and intergenerational equitable investment policy. The future cannot fault us as long as we leave the next generation as able to pulfile their needs and desires as we have been in our generation.

Three principles are too abstract to be supportable or refutable by empirical evidence. The problem in extrapragmatic disagreements is that there exists no shared conceptual basis, no conceptually accepted methodology of intellectual and policy agreements. Several scientific disciplines are involved in disputes, they have both theoretical differences and differences regarding the role their disciplines should have in governance and in society. So there can be some "wars" between them in order to gain more territory and more grant funding.

All disciplines accept that ecosystem changes affect their measures of human welfare and they can be expressed as dollar figures.

The decision of these disagreements is Ecosystem Valuation Forum, where the current crisis in policy analyses and formation can be discussed. The first way is to concentrate on finding solutions of developing a more interdisciplinary language. The second is to do with real case studies.

One version is known to be as "environmental risk decision square", what represents issues separating ecological and mainstream economists in neutral terms.

I think that ecologically adequate paradigm of management will be multi-scalar, because subsystems changes faster then larger systems do (hierarchy theory).

The ideal outcome world be a set of integrative models of environmental problems in which information from multiple disciplines is integrated into a rational, long-term approach to environmental management.

The conclusion is that scientific approach to the environment cannot be resolved within narrow disciplinary boundaries.

Information Industry: Growth Engine of the Global Economy

Andrey Sakhno, Sumy State University, Ukraine

Information Technology, and in particular the advent of the networked society, is changing the very way we work and live. Networking changes how things are bought and sold, expands the market, cuts the costs of selling and dissolves barriers. Not only are people networked: more and more products, equipment and appliances are linked together. For this development to flourish, a number of challenges and issues need to be addressed.

The "information industry," which is emerging from the technology and market convergence of what we call the four C's - computing, communications, content, and consumer electronics - is fast becoming a mega-industry. It is already the biggest industry in the world. It is also all-pervasive. It has a profound effect, not only on most other industries, but on the very way we work and live.

The 'Information Industry' is more than the sum of its four components. It is evolving into THE engine of growth in today's global economy. There are three important technological drivers at the root of the industry

The first is the processor. Its power doubles every two years. To give you an example of what that means in concrete terms, the $3000 laptop computers college students carry in their backpacks are twice as fast as the supercomputers of the mid 1970s, which cost around $1 Million.

The second driver is data storage, and its evolution is just as impressive. Its density doubles every year In the early '80s, the standard unit of computer storage, one megabyte, cost about $100 Today it's 10 cents and in two years it will be two cents.

The third is communications. Again, the speed has doubled every three years until now. By the end of the year 2001, scientists expect to transmit one Trillion bits per second. That means Hollywood studios could transmit a movie to cinemas in a matter of seconds.

Nowadays the most powerful example of how the information industry is changing our lives and fueling business is networking. We are rapidly moving towards the so-called "connected society" where everyone is connected to everyone and everything. The Internet is the most visible manifestation. Perhaps the most striking aspect of the Internet is its speed of adoption. Consider that in the US, radio took about 30 years to attract 50 Million users. Television took 13 years. Cable television took 10 years. The Internet did it in half that with double the number of users. Today, some 130 Million people are online around the world. It is estimated that there will be 300 to 400 Million people on the Net by the end of the year 2001.

In fact today precisely the information industry pushes forward and fosters such processes as globalisation, individualisation and the technical progress itself. The new era in the history is approaching extremely fast and we are to be as close to it as possible.

Maintenance of the biodiversity of the water systems - the key to the sustainable development of the society

Y. Zavoda, NGO "Zeleniy svit", Ukraine

The sharp decrease of the fish resources in the Ukrainian water systems occurred during the last 20 years (over 3 times). In the South of Ukraine, in Nikolaev region in particular, the situation with the fish reproduction is critical. One of the main reasons of this is the intensive water scoop from the rivers for the needs of agriculture having the absence of the protective constructions for fish in water scoops. According to the data of the Institute of the Hydrobiology of the National Academy of Sciences the damage from only the water scooping pump station in Ingulets (Nikolaev region) during the summer period caused by the low efficiency of the fish barrier is 30 mln. young fish. Other species are also affected and being damaged and together it leads to the degradation of the water systems.

The fish barriers are also absent in front of the turbines of the hydropower stations and this is the world problem. Observing the situation on the Kakhovskaya HPS we have to conclude that the blades of the turbines kill the most productive (fertile) fish (very often people gather the dead fish near the HPS).

Dealing with the problem of the decrease of the fish resources of Ukraine during last 6 years the members of the Nikolaev regional ecological association "Green World", which consists of the scientists from different scientific establishments including the National Academy of Sciences, inventors, including the author of the electro-emulsion method of protection of the water scoops from trapped fishes Batov A. P., the specialists of the different branches of industry, students came to the conclusion that destruction of the young fish and other species on the water scoops and adult fish on the HPS turbines' blades are the permanent factors leading to the degradation of the fish resources and biodiversity in general.

The tests of the electro-emulsion method of protection of the water scoops from trapped fishes organised by the activists of the association with the specialists of the

water and fish management establishments engaged in and of the device "Spektr" (the basic principle lies in generating the waves with the frequencies that are in definite spectrum) in particular, showed its high effectiveness (90 - 100% against 60-70% in traditional devices).

Unfortunately, the motto of the conference even after improvement "Economics for myself and for ecology" cannot find realisation (or finds with great difficulties) in Ukraine yet. Our experience is the clear proof of this because despite the support of the specialists of the relative establishments and the Deputies of the regional Rada, money for the introduction of the project were given neither local nor central government establishments.

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