SCENARIOS FOR A CO-ORDINATED APPROACH 
TO SUSTAINABLE S/T COOPERATION 
WITH THE EASTERN NEIGHBOURS OF THE EU 

SCOPE-EAST

Identification of targeted research areas in which substantial contribution 
by Ukrainian S/T institutions 
to the specific programme “Cooperation” might be expected

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HEALTH
Health of the population is now viewed as an indicator of social and cultural progress and the overall quality of life.
The major problems faced by Ukrainians today and which have been getting most attention lately are maternal health and child mortality; the spread of HIV/AIDS and tuberculosis.
The Ukrainian government supports the maternal and child health and ranks it high among state priorities. The HIV/AIDS epidemic in Ukraine poses a serious threat to national security.
According to official statistics, as of December 1st, 2006 there were over 70,000 officially registered HIV-positive people in Ukraine. From the end of 2006, in Ukraine started the two largest HIV/AIDS programmes in Ukraine: “Overcoming HIV/AIDS Epidemics in Ukraine” financed by the Global Fund to Fight AIDS, Tuberculosis and Malaria and the USAID-supported project “Scaling up the National Response to HIV/AIDS through Information and Services”.
Tuberculosis is a second important problem in Ukraine. According to the official statistics the epidemic threshold has been significantly exceeded and as of beginning of 2007 there were 85 sick people with tuberculosis per 100 thousand. Another problem for Ukraine is that there are no modern laboratories and necessary methods for diagnosis especially for diagnosing. In 2006, the Foundation for Development of Ukraine of SCM Company decided to fully finance a pilot project on struggle against MDR TB in Donetsk’ region. Two million euros were allocated for purchasing the necessary diagnose equipment and staff training. Despite the some progress achieved in the most problematic areas, the general condition of the nation’s health is unsatisfactory; the mortality rate of the population remains too high, including early death rates (child, maternal, able-bodied). The general approach to financing the health care system in Ukraine has not changed since the Soviet times when it was mandatory, based on joint taxation and provided virtually free to the public. The Constitution of Ukraine, adopted in 1996, declares that “state and community health institutions provide medical services free of charge; the existent network of such institutions may not be reduced.” The citizens’ right to health insurance is also guaranteed in the same Article of the Constitution. Since most health facilities in Ukraine are state and community run, despite the existence of the private health care sector, the state budget and the budgets of local and regional self-governing bodies remain the major official source of health care financing. The proportion of the budget allocated for health care in Ukraine cannot meet the needs of the public. Public Health in Ukraine needs to be adopted accordingly to requirements of the European Union and Constitutional Reforms. The distinctive particularity of the modern stage of legal reform in Ukraine is an introducing of the rates of International legislation in the domestic legal system. The problems of adaptation of normative-legal base of Public Health become exceedingly actual. The state must ensure by planning or directly a possibility of access to different types of medical care to all people, to plan a financing system so as theoretical right on the Public Health could realize and that people, profits which do not allow to cover a medical provision cost.

KEY ORGANISATIONS of UKRAINE IN HEALTH

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Principal research areas:
- development of a novel optical and inverse problems methods for micro interferogram processing for early in vivo diagnosis and evaluation of response to therapy;
- therapeutic influence of electromagnetic waves on biological objects: From modeling towards Clinical Applications;
- Salt Effects in Biological Systems Interpretation Express analysis method of chemical composition of malignant tumours

B.Verkin Institute for Low Temperature Physics and Engineering
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Principal research areas:
- study of biomolecular processes at cryogenic temperatures;
- cryopreserved stem and not stem cells suspension in autologous plasma, derived from cord blood;
- development of instrumental method of determination of biomarkers of differentiation of stem cells to pancreatic ones;
- biosensors based on carbon nanotubes;
- directed search of new effective bisquaternary ammonium antimicrobial agents;
- elaboration of anticancer agents based on the binding of oligonucleotide-metalloporphyrin conjugates with telomeric DNA

Kharkiv State Medical University
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Principal research areas:
- mitochondrial energy metabolism deficiency in Ukrainians populations: genetic epidemiology and pathogenesis of some clinical forms;
- structure-metabolic adaptation diabetes mellitus by not injections of the forms insulin;
- the role of cellular, immunoinflammatory and neurohumoral mechanisms of congestive heart failure (CHF) for effects of neromodular therapy;
- genus-specific detection of proteus by development of primers for polymerase chain reaction (PCR);
- impairment of bioenergetical homeostasis in patients with chronic and acute cerebrovascular disturbances;
- elaboration of medicamentous and nonmedicamentous treatment methods without immunedestructive and toxic actions;
- improvement of treatment of viral, bacterial infections on the basis of compensative-adaptive reactions of patients;
- experimental and clinical substantiation of development of new antimicrobial preparations and methods of selective antibacterial therapy of septico-purulent diseases as well as application of the results of the research in practice of public health;
- hepatic and renal dysfunction in formation of atherosclerosis in people with Diabetes Mellitus;
- stratification and correction of cardiovascular risk in patients with metabolic syndrome
- Primary prophylaxis of mental health disturbances of youth;
- the substantiation of pathogenetic mechanisms of harmful influence of modern information technologies on human organism and preventive activities development for human health protection;
- the mechanisms of parasite-host interactions under different parasitosis;
- the biochemical mechanisms of parasite-host interactions under contact intestinal invasions in children;
- morphological and biochemical characteristics of neuro-immuno-endocrine homeostasis in the offspring of parent's smoking during pregnancy;
- preclinical study of drugs for treatment of broncho-pulmonary pathology in pediatric practice

Mechnikov Odessa National University
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Principal research areas:
- the development of new antimicrobial substances effective against resistant strains;
- development of the device for diagnostics of a psychophysical condition of the person;
- the development of microorganism (yeasts, bacteria, bacteriophages) based models for pharmacological and toxicological properties studying;
- monitoring of epidemically important bird species for creation of a system for early detection of extremely dangerous infection causative agents that are transmitted by migratory birds via Zmeinyy island to Ukraine and Europe

Institute of Molecular Biology and Genetics
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Principal research areas:
- gene expression profiling for diagnosis and monitoring of gliomas and meningiomas;
- development of the technology for cellular cardiomyolasty with using adult mesenchymal stem cell lines;
- rauwolfia serpentina tissue culture as a promising source of pharmacologically valuable biologically active substances;
- proteomic studies of celandine alkaloid action in malignant and normal cells;
- DNA base tautomerism as a source of gene text damage especially enhanced in malignancies and how to harness it;
- challenge of excitotoxicity: from molecular mechanisms to prevention;
- the role of potential brain tumour markers and their protein partners in cellular signaling pathways;
- components of protein synthesis machinery in health and disease;
- the hepatic INFα in the absence of viral infection;
- the role of IFNα in liver response to mitogenic stimuli and stressors

**Institute of Cell Biology**

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**Principal research areas:**
- development of enzymatic kits and biosensor approaches for detection of the analytes of clinical importance;
- development of novel anticancer therapy with recombinant arginine degrading enzymes based on tumor cells sensitivity to arginine deprivation;
- studying mechanisms of iron transport in conditionally pathogenic yeast Candida guilliermondii

**Institute of Neurology, Psychiatry and Narcology**

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**Principal research areas:**
- non-invasive method to detect blood cell formula, metabolic and hemodynamic parameters;
- study of stroke epidemiology on its incidence, morbidity and mortality, stroke risk factors with the method of Stroke Register in Ukraine;
- the mechanism of formation of pyramidal deficit in different types of impairments of descending movement pathways in patient with rare forms of neurodegenerative diseases;
- interdependence between processes of proliferation of substance abuse and pathological gambling among young adult population;
- prevention of self-inflicted behavior;
- predictors of a suicidal behavior in young persons with mental disorders;
- destigmatization of the population of Ukraine regarding mental diseases

**Uzhgorod National University**

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**Principal research areas:**
- the usage of photodynamic diagnostics for early revealing of dysplastic and neoplastic changes in the stomach-intestinal path;
- studying the interrelation between the clinical manifestation of gastroesophageal reflux disease (GERD) and Helicobacter pylory (H.p.) infection;
- study of Helicobacter pylory-associated gastro duodenal disorders management and opportunity of non-gastric diseases treatment in family sources of helicobacteriosis in iodine insufficiency condition of Transcarpathian region.
**Institute of Pediatrics, Obstetrics and Gynecology**
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Principal research areas:
- early diagnosis of the intrathoracic airway compression due to great vessels congenital abnormalities.

**Bukovinian State Medical University**
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Principal research areas:
- implementation of Chronobiology/Chronomedicine Principles into Clinical Practice;
- pathogenetic mechanisms of diagnostics, preventive maintenance and treatment of the pulmonary fibrosis in patients with Chronic Obstructive Pulmonary Disease;
- the homocysteine blood level and some indices, related to endothelium function, in patients with ischemic heart disease, arterial hypertension and chronic heart failure;
- peculiarities of diabetic gastropathies and enteropathies course in patients with diabetes mellitus of types 1 and 2;
- peculiarities of a bile homeostasis in women with the sexual dishormonosis;
- pathogenesis features of the progression of nonalcoholic fatty liver disease in patients with insulin resistance, substantiation of the differentiated treatment.

**FOOD, AGRICULTURE AND BIOTECHNOLOGY**

Ukraine has tremendous agricultural potential. Fifty-seven percent of its 60 million ha of total land area is cultivated, but about 90 percent is cultivable.

Agriculture and the food industry represent a key sector of the Ukrainian economy that ranks second to the metals sector in its contribution to manufacturing output. About 15 percent of GDP is produced within the agricultural sector and export of agricultural products, including food and drink, account for more than ten percent of total exports. Employment in agriculture, forestry and fisheries in 2003 was estimated as 23 percent of the total labour force.

The main agricultural crops are grain, sunflower and sugar beet, produced predominantly by large farms, but potatoes, vegetables and fruits are also widely grown, mainly by small-scale farmers. Yields of all crops have generally risen over the past ten years, but remain lower than the European averages as crop management is limited by investment in agrochemicals. Livestock numbers have fallen, with corresponding decreases in milk and meat production.

Biotechnology features prominently in the development of Ukrainian agriculture.

It became essential to develop a new agricultural policy in Ukraine as part of the major economic reforms that accompanied independence in 1991. It is expected that increased access to credit and increased use of modern inputs will enhance productivity. However, there is recognition that natural resources have to be conserved for sustainable production to flourish,
and agriculture should not impact negatively on the environment. Agricultural policy therefore emphasises good agricultural management to halt the decline in soil fertility that has come about through using inappropriate agricultural practices associated with state-owned agriculture.

The 2006 budget allocated about ten percent of total government spending to supporting agriculture and the social infrastructure of the rural areas. The package includes guaranteed grain purchase price, agricultural insurance subsidy, livestock subsidy, low-interest loans for producing agricultural machinery (which will facilitate purchase), keeping a land-use register and implementation of measures to improve soil fertility. The success of agricultural policy will depend heavily on developing a market infrastructure, creating an entrepreneurial cadre and encouraging a competitive environment.

The official standpoint is that the strategy of economic and social development of Ukraine envisages effective application of FAB potential for solving social, economic, cultural and other problems of the community.

Basic directions of reforms in the field of FAB, as a part of S&T reforms, in Ukraine are defined in the action plan of the Cabinet of Ministers of Ukraine and specified in the corresponding action plans of the branch ministries.

The Ukrainian Government is taking measures to activate science and technology policy. Policy making, adaptation and implementation will provide direct assistance to the transition of economic development of Ukraine onto the innovative way that complies with the principles of sustainable development. These measures will be undertaken in the following directions:

- development of organisational and economic mechanisms of planning, funding and implementation, development and implementation of innovations;
- development of legal framework regulating science and innovation activities, in particular:
  - by advancing reforms in the system of national science and technology priorities and defining state priorities;
  - by working out organisational and legal mechanisms of intellectual property protection and its effective use;
- inspection and adjustment of the national network of research and project organisations, including establishment of innovation structures of different ownership;
- development of inventory of organisations funded from the state budget, specification of science objects that represent the national asset;
- development of international cooperation in the field of FAB, ensuring Ukraine's participation in relevant international agreements etc.

The role of FAB in the current economic situation of Ukraine is growing. In particular, it is necessary to augment the role of scientific foresight for the development of science, social progress and national economy.

The most important objectives in the field of FAB in Ukraine are as follows:

- development of R&D organisation and management issues, in particular, development of new organisation and economic forms of integration of science into production;
- mastering the advanced management expertise of the developed countries by Ukrainian experts as well as learning methods of international business and other innovations;
- improvement of industry structure and acceleration of socio-economic development of regions;
- introduction of progressive science and technology developments and inventions into industry;
- redistribution of efforts, which requires redistribution of efforts in training of experts.

The efficiency of the ongoing agrarian reform largely determines the overall course and results of market transformation, since the agrarian sector accounts for a large section of Ukraine's population, almost a quarter of production assets and close to 14% of the annual output of goods and services. The documents that determine the strategy of reform in Ukraine point out
that agricultural policy should be the "key element, stimulating factor" of accelerated market transformation of the economy.

KEY ORGANISATIONS IN FOOD, AGRICULTURE AND BIOTECHNOLOGY

National Agrarian University
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Principal research areas:
- biologization of agriculture, forestry and water industry; biotechnology, biogas;
- nature protection and stable development of bioresources and society, ecobiotechnologies;
- animals’ health, quality, biosafety, international certification and standardization of production technologies of agricultural and food products;
- economy, marketing, administration and quality management in the field of AIC and nature protection;
- mechanization, electrification and automation of agricultural, forest and water complexes and processing fields of AIC, biotechniques, alternative sources of energy, computer management technologies in AIC;
- rationalization of social development of rural area, legal securing of population of rural area;
- mastering of new systems of information-consulting provision for specialists in AIC and nature protective field.

Kyiv Taras Shevchenko National University
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Principal research areas:
- biology;
- biophysics;
- biochemistry;
- botany;
- genetics;
- zoology;
- microbiology and virusology;
- physiology.

Lviv State Agrarian University
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E-mail address: lday@mail.lviv.ua

Principal research areas:
- development of recommendations on raising social and economic efficiency of rural territories of western region of Ukraine;
- development of resource saving, ecology safe cultivation technologies for crops, vegetables and fruits adapted to the conditions of western region of Ukraine;
- development of organizational and economic mechanisms for raising social and economic efficiency of AIC operation of western region of Ukraine;
- development of technical means and resource saving technologies for land cultivation, crop and animal farming;
- development of resource saving, constructional, technological and architectural technologies for civil and industrial construction in the countryside;
- development of scientifically grounded principles of organization and information supply of land use and protection in western region of Ukraine.

Bila Tserkva State Agrarian University
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Principal research areas:
- veterinary and sanitary examination of animal products;
- animal internal diseases;
- biotechnologies in cattle breeding;
- problems of poultry keeping;
- new methods of research

Sugar Beet Research Institute
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Principal research areas:
- training of scientific specialists and scientific-technological provision of beet growing branch in Ukraine;
- working out genetical , biotechnological, physiological and physiologo- biochemical technologies of developing new initial materials of sugar beet for breeding for heterosis, resistant to a complex of unfavorable factors;
- creation of new competitive, high-productive, resistant to a complex of unfavorable environmental factors varieties and hybrids of sugar beet, suitable for mechanized growing, which guarantee sugar yield of 8,5-9,0 t/ha and a high seed multiplication rate;
- working out principally: new resource - and energysaving technologies of sugar beet production and growing their seed bearing plants, adapted to soil- climatic conditions of beet growing zones with the aim of maximal use of genetical potential of the crop;
- working out technologies of sugar beet preparation for sowing (rubbing, grading, incrustation, treatment with protective-stimulating substances, pelleting), bringing the level of seed quality indices up to international standards and realization;
- scientific foundation of beet rotations under new conditions; crop alternation in them; soil tillage systems; fertilization with calculation for the planned yield; stand protection from weeds, pests and diseases on the basis of forecasting;
- foundation of organizational-economical model of the optimal functioning of beet-sugar sub-complexes of AIC of Ukraine under market conditions;
- development of new competitive, high-productive varieties and hybrids of fodder beet, cereals, grain-legume crops, groat crops and grasses, roct chicory, honey Stevia; working out technologies of their mechanized growing and seed production, realization of seed of high reproduction and Stevia seedlings.

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**Principal research areas:**
- biology;
- biophysics;
- biochemistry;
- genetics;
- physiology.

**Dniepropetrovsk National University**

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**Principal research areas:**
- biology;
- biochemistry;
- botany;
- zoology;
- microbiology and virusology.

**Institute of Molecular Biology and Genetics**

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**Principal research areas:**
- structural and functional genomics;
- proteomics and protein engineering;
- regulatory systems and signal transduction mechanisms;
- bioinformatics and computational modeling;
- gene and cell biotechnologies, gene therapy and diagnostics.

**O.V. Palladin Institute of Biochemistry**

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Principal research areas:
- studying the structure, physical-and-chemical properties and biological functions of complex protein and supramolecular systems;
- identifying biochemical mechanisms of metabolism regulation by means of low-molecular substances;
- developing new methods of production and practical application of biologically active substances for medicine and veterinary as well as biosensors for medicine, industry and agriculture.

O.O. Bohomolets Institute of Physiology
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Principal research areas:
- investigating molecular mechanisms of special changes in cell membranes in principal nervous processes;
- studying cell organization of major brain systems and establishing the principles of information processing in them;
- studying the mechanisms of functional systems regulation in normal condition and in pathology.

D.K. Zabolotny Institute of Microbiology and Virology
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Principal research areas:
- studies of the systematic position, physiological-and-biochemical properties of various microorganisms and the development of scientific fundamentals for developing new biotechnological preparations and products;
- investigation of molecular-and-biological and genetic principles of microorganism and virus functioning and determining mechanisms of their vital activity in nature and in living organisms.

Institute of Cell Biology
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Principal research areas:
- study of molecular, genetic and biochemical mechanisms of metabolic regulation in yeasts and development of novel biotechnological processes and products based on these microorganisms;
- study of molecular mechanisms of regulation of proliferation, differentiation and apoptosis in normal and tumor cells in humans and animals.

M.H. Kholodny Institute of Botany
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Principal research areas:
- taxonomic, floristic, phytocenotic, conservational and environmental studies of phytobiota and mycobiota, theoretical issues of phyto-and cenoso-diversity organization and dynamics, its monitoring and conservation;
- investigations of structural and functional organization of plants and fungi at the organism, cellular and molecular levels under normal and altered environmental conditions, including the factors of space flight.

Institute of Cell Biology and Genetic Engineering
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Principal research areas:
- new technologies in cell and genetic engineering and safe use of genetically modified plants;
- biotechnology methods for plant biodiversity conservation;
- study of genome functioning in genetically modified plants;
- structure and functions of plant cytoskeleton;
- signal and regulator plant systems;
- structure of cell walls of higher fungi.

Institute of Plant Physiology and Genetics
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Principal research areas:
- the study of physico-chemical and molecular-and-biological patterns of growth, development and resistance of plant systems; elaboration of new technologies and biotechnologies on this basis;
- comprehensive studies of photosynthesis, mineral nutrition of plants, biologic nitrogen fixation, possibility of using biologically active substances; substantiation of new intensive technologies of cultivation and storage of agricultural production;
- research into genetic mechanisms in order to develop principles of managing the hereditary variability of living beings, maintenance and rational use of gene pools; the development of genetic and physiologic fundamentals plant breeding;
- the development of scientific principles of breeding highly productive technological varieties and hybrids of crops through novel approaches; their introduction into agricultural practice.

National University of Food Technologies
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Principal research areas:
- technology of fermentation production and wine-making;
- processing of fats and fat-substitutes;
- technology of milk storing, processing and packing;
- technology of meat storing, processing and packing;
- technology of grain storage and processing;
- catering technology;
- technology of bread, confectionery, pasta and food concentrates production;
- sugary substance technology.

**Odessa National Academy of Food Technologies**
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**Principal research areas:**
- processing and food processing industry equipment;
- technology of fermentation production and wine-making;
- technology of milk storing, processing and packing;
- technology of meat storing, processing and packing;
- technology of fruit and vegetables storing, processing and packing;
- technology of storing, packing and processing of see products;
- technology of grain storage and processing;
- catering technology;
- technology of bread, confectionery, pasta and food concentrates production.

**Kharkiv State University of Food Technology and Trade**
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**Principal research areas:**
- development of new competitive technologies of food for rational, health-preventive, children's and herodietic food;
- processing agricultural output at the enterprises of small and average business;
- development and researches of processes and devices for manufacture of products of food, trade, enterprises of a restaurant facilities;
- researches in sphere of sustainable development, environment and labour protection, ecological problems;
- researches in sphere of organic production;
- researches in sphere of food quality and safety;
- realization of expertise of food and agricultural output;
- improvement of the forms of management and methods of managing on enterprises of trade and restaurant business;
- development and introduction of a new information technologies;
- preparation of the normative and project documentation of various kinds of the goods and services;
- improvement of automation of the account, control and analysis of economic activity in restaurant business and trade.

**Crimean State Agrarian University**
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Principal research areas:
- technology of fermentation production and wine-making;
- processing of fats and fat-substitutes;
- technology of milk storing, processing and packing.

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Principal research areas:
- development and introduction of advanced resource- and energy-saving technologies to the complex processing of agricultural raw materials;
- development and commercialization of industrial technologies for producing novelty food and various-purpose auxiliary materials, special, dietetic-nutrition products;
- medico-biological, toxicological and hygienic studies of food raw materials, food-products, food additives and polymeric materials;
- development and introduction of advanced environment-friendly and energy-saving technologies, as well as for checking the environmental safety of industrial production, its conformity to ecological norms and energy standards.

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Principal research areas:
- gene-enzyme oxydoreductase systems and expression of winter wheat resistance to mycopathogenes;
- saving the species staff and the count of tree flora of Odessa region;
- database creation of potentially useful cultivated flora of the North-western Black Sea region;
- study of herb genus complexes with the use of electronic database;
- development and use of sustainable diversity of tree and brush introducents in climatic conditions of the Southern Ukraine steppe area.

NANOTECHNOLOGIES

Nanotechnology is an area which has highly promising prospects for turning fundamental research into successful innovations. Not only to boost the competitiveness of our industry but also to create new products that will make positive changes in the lives of our citizens, be it in medicine, environment, electronics or any other field."

Top experts in Ukrainian R&D institutions have recommended the following formulation of strategic priority of science and technology development in Ukraine: Nanoscience, nanotechnology, novel materials and technologies for their production and treatment
From this priority, the mid-term and long-term directions of state interest were formulated as follows:
- novel materials of structural and functional destination, technologies of their manufacturing and treatment, including technologies improving the reliability and endurance of existing materials;
- nanomaterials and nanotechnologies for energy production, transformation, storage and saving, including new hydrogen technologies (production, storage and usage of hydrogen fuel);
- nanodevices, nanomaterials and nanotechnologies for biomedical applications, health care, diagnostics and disease prevention;
- materials and technologies for environment protection and utilization of wastes;
- materials and nanodevices for novel communication and information systems.

Targets:
- creation of new industry in Ukraine, environment friendly, automated, secure, which is able to substitute in part the conventional production and old «dirty» industry,
- substantial increase of AAGR due to enlargement of “high tech” sector of economy and creation of high quality jobs.
- improvement of state security
- substantial improvement of life quality and enlargement of average life owing to development and commercialization of nanotechnologies in biomedicine, agriculture, people security and environment protection.

The main feature of Strategic Plan of nanotechnologies in Ukraine is to be it’s openness with respect to the world – Ukraine cannot develop nanotechnologies remaining isolated from the rest of the world and global market, thus, the priorities of the National nanotechnology program must respond to the global priorities.

The National Program has to provide powerful international collaboration in nanotechnologies, for instance to meet priorities of EU FP7.

The measures to achieve realization of the put tasks would be the following: to fund the State multidisciplinary program «Nanosciences and Nanotechnologies in Ukraine», establish laboratories equipped by modern research and technological units, organize clean rooms of high standard, organize 4 nanotechnology research & education centers for masters and graduate students in Kiev, Lvov, Kharkov and Donetsk, up to 25% of funds (to $30 MEuro) provide for collaboration with EU through 7 Framework Program using instruments of international expertise.

**KEY ORGANISATIONS**

**Physico-technological Institute of Metals and Alloys**
Postal address: 34/1, Vernadsky Ave Kyiv-142, 03680 Ukraine
Phone./Fax number: +38 044 4529736
E-mail address: alloy@i.com.ua

Principal research areas:
- nanostructural materials obtained by the method of heat treatment of balk amorphous alloys

**Khmelnitsky National University**
Postal address: 11, Instytutska St., Khmelnitsky, 29016, Ukraine
Phone number: +38 (03822) 2-32-54; Fax number: +38 (03822) 2-32-65
E-mail address: kaplun@beta.tup.km.ua
Principale research areas:
- the Theory of Material Surface Modification in Glow Discharge in Terms of Nanoscience

**National Technical University of Ukraine “Kyiv Polytechnic Institute“**
*Postal address: 37, Peremogy ave., Kyiv, 03056, Ukraine*
*Phone/Fax number: +38 (044) 241 76 77*
*E-mail address: sidorenko@uap.ntu-kpi.kiev.ua*

Principal research areas:
- formation of metallic systems with periodic surface nanostructures under laser treatment

**E.O.Paton Electric Welding Institute of the NAS of Ukraine (PWI)**
*Postal address: 11 Bozhenko st., 03150, Kyiv, Ukraine*
*Phone number: +38(044) 287-44-06; Fax number: +38(044) 287-46-30*
*E-mail address: alweld@i.kiev.ua, office@paton.kiev.ua*

Principal research areas:
- investigation and development of advanced technologies of joining promising metallic materials by applying effective nanostructured fillers

**Institute of Telecommunications, Radio Electronics and Electronic Technics**
*Lviv Polytechnic National University*
*Postal address: Str. S. Bandera, 12, Lviv, 79013, Ukraine*
*Phone number: +38 032 2582581*
*E-mail address: bobitski@polynet.lviv.ua*

Principal research areas:
- research and development of biosensors based on resonance of plasmons at grating excitation

**Zaporizhzhya national technical university**
*Postal address: Zhukovsky str., 64, Zaporizhzhya, 69063 Ukraine*
*Phone/Fax number: +38 (061) 224-42-36*
*E-mail address: sajhnev@zntu.edu.ua*

Principal research areas:
- charged, optical and size effects of low-dimensional metallic systems;
- molecular dynamics studies of ion induced sputtering of surface nanodimensional clusters;
- development of technology of nanostructured materials obtaining on the base of constructional titan alloys

**Ukrainian state research institute of special steels, alloys and ferroalloys**
*Postal address: Patrioticheskaya str., 74-A, Zaporizhzhya, 69000, Ukraine*
*Phone number: +38 0612 396661; +38 0612 334035.*
*E-mail address: yaispector@mail.ru; postmaster@ussi.marka.net.ua;*
Principal research areas:
- development of the thermomechanical methods for getting special steels and alloys with ultra-fine-grained nanocrystalline structure in multi-pass rolling and forging

**B.Verkin Institute for Low Temperature Physics and Engineering**
*Postal address: 47 Lenin Ave., Kharkov 61103, Ukraine*
*Phone number: +(380)-57-341-09-82 Fax number: +(380)-57-340-33-70*
*E-mail address: krivchikov@ilt.kharkov.ua*

Principal research areas:
- structure, kinetic and low energetic excitements in Natural nanocomposers on the basis of a biocarbon matrix;
- investigation of the superconducting interfaces with multiply connected periodic nano-scaled nets in semiconducting heterostructures;
- development of new types of superconducting qubits Investigation of low temperature dynamics of one-, two- and three-dimensional systems;
- development of techniques for theoretical investigations of spectral and related physical characteristics of nano-structures;
- spin and charge transport through nanomagnets – fabrication and studies of nano devices by point-contact spectroscopy;
- Nanosystems in Liquid and Solid Helium and their Applications Tailoring, study, and optimization of new composite materials using carbonaceous nano-size modifiers;
- magnetoreso-nant investigation of nanostructures;
- investigations of magnetic anisotropy in multilayered magnetic nanostructures;
- new size effects for electronic excitations in free rare-gas clusters

**Mechnikov Odessa National University, Scientific-Research Institute of Physics**
*Postal address: Pasteur Str. 27, Odessa, 65026, Ukraine,
Phone number: +38 (0482) 238036,
E-mail address: popov-niif@onu.edu.ua*

Principal research areas:
- optical methods for the creation of three-dimensional space periodic structures from nanocenters;
- electron properties of non-ideal nanotubes;
- development of a sizes’ control method in the nanoscaled semiconductor clusters;
- applicability research of porous glasses in ophthalmology

**National Technical University “Kharkov Polytechnic Institute”**
*Postal address: 21 Frunze St., Kharkov 61002, Ukraine,
Phone number: +38 057 7076092
E-mail address: rogacheva@kpi.kharkov.ua*

Principal research areas:
International Research and Training Center for Information Technologies and Systems, V.M. Glushkov Institute of Cibernetics
Postal address: M.Kotsubinskogo Str. 2, Flat 9, Kiyv 01030, Ukrain,
Phone number: +38 044 5261319,
E-mail address: sav@tav.kiev.ua

Principal research areas:
- nanotechnologies of the construction of the optimum regime regulator of the control system in the processing shop

ENERGY

According to the Law of Ukraine On Scientific Activities and Research and Technological Development № 1977-XII of 12 December 1991 (with amendments), the executive authorities of Ukraine form priorities in S&T and innovation basing on long-term (more than ten years) and middle-term projections for S&T and innovation development as well as the EU-Ukraine Action Plan.

More, at the EU-Ukraine Summit (December 2005) Ukraine and the EU signed at Presidential level a bilateral Memorandum of Understanding on co-operation in the field of energy. They resolved to co-operate in roadmaps covering (1) nuclear safety; (2) the integration of electricity and gas markets; (3) security of energy supplies and the transit of hydrocarbons; (4) the coal sector.

Ukraine's key energy policy tasks and priorities are defined in the Energy Strategy for the Period until 2030 as adopted by the Cabinet of Ministers in March 2006. The Strategy proceeds from the understanding that Ukraine has limited conventional energy resources and thus has to rely on imports, and that it also suffers from a lack of diversification of energy imports. For these reasons, the Strategy highlights the importance of rational use of energy, the promotion of domestic energy production, and switching to alternative energy sources.

Energy sector development has a crucial impact on the economic situation in the country, on the resolution of problems in the social sector, and on the standard of living.

The aim of a socially oriented state, such as Ukraine (according to the Constitution), is to ensure the welfare for its citizens in all aspects. One of the most important component of welfare in the civilized countries is the provision of heat and electricity to its citizens. The Constitution of Ukraine provides for the right of citizens to adequate living standards and a safe and healthy environment. This makes it incumbent on the state to create appropriate conditions for economic development. The fulfillment of these tasks should be guaranteed by meeting the energy needs of the population and public production in a safe and environmentally friendly way.

The energy sector should switch from the policy of energy supply for extensive development of the Ukrainian economy, which it has been pursuing for decades, to energy supply for sustainable economic development. This is the objective towards which the developed countries of the world are oriented. There is no alternative to that.
Providing the national economy and social sector with basic types of energy is the responsibility of the Fuel and Energy Complex of Ukraine (FEC)*. This includes electricity and heat, motor, boiler and furnace fuels, and also raw material resources for the needs of chemical, oil- and coal-and-chemical, metallurgical industries (coke coal, petroleum and gas processing products).

The Energy Strategy of Ukraine for the period until 2030 (hereinafter the Energy Strategy) was completed by the Work Commission set up by the Ministry of Fuel and Energy and is based on the draft 'Energy Strategy of Ukraine for the Period until 2030 and thereafter' developed by the Institute of Energy of the National Academy of Sciences of Ukraine. The completion was carried out by orders of the President of Ukraine and the Government of Ukraine, taking into account the results of the Parliamentary hearings, public discussions, suggestions from the Verkhovna Rada of Ukraine deputies, ministries and departments, scientific organizations, and energy companies.

The Strategy was developed out taking into consideration geopolitical, macroeconomic, social, scientific-and-technical development trends in the country and allowing for certain risks in identification of these factors. Therefore, it is necessary that a continuous monitoring of the Energy Strategy be provided for regularly adjusting the scope of and timeframes for the works envisaged by the Strategy, taking into account changes in prices for fuel and energy resources both in Ukraine and elsewhere, state economic development programs, scientific and technical progress, and other factors.

The implementation of the Energy Strategy of Ukraine under the base-case scenario of economic development guarantees the fulfillment of tasks and resolving the problems of the fuel and energy complex, the major ones being identified as follows:

1. Ensuring reliable and quality supply of energy products to the national economy and population, enhancing economic efficiency and environmental safety based on the introduction of advanced technologies in process of upgrading, reconstruction and construction of energy facilities;
2. Reducing GDP energy content from 0.48 kg of standard fuel/UAH registered in 2005 to 0.24 kg of standard fuel/UAH in 2030 (that is, by factor of two), due to structural and technological energy saving;
3. Optimizing the electricity generation structure by types of fuel keeping the following proportions: nuclear power plants – 52.1%, thermal power plants, combined heat and power plants, industrial plants – 42.9%, other types of power generation – 5.0%. Such electricity generation proportions will ensure economically effective operation of power plants and create conditions for regulation and stable operation of the United Energy System of Ukraine;
4. Guaranteeing energy security by:
   - reducing energy dependency of the country from external fuel supplies (natural gas, oil, uranium) from 54.5% in 2005 to 11.7% in 2030, inter alia, by increased usage of domestic coal, uranium, gas, alternative and renewable energy sources, production of oil and gas by Ukrainian companies outside of Ukraine;
   - grows of power generation increasing domestic fuel inputs from 42% in 2005 to 91.8% in 2030;
   - diversifying sources and routes for natural gas and oil supply, including Ukraine's participation in international projects, specifically, relating to development of oil and gas fields and developing oil and gas infrastructures abroad;
• creating a strategic oil and natural gas reserve in the country for emergency situations and market regulation of prices;
• participation in international energy projects.
Ensuring socially-oriented development of the fuel and energy complex, specifically, by creating new jobs, improving working conditions and safety standards;
In addition, Strategy implementation will allow maximal utilization of the geographic and geopolitical position of Ukraine, and envisages further development of the energy transit system for domestic energy supply, and increase in energy products export and transit.

With a view to implementing Ukraine's European integration policy, interconnection of the United Energy System of Ukraine with the Trans European Networks is envisaged, ensuring its stable operation and power supply to the economy and population of the country in accordance with European standards.

The prior condition for achieving the basic Energy Strategy goals shall be an improved public administration and regulation based on clear distribution of powers and responsibilities of authorized bodies, and settlement of ownership issues in the energy sector by employing differentiated approach with regard to ownership types for different sectoral facilities.

The review of the energy legislation provided for by the Strategy shall be based on principles of transparency, reasonableness and predictability defined by the European law, shall ensure the establishment of fair rules of conduct for all energy markets participants, shall favor the creation of conditions for stable operation and development of fuel and energy companies and reliable energy supply for the country.

KEY ORGANISATIONS IN ENERGY

**Institute of Engineering Thermophysics**

*Postal address: Vul. Zhelyabov, 2-a, Kyiv 03057 Ukraine*
*Phone number: +380 44 4566282; fax number: +380 44 4566091*
*E-mail address: admin@ittf@kiev.ua*

**Principal research areas:**
- thermophysical studies of processes in heat power equipment using conventional and renewable energy sources and development of methods to improve its efficiency, reliability and environment safety;
- development of heat transfer theory and its application to improve efficiency of heat transfer theory and use in machines and equipment of advanced facilities;
- studies of heat-and-substance transfer theory to improve efficiency of available power and resources-saving thermal technologies and develop novel ones;
- investigation of the theory of measuring thermal values and its application for developing new thermophysical devices and systems to improve the metrological provision of power and other thermal-engineering equipment.

**Institute of Electrodynamics**

*Postal address: Prospect Peremohy, 56, Kyiv 03680 Ukraine*
*Phone number: +380 44 4560151; fax number: +380 44 4569494*
*E-mail address: ied@ied.kiev.ua*
Principal research areas:
- conversion and stabilization of electromagnetic energy parameters;
- improving efficiency and reliability of electromechanical energy conversion;
- analysis, optimization and automation of electrical power systems modes and their elements;
- information and measuring systems and metrology control in power industry.

G.E. Pukhov Institute of Modelling Problems in Energy Engineering
Postal address: Vul. General Naumov, 15, Kyiv 03164 Ukraine
Phone number: +380 44 4241442; fax number: +380 44 4240586
E-mail address: svetlana@ipme.kiev.ua

Principal research areas:
- providing information support to and developing computer systems for solving the following problems in power engineering: mathematical modeling of various processes, facilities and systems; integrated information-systems introduction tom industry with wide use of monitoring systems; automated designing of various power facilities; systems for training, simulation and professional diagnostics of the staff at power facilities; technical diagnostics and improvement at power facilities reliability; information security and means of information protection; ecological safety;
- developing the theory and practice of application of specialized computers, complexes and systems, intellectual computer managing systems in power engineering; using of super computers for solving problems of modeling and control;
- constructing economic-and-mathematical models of FPC, methods to estimate electric power losses and calculate tariffs, computer systems for power facilities diagnostics on the basis of ultrasonic holography and tomography;
- developing methods and computer means for backing up decision-making in tasks of organizational management of power industry.

Institute of General Energy
Postal address: Vul. Pokrovska, 11, Kyiv 04070 Ukraine
Phone/fax number: +380 44 4170142
E-mail address: ie@ienergy.kiev.ua

Principal research areas:
- scientific fundamentals for forecasting the development of power industry and energy consumption, system analysis and optimization of the energy complex structure, branch and regional systems of power industry and fuel-and-energy balances, creation of database and software for forecasting;
- research into problems of structural development of the power industry in Ukraine, key lines of developing fuel-and-energy complex (in view of environmental issues), forming of fuel-and-energy balances and optimization of fuel-and-energy resources import and export;
- system analysis and forecasting of R&D progress in power industry, research into main ways of improving energy efficiency and energy conservation, forecasting and realization of energy conservation potential;
- scientific fundamentals of power industry management in the new economic conditions, forming of legal framework and economic environment for functioning and development of power industry.
**Coal Energy Technology Institute**  
Postal address: Vul. Andriyvska, 19, Kyiv 04070 Ukraine  
Phone number: +380 44 4165068; fax number: +380 44 5372241  
E-mail address: ceti@i.kiev.ua  

Principal research areas:  
- developing novel efficient environment-friendly technologies of combustion and gasification of domestic coals with view of using it in the power sector of Ukraine;  
- thermal and electrophysical studies aimed at upgrading efficiency of converting thermal energy into electrical energy;  
- development and introduction of advanced diagnostics methods and preventing the emissions of harmful pollutants into environment at thermal power plants.

**Gas Institute**  
Postal address: Vul. Dehtyarivska, 39, Kyiv 03113 Ukraine  
Phone number: +380 44 4564471; fax number: +380 44 4564471  
E-mail address: ig-secr@i.com.ua, eco@ukrpost.net  

Principal research areas:  
- development of energy- and resource-saving technologies in various sectors of national economy through improving efficiency of the natural gas use;  
- development of technologies to process and use alternative off-balance fuels in transport and power generation facilities for distributed heating and power supply;  
- processing of factory and domestic waste, environment protection against pollution.

**Institute for Problems of Nuclear Power Plants Safety**  
Postal address: Vul. Kirova, 36-a, Chernobyl, Kyiv Oblast 07270 Ukraine  
Phone number: +380 44 93 51738; fax number: +380 44 93 51434  
E-mail address: ipbaes@slavutich.kiev.ua  

Principal research areas:  
- safety and efficiency in exploitation of NPP;  
- technologies for radioactive wastes disposal;  
- development and application of technologies for decommissioning power units;  
- studies of "Ukryttya" facility and scientific support of activities to its transformation into environmentally safe system;  
- studying and predicting characteristics of substance and condition of materials containing nuclear fuel;  
- studying technological, medico-biological and radio-ecological problems related to transformation of "Ukryttya" facility into environmentally safe system;  
- designing facilities and equipment for handling radioactive waste, including depositories for radioactive waste disposal;  
- transformation of fission materials and radioactive substances;  
- elimination of impacts of technological accidents;  
- devices for spot-analysis of concentration and disperse composition of radioactive aerosols.
Training and Research Institute of Mining and Metallurgical Electrical Power Engineering at the National Mining Institute
Postal address: Prospect Karl Marx, 19, Dnipropetrovsk 49027 Ukraine
Phone number: +380 56 7446219; +380 562 464062; fax number: +380 56 7446211
E-mail address: ivanov@nmu.org.ua

Principal research areas:
- improving reliability and power efficiency of electric power supply systems;
- electrotechnological installations of industrial enterprises;
- energy audit, systems of energy management;
- development of generalized vector method for investigating electromagnetic process parameters in multiphase systems;
- development of generalized criteria for estimating efficiency of electric power transformation and transfer;
- computer simulation of electromagnetic mineral beneficiation processes for intellectual systems of decision-support in control of such processes;
- rational operation modes and development of energy-saving electric drives for open mines;
- voltage and current regulators with adaptive control;
- control of multiphase voltage inverters with pulse-width modulation;
- studying dynamics of technical power losses in power-supply systems and their elements during power transmission and distribution;
- development of dispatch systems for coal mines;
- development of situational control methods for continuous technological processes;
- automatic control systems for flow technologies.

B.Verkin Institute for Low Temperature Physics and Engineering
Postal address: Lenin Ave, 47, Kharkiv 61103 Ukraine
Phone number: +380 57 3375264; +380 57 3410979; fax number: +380 57 3403370
Email address: freiman@ilt.kharkov.ua, dolbin@ilt.kharkov.ua, konstantinov@ilt.kharkov.ua

Principal research areas:
- development and studies of novel energy-storage materials;
- accumulation and storage of hydrogen in new organic clathrate and carbon nanosystems under moderate cooling;
- accumulation, storage and extraction of hydrogen with the use of new organic clathrates;
- protection of thin fullerene films used for solar cell

Institute for Nuclear Research
Postal address: Prospect Nauki, 47, Kyiv 03680 Ukraine
Phone number: +380 44 2652349; fax number: +380 44 2654463
E-mail address: interdep@kinr.kiev.ua

Principal research areas:
- nuclear physics: fundamental and applied studies in nuclear science and technology;
- atomic energy: physics of nuclear reactors, nuclear and radiation safety of NPP;
- solid state physics;
- plasma physics;
- radiobiology and radioecology.
National Technical University of Ukraine "Kyiv Polytechnic Institute"
Postal address: 37, Prospect Peremohy, 03056, Kyiv, Ukraine
Phone number: +38 044 4549199, fax number: +38 (044) 2417677
E-mail address: mzz@ntu-kpi.kiev.ua; Sidorenko@uap.ntu-kiev.ua

Principal research areas:
- creation of highly effective ecologically safe energy and resources saving technologies and equipment at mechanical engineering, chemical, light, oil-refining and building materials industries, working out of object-oriented systems for technological design modeling and quality and reliability security of progressive technique;
- methods and means of primary energy resources economy and ecological safety providing for energy generating technologies and also new highly effective types of resources saving heat-power engineering equipment;
- methods of production, transport distribution, transformation, consumption and effective energy use control.

Donetsk State Technical University (DonSTU)
Postal address: vul. Artema 58, Donetsk, 83000, Ukraine
Phone number: +38 (062) 337-17-33, fax number: +38 (0622) 92-12-78
E-mail address: info@dgtu.donetsk.ua

Principal research areas:
- engineering technology;
- drilling;
- concentration of minerals;
- mine survey;
- development of mineral deposits;
- mining and underground construction;
- thermoelectric power stations;
- heat-and-power engineering;
- power stations;
- electrical engineering systems of power consumption.

National Technical University "Kharkiv Polytechnic Institute"
Postal address: vul. Frunze 21, Kharkiv, 60002, Ukraine
Phone number: +38 (0572) 478 068, fax number: +38 (0572) 400 601
E-mail address: omsroot@kpi.kharkov.ua

Principal research areas:
- boilers and reactors;
- cryogenic engineering and technologies;
- heat-and-power engineering;
- turbines.

Pryazovsky State Technical University
Postal address: vul. Universitetska 7, Mariupol, Donetsk Oblast, 87500, Ukraine
Phone number: +38 (0629) 316435; fax number: +38 (0629) 316535
E-mail address: omid@pstu.edu

Principal research areas:
- use with advantage of harmful destroying power elastic compressed liquid in hydrodrives of machines of various assignment;
- efficiency and power quality of electrical supply of industrial enterprises in the Black Sea region;
- chemovoltaic semiconductor source of current

Ukrainian Engineering and Pedagogical Academy (UEPA)
Postal address: vul.Universytetska 16, Kharkiv, 61003, Ukraine
Phone number:+38 (0572)127236, fax number:+38 (0572)127236
E-mail address: rector@uipa.kharkov.org

Principal research areas:
- thermoelectric power stations;
- power stations;
- electrical engineering systems of power consumption.

Sumy State University
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E-mail address: kanc@ssu.sumy.ua

Principal research areas:
- compressors, pneumatic units and vacuum machinery;
- refrigerating machines and plants;
- power generation and supply management;
- engineering technology.

Kirovograd State Technical University
Postal address: Pravda Prospect, 70A, 25006, Kirovograd, Ukraine
Phone number:+38 (522) 55-92-34, fax number:+38 (522) 55-92-53

Principal research areas:
- engineering technology;
- electrical engineering systems of power consumption;
- power engineering in agriculture

Odessa State Academy of Refrigeration
Postal address: vul. Dvoryanskaya 1/3, Odessa, 65026, Ukraine
Phone number:+38 (0482)232220, fax number:+38 (0482)238931
E-mail address: admin@osar.odessa.ua

Principal research areas:
- compressors, pneumatic units and vacuum machinery;
- cryogenic engineering and technologies;
- non-conventional sources of energy;
- heat-and-power engineering;
- heat physics;
- refrigerating machines and plants.
ENVIRONMENT

Ukraine has favorable climate conditions and geographical location. But the natural resources of Ukraine were wasted by an ineffective and environmentally unfriendly economic system that still today affects the extensive model of a developing economy. “Dirty” industries prevail in the Ukrainian economy; they have more than forty percent of key assets and about one third of overall industrial output. The fuel and power sectors consume near three quarters of water in Ukrainian industry. Since 1999, the recovery of the Ukrainian economy has started. The total increase of GDP exceeded 22% during the last 3 years and had a positive impact on the socioeconomic activities of the Ukrainian economy, including the trend of increasing of environmental protection expenditure. This industrial recovery also resulted in the tendency to go back to catastrophic pollution levels of the late Soviet period and a growing burden on the environmental infrastructure. This threat is more than real as dirty industries dominate in economy’s recovery and specific figures of pollution have become apparent.

In general, Ukraine demonstrates negative environmental trends for: consumption of natural resources, including water and land use; pollution of air, water and soil; disposal of waste; destruction of natural landscapes; risks for public health. According to the Environmental Performance Review of Ukraine (UNECE, 2007, Environment Performance Reviews, Second Review), it definitely strengthened its legislation using integration into international legal area. Ukraine ratified 27 key environmental conventions and, at present time, is a member of discussion around 26 other environmental conventions. At this time, 173 standards that represent European and international standards have been introduced in Ukraine. In 1999 Ukraine has signed the Kyoto protocol, the goal of which is to reduce emissions of greenhouse gases (GHG) by setting up country-level emission quotas and international trade of emission rights. Under this treaty, Ukraine might be one of the main beneficiaries because it can sell large amounts of unused assigned emission rights (with an annual revenue estimated at USD 740 m till USD 2.9 bn from 2008-2012), and because additional reduction of emissions can be achieved at a relatively low cost and sold as further emission rights abroad. This last aspect is of particularly high importance as it potentially stimulates the influx of badly needed foreign direct investment. However, Ukraine's successful participation requires that the necessary institutional infrastructure to measure, monitor and trade emission right certificates is being set up by the time the protocol gets into force (expected for 2008). So far, Ukraine has made only minor progress in ratifying the protocol and is lacking far behind the developments in other Eastern European countries, in particular the EU accession candidates. This is all the more important, as Ukraine has to compete with those countries for such "climate investments," and funds will flow into those countries where institutional conditions are the most advanced (total influx of climate investment into Eastern Europe is estimated to USD 2.4 bn to USD 5.8 bn per year).

EBRD researchers ranked Ukraine as the first country in the ranking of Eastern European countries that could potentially reap the most benefits from Kyoto protocol implementation. However, in the list of countries ranked by capacity to deal with the Kyoto protocol mechanisms Ukraine occupies the last place. "Ukraine, after signing the protocol in 1999, slightly decreased its pace in the international negotiation process and implementation of its international responsibilities [within Kyoto process]. Currently, the ratification package is ready and is submitted to the Cabinet of Ministers of Ukraine," It is expected that the ratification package will soon be transferred to the parliament (Semen Kublanov, Head of the ecology monitoring department at the Ministry of Ecology and natural resources of Ukraine.

Even despite the relative slack in Ukraine's performance in Kyoto process Western companies are already looking for opportunities in Ukraine. Ruhrgas (Germany) and
Ukrtransgaz (Ukraine) developed a joint project to optimize the work of the Ukrainian gas transit system, which will cut CO2 emissions by 350,000 tons annually and cost approximately EURO 15 mln to the German firm. In return for the investment Ukrainian side would have to provide the German firm with the emission certificates for the achieved GHG reduction. However, the project is currently stalled by the uncertainty of Ukrainian position towards Kyoto protocol as well as lack of necessary institutional infrastructure.

**KEY ORGANISATIONS**

**Odessa State Environmental University**
Postal address: 6, Ilfa & Petrova str., Odessa, 65121, Ukraine  
Phone number: +38 067 4960578,  
E-mail address: vkhokhlov@ukr.net

Principal research areas:  
- atmospheric and hydrological forcing of droughts in the Eastern Europe

**National University of Dniprotpetrov'sk**
Postal address: pr K Marcs 36, Dniprotpetrov'sk, 49044, Ukraine  
Phone number: +38 0567 448603; Fax number: +38 056 3736781; + 38 056 7765833  
E-mail address: mokriskayat@yahoo.com

Principal research areas:  
- laws of changes the properties of geological environment of urban territory by technical influence were are at time;  
- the techno-natural geological risk by the urban territory (for example Dniprotpetrov'sk city agglomeration);  
- hazard assessment, triggering factors by the development of landslips by urban territory (for example the Dniprotpetrov'sk city agglomeration).

**B.Verkin Institute for Low Temperature Physics and Engineering**
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Phone number: +38 057 3410829;  Fax number: +38 057 3403370  
E-mail address: rybalko@ilt.kharkov.ua

Principal research areas:  
- new high-sensitivity method of forecasting of natural Earth hazards using a persistent superfluid flow.

**Kiev National Taras Shevchenko University**
Postal address: Vladimirskaya str, 64, Kiev, 01033, Ukraine  
Phone number: +38 044 259-05-32, +38 044 259-08-89  
E-mail address: vm214@dcp.kiev.ua, sil@dialektika.com

Principal research areas:  
- decision support system for risk analysis connected with contamination of ground water;  
- long-term ozone layer dynamics in Polar regions and mid-latitude belt - lessons for Europe;  
- studying of Antarctic tundra dynamics of progressive warming in the Antarctic Peninsula
Main Astronomical Observatory
Postal address: Acad. Glushkova Str., 17 ap. 22, 03187, Kyiv, Ukraine
Phone number: +38 (044) 522-4822
E-mail address: shavrina@mao.kiev.ua

Principal research areas:
- the study of ozone columns and atmospheric profiles from ground-based spectral measurements.

Ukrainian research hydrometeorological institute
Postal address: 35, Urytskogo str., Kyiv, 03035, Ukraine
Phone/Fax number: +38 044 206 33 08.
E-mail address: natalia_stranadko@yahoo.com

Principal research areas:
- system analysis of main greenhouse gases influence on temperature conditions of Ukraine and future projections of greenhouse gases emissions

Kharkov National University of Radio Electronics
Postal address: Lenina av., 14, Kharkov, 61166, Ukraine
Phone number: +38 057 7021587
E-mail address: res@krure.kharkov.ua

Principal research areas:
- methods and systems for the atmosphere characteristics remote estimation using acoustic and electromagnetic waves.

Mechnikov Odessa National University
Postal address: Shampansky St., 2, Odessa, 65058, Ukraine.
Phone number: +38 0482 634589.
E-mail address: konikov2006@mail.ru

Principal research areas:
- hydrological-climatic factors formation and change of dangerous geological processes in the coastal zone of Northwest part of the Black Sea;
- estimation of seismic danger of the Odessa region and prediction of earthquakes by non-traditional methods
The National Information Centre for Ukraine - EU S&T Cooperation at the Kyiv State Centre of S&T and Economic Information (NCP Ukraine)

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National Information Centre for Ukraine - EU S&T Cooperation of the Kyiv State Centre of S&T and Economic Information (NCP Ukraine) Ukraine was established by the Ministry of Education and Science of Ukraine (MESU) on 01 August 2003 to support Ukrainian scientific
community integration to the ERA by facilitating access of researchers to the European Community research through the International Information Points Network.

NCP Ukraine serves as instrument of intercommunication and liaison between the Governmental Bodies of Ukraine and the DGR EU, between Ukrainian scientific Community and the ERA. NCP Ukraine has a positive experience implementing and coordinating international academic and scientific activities as well as disseminating S&T-related information and signposting current situation to authorised bodies and institutions within the MESU institutions network.

NCP Ukraine has set up network of regional information points which permits to provide information and raise awareness on the EU RTD programs throughout Ukraine.

NCP closely co-operates with the MESU, the National Academy of Sciences of Ukraine, the Ministry of Industrial Policy of Ukraine, the National Aerospace Agency of Ukraine, educational and scientific institutions in Ukraine and abroad. NCP circulates information and documentation on the EU RTD programs, organizes and conducts promotional and information activities: infodays, thematic workshops, training seminars for specific targeted groups and on specific topics, conferences, issues special newsletters and bulletins; runs Internet information service, assists in partner search activities, advises on rules and procedures of participation in the EU RTD Programs in particular in the Framework program.

NCP Ukraine has experience in the INTAS and FP projects.

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