

## **“Science and Environment of Dniper- Danube”**

Formation of market relations in Ukraine, striving for world and European economic space integration demand groundwork and introduction of nature protecting measures system as a proof of favourableness and wish to join the main principles of global partnership in interests of stable country development.

One of the ways to realize these principles is environmental management system creation (ecomangement) on the basis of International and State Standards SSTC ISO 14000. The general principle of these standards introduction is establishment and elaboration of the recommendations on ecological norms and rules fulfilment, production characteristics, according to the demands of nature protecting legislation, providing safe environment at the establishments of economic activity ranging from an enterprise, branch to a region as a whole.

Ecological management and audit system (EMAS) has just been introduced in Ukraine into entrepreneurship but both terminology and ways of activity and juridicial basis are not clear to everybody. However even today the most ecologically conscious heads of enterprises (in Ukraine, in light industry more than 90% of enterprises are private or joint-stock companies) have started learning ecological standards and such notions as safe environment, ecomangement, ecological modernization and ecoaudit. In our opinion graduates of KNYTD – Bachelors and specialists in all the directions of light and textile industry must become practical providers of these notions and ecological entrepreneurship principles.

In 1997-1999 Kyiv National University of Technologies and Design (KNUTD) with the help of Research Centre grant (Ottawa, Canada) carried out the work on ecomangement and ecoaudit introduction according to ISO 14001-14010 Standards at two enterprises of light industry and the programmes of ecological production modernization were introduced. The experience of the work was investigated in the monograph. The authors of this monograph – Prof. R.V. Lutsyk and Associate Prof. O.L. Onufrienko have taken seminars with heads of some enterprises of light industry as for ecomangement and ecoaudit introduction at the enterprises of this branch but, unfortunately, these questions have not become widespread, because on the one hand there is no theoretical basis and on the other hand Governmental Decrees and Laws about environmental protection are not fulfilled completely.

Thus , as there is a necessity of wide education of the Bachelors of the University, engineers and heads of enterprises in the field of systematical and ecological approach to the enterprise activity, dissemination and introduction of the ecomangement and ecoaudit system at enterprises of Ukraine including enterprises of light industry, it is offered to develop the new studying course **“Principles of ecological management and audit”** within the bounds of European Educational Fund (TEMPUS). Taking into account theoretical basis and practical experience of the department of heat engineering, labour and environmental protection of KNUTD, relations of the University and the department with other establishments of higher education, a wide net of distant centers of the University in Ukraine, this department is offered to be a centre of necessary materials development for

this course and dissemination of the experience at the establishments of higher education and enterprises of light, textile and adjacent branches of Ukraine.

The main conceptual demands to the new course “**Principles of ecological management and audit**” are:

1) **The object of the given course is:**

- a) professional training and creation of some knowledge system about the structure of main parts of ecological management and audit system, as a part of the general enterprise management system;
- b) specialists training who are able to introduce theory into practice of production ecologization on the level of managing, technological and economic decisions.

In the course of studying this subject the students must learn current theoretical material about organizational structure of ecomanagement system, activity as for the planning, functional responsibility and duties, experience, methods, procedures and resources for formation, fulfillment and improvement of ecological policy of the enterprise with ecological audit application.

2) **The main tasks of the course:**

- Bachelors’ and specialists’ outlook formation, which is oriented towards environmental protection and rational use of natural resources;
  - learning the methods of systematical and ecological approach to solving the problems of environmental protection, using ecological management and ecoaudit;
  - mastering, developing and introduction of the models of ecological production modernization, based on using international and national standards of ecological management and ecoaudit, ecological engineering, ecological consulting, ecological marketing with using the researches and developments of the authors of the inquiry.
- 3) The theoretical and practical base of the new course are not only international and state standards but also State documents about ecological problems, leading European countries experience, certain examples from the world practice.
- 4) During the studying the theoretical basis of the course, writing course papers, performing practical tasks and business role play the students must:
- **KNOW** the main sources of biosphere pollution, anthropic activity influence on the environment, modern approaches to environmental protection organization, laws and normative documents about environmental protection, the main tasks and types of ecomanagement and ecoaudit;
  - **BE ABLE** to determine the main parameters of environmental quality, estimate the influence of the entrepreneurship object on the environment, develop the system of ecological management, conduct ecological auditing of the enterprise, count ecological and economic effect from the offered environment protecting actions, foresee ecological consequences of new technologies and equipment introduction.

- 5) During working out the curriculum of the course it is necessary to foresee conditions for the formation of branch studying and demonstrating center either on the basis of KNUTD or at one of the branch enterprises. For creation of the studying course and branch studying and demonstrating center it is expected:
- Preparation, writing and publication of scientific and methodic materials and textbooks;
  - working out and publication of normative and instructive documents;
  - dissemination, exchange and improvement of the course and scientific working out of students and lecturers by means of studying or training periods at the leading Ukrainian and European higher educational establishments.
- 6) **The time of fulfillment** of the grant is 3 years and 1 year is for the introduction of the new course into the curriculum.
- 7) **Financial expenditures** during the fulfillment of the grant are connected with:
- payment of material encouragement and the project executors;
  - acquisition of the study room with PCs for branch studying and demonstrating center, work with the course materials and development of role plays;
  - publication of scientific and methodical papers and exercise-books;
  - business trips to the leading higher educational establishments of Europe (including Ukraine) to exchange experience.

Thus, ecological education of students must be introduced on the following principle "Introduction through instruction " on the basis of teachers experience of the environmental protecting work of leading branch enterprises. Such approach allows to improve the studying process and bring nearer the recommended studying course to the similar nature protecting courses of the leading European Universities.

This inquiry was prepared by:

the Head of the heat engineering,  
labour and environment protection  
department of KNUTD,  
Doctor of Technology, Professor

R. Lutsyk

Dr. Oleg V. Anokhin  
Head of department of foreign-economy relationships of  
Kiev National University of technologies and design.  
01011;GSP, Kiev-11;Ukraine,Nemirovicha-Danchenko str.#2;Aud.# 1-0213;  
tel. (380-44)- 280-8530; tel/fax/modem: (380-44)- 256-84-68  
eco-freak@sovereign.kiev.ua

# **1. BASES OF THE PROJECT «THE INTERNATIONAL ECOLOGICAL PRACTICE OF STUDENTS IN BASINS OF THE DNIEPER AND THE DNIESTER»**

## **1a. Problems and the analysis of needs of the country/countries-partners:**

*Context of national higher education in the countries-partners and their attitude to the project offer.*

During years (in Soviet Union) the higher education in Ukraine and Moldova (including engineering sciences) has been directed on support of large-scale industrial and military projects of Soviet Union. In the eightieth years of 20-th century intensive development of some industries and agriculture has put a number of environmental problems before a government of the Soviet Union. However engineering (engineer, technical) education of the Soviet style has appeared unable and not interested to represent the facts. In Ukraine the ecological situation was aggravated with Chernobyl accident (1996).

After finding independence by Ukraine and Moldova (end of the XX-th century), an ecological science as a separate speciality, at last, have entered higher education of these countries. It was promoted by the governments of republics, the academic scientific institutes, leading universities and other organizers, including participants of some previous projects Tempus, Tasis and others in Ukraine and Moldova. However, this speciality, first, generally "struggles" with negative anthropogenous influences. Secondly, it often has theoretical "room" character. And thirdly, the speciality insufficiently reflects specificity of environmental problems in various branches of manufacture, for example, in agriculture, textile and clothing industry, lather and footwear industry and others.

The inadequate content of separate courses and programs is aggravated by the structure and methodology of ecological training that mismatches European practice of higher education with two levels, which generally recognized. However the countries and their establishments of the higher state education show readiness for improvement of an existing situation in the content of an ecological science and in methodology of training. Besides, new production enterprises of Ukraine and Moldova accept the western approaches in a selection and estimation of the personnel, which is necessary for them; therefore, a level of requirements to education in spirit of the western style is high.

Thus, the decision of problems of the project offered below, is necessary for the countries-partners for expansion of the international communications between universities of the Europe, and, especially, for improvement of quality of ecological education of the experts

working in branches of the consumer goods manufacturing and agriculture, and also the decision of the important environmental problems in basins of the Dnieper and the Dniester.

*The Reference to the important positions of planned development for target universities:*

The Consortium has been developed so that participating universities of the countries-partners had the interest in constant perfection of a technical education. Plans for development of Universities of the countries-partners show, that their basic purpose is a creation of a modern education system according to the best world practice. Universities of the countries-partners, which participate in the project, are ready to develop system with two educational levels in the spirit of Bologna process. Especially, they are ready to concentrate on the certain reconstruction of training **from (of)** ecological engineering science in the field of agriculture (the State agrarian university of Moldova – SAUM) and manufactures of the consumer goods (the Kyiv national university of technologies and design - KNUTD).

Target(?) universities are leading state universities in Ukraine and Moldova. KNUTD prepares experts in the field of technologies and design of the goods and products, the chemical, textile and clothing industry, lather and footwear industry, and SAUM - in the field of agriculture. These universities have distinctions in the field of preparation of engineers. But their common problems guarantee achievement of objects in view of the project, as by development of training courses (or reconstruction of existing) and creation of the advanced programs according to two-level preparation, and in the field of ecological monitoring of basins of rivers the Dnieper and the Dniester and development of offers on improvement of quality of water in these rivers.

These universities have well prepared staffs of teachers and scientific experts. Their authority in the field of higher education in the countries will help to distribute positive results of the project in other establishments of higher education.

*How the project offer has arisen and has been developed:* the University of Brighton, the Kyiv national university of technologies and design, the Estonian agrarian university and the Institute of agriculture and research of an environment, which is included into its structure, State agrarian university of Moldova have established cooperation in spheres of a science and development of higher education, including the general projects and programs in the countries of former Soviet Union. The chronology of partnership includes a wide variety of projects, an exchange of the scientific information in the field of ecology, meetings and visiting in the Europe and in the countries-partners, consultations, mutual aid in preparation of textbooks and manuals.

All this work and the joint analysis of the major environmental problems of the countries-partners have prepared the understanding (decision), which all members of a consortium share, about necessity of coordinated, planned action — carrying out of joint ecological practice of students of universities-members of a consortium on the major waterways

of the countries-partners - the Dnieper and the Dniester. Water resources of the Dnieper make about 80 % of water resources of Ukraine. The mid-annual volume of its drain in a mouth makes 53 км<sup>3</sup>. The Dnieper is the basic, and often only source of water supply of great industrial centres of the South and the South-East part of Ukraine. As a whole the Dnieper provides with water 2/3 of the territory of Ukraine, more than 30 million person, 50 great cities, up to 10 thousand enterprises, 2200 of rural and more than 1000 of municipal services, 4 nuclear stations. On the Ukrainian part of the Dnieper there are six large water basins with the certain conditions of ecosystem functioning and formations of quality of water.

The Dniester begins in the Ukrainian Carpathians, crosses Republic Moldova from the North to the South and flows into the **Dniesterovsky estuary** of the Black sea in Ukraine. The mid-annual charge of water in a mouth makes nearby 300 m<sup>3</sup>/c, an annual drain - 8,7 км<sup>3</sup>. Water of the Dniester is used for an irrigation and water supply. There are many storage pools in a river basin.

Annually both to the Dnieper, and to the Dniester, the enterprises of the industry, agriculture and municipal services, dump a plenty of the polluted sewage. A great quantity of biogenic substances, heavy metals, artificial inorganic and organic substances of toxic action get into these rivers with sewage. Therefore acquaintance of students with environmental problems of basins of the rivers, studying by them of structure of harmful substances in water and independently analyzed quantity of water in the Dnieper and the Dniester are very important for increase of their theoretical and practical knowledge on problems of an ecological condition of basins of the rivers which are investigated, and also for improvement of quality of potable water.

In parallel this action will allow to solve some important problems (tasks) for the countries - members of a consortium: development of the international cooperation between students and teachers of universities of the EU countries and the countries-partners; exchange of experience (equipment, methodology) in carrying out of monitoring of the ecological condition of basins of the rivers; development on the basis of the received experience of new curriculums (academic programs) and courses on eco-management and eco-audit and reconstruction of existing ones, methods and means of protection of an environment and its monitoring in the spirit of the Bologna process; joint development of maps of a condition of water and preparation of recommendations for National programs on protection of an environment and constant development of Ukraine and Moldova. Members of a consortium consider, that conclusions and recommendations which will be received as a result of performance of the project, can be applied for the International ecological monitoring of other waterways in the Europe, for example, the Danube.

## **1b. Representation of a consortium:**

For execution of the project members of a consortium were chosen, that are capable to carry out all problems (tasks) of the project at high scientifically-methodical and organizational levels and they combine modern methods of training and the academic resources of leading European universities with capabilities of the advanced capital Universities of Ukraine and Moldova. At a selection (choice) of members of a consortium their ability to spread results of the project in other (regional) educational centers of Ukraine and Moldova was also considered.

There are extensive programs of training courses in the field of technologies and engineering in the University of Brighton (UB), which has old traditions on a technical education. The University as a whole and, in a particular, the faculty of science and engineering, has wide experience of the international contacts and can guarantee adaptation of the best European and British practice in the field of ecological engineering. This university participated in many projects in Russia, Ukraine and Moldova. It provides additional knowledge of a condition of an education system in the countries of former Soviet Union.

The Estonian agrarian university and the Institute of an agriculture and research of environment (UAE), which is included into its structure is one of the greatest establishments of higher education of Estonia. In conformity with the mission this university provides the differentiated, multilevel, qualitative education. The university has developed research and material base of UAE and was the participant of some European projects in which experience of adaptation of training programs of former Soviet style to the best European practice of higher education was received. At the university development of training courses and programs in conformity with the Bologna process proceeds.

### **P.S. To coordinate with representatives of university.**

The Kyiv National University of Technologies and Design (KNUTD) is one of the greatest and known technological universities of Ukraine. About 12 thousand students on 26 specialities are trained in it. Except of the fundamental educational base in Kyiv, KNUTD has a wide network of the training and advisory (**consultative**) centers for remote education all over Ukraine (22 branches). The University has wide experience of participation in the European and Canadian projects and programs of a different level, including, devoted to questions of ecology and introduction of European ecological standards ISO in Ukraine. On the basis of the University the training and scientific complex functions, which includes 15 higher educational institutions.

Today KNUTD develops and applies credit-modular system in educational process for realization of general provisions of the Bologna declaration (declaration of Bologna) and transition to two-level system of higher education.

The State Agrarian University of Moldova (SAUM) is the base university of the country on preparation of experts for agriculture.

***P.S. To coordinate with representatives of the university.***

### **III. 2. The project**

On the basis of an operational experience in the field of higher education and using of knowledge of previous projects Tempus, members of a consortium consider, that there is a necessity of carrying out of carefully planned international ecological practice of students from universities of the countries-members of a consortium on the major waterways of the Europe - rivers the Dnieper and the Dniester.

**The Basic purpose of the project:** To promote widening of an outlook of teachers of universities and of the future experts on eco-economic and social problems of basins of rivers the Dnieper and the Dniester, to receive a modern level of knowledge on preservation and improvement of systems of operation of large-scale water-economic systems. To develop new and improve existing training courses in the field of ecological monitoring, ecomanagment and ecoaudit for improvement of quality of higher education within the limits of Bologna declaration on the basis of results of the analysis of the ecological researches made in basins of the rivers.

**The Special purposes of the project:**

- To develop principles of introduction basin systems of rivers the Dnieper and the Dniester on the basis of the analysis of the organization of basin control of waters of the advanced systems of the EU countries (the Great Britain, France, Germany);
- To organize field researches on monitoring parts of river-beds of the Dnieper and the Dniester;
- To execute theoretical and experimental studying of influence of a socially-technical infrastructure of economic (state and private) objects on a condition of water resources of the Dnieper and the Dniester;
- To extend students' knowledge participants of the project, on the basis of carrying out of experimental researches and their analysis, mastering of fundamental theoretical positions and to an exchange of experience concerning tasks which are considered;
- To develop maps of a condition of water in the Dnieper and the Dniester, to fulfill the analysis of a condition of an environment in basins of the rivers, to prepare

recommendations for National programs on protection of an environment and constant development of Ukraine and Moldova;

- To develop (on the basis of the received experience and information interchange) new and to reconstruct existing curriculums and courses, to prepare textbooks and manuals in the field of ecological engineering in the spirit of Bologna process;
- To develop the international cooperation between students and teachers of universities - participants of a consortium in solving of the major national environmental problems;
- To examine results of the project, distribution and transfer results of work to other establishments of higher education of the countries-partners.

For achievement of the purposes of the project execution of following problems is necessary:

- Using forces, experience and methodological approaches of each member of a consortium to develop the full, consecutive program of carrying out of the international ecological practice of students in basins of the Dnieper and the Dniester; to develop programs and courses for system with two-level preparation (bachelors and masters) in ecological engineering;
- To fulfill a spadework on the organization of ecological practice of students, choosing and training for this purpose the most competent teachers and capable students from universities - participants of a consortium and other higher educational institutions of the Europe and the countries - partners;
- To fulfill ecological monitoring of water and a coastal zone on the chosen parts of rivers the Dnieper and the Dniester, to make the analysis of an ecological condition of these basins and to develop concrete recommendations on creation of large-scale schemes of basin control of water-economic objects;
- To systematize and make the analysis of concrete results and existing methods of training in the field of engineering ecology for introduction to an educational practice of new courses (not less than five) on ecomanagment and ecoaudit, to methods and means of monitoring and protection of an environment, management of nature protection activity, and also for preparation of manuals on carrying out of ecological practice and trainings as for stationary, so for remote training (on the basis of introduction of international Standards ISO of a series 14000);
- To organize and fulfill examination of results of the project and working out (**elaboration**) of distribution of these results.

***P.S. To add after the coordination.***

In "Recommendations" to drawing up of the application for the project it is told, that this part of offers (problem) should not repeat the table given below. Therefore the detailed description of the actions that planned according to the purposes and problems of the project will be put in tables « Result/production and activity ». In the given place we wish to present logic of our actions and the list of prospective results.

*The first stage (component) « Results of production and activity »:* Preparation and carrying out of the international ecological practice in basin of the Dnieper.

1. Not less than 20 teachers, 5 experts-ecologists and 60 students are selected and prepared (retrained) within the limits of problems of the project. The number of teachers consists of teachers who are prepared to carry out practice, and the academic staff of universities participating in development of courses and programs.

2. Working out of the content, structure and methodology of carrying out of ecological practice in view of environmental problems of basin of the Dnieper. The special accent is put on a choice of the equipment, use of modern technologies, information and communications.

3. Carrying out of ecological practice of students in basin of the Dnieper.

4. Processing and the analysis of results of practice. Development of recommendations on protection of an environment in basin of the Dnieper. Preparation, adaptation and the edition of not less than 10 printed works and materials on training and preparation of students.

*The second stage (component) « Results/Productions and activity »:* Preparation and carrying out of the international ecological practice of students in basin of the Dniester.

5. Within the limits of the project problems and, especially, the second stage not less than 10 teachers (including the academic structure), four experts-ecologists and 40 students were got out and prepared.

6. Development of problems and the content of ecological practice of students in view of environmental problems in basin of the Dniester.

7. Carrying out of ecological practice in basin of the Dniester.

8. Processing and the analysis of practice results. Development of recommendations on protection of an environment in basin of the Dniester. Preparation and the edition of scientific articles and training materials (not less than 6).

*The third stage (component) « Results/Productions and activity »:* Generalization of results of international ecological practices in basins of rivers the Dnieper and the Dniester. Working out, examination, approbation and distribution of results of the project.

9. The analysis and generalization of results of international ecological practice in basin of the Dnieper and the Dniester. Working out of recommendations on preservation of the environment, basin control of a water economy, etc.

10. Development and introduction in system of ecological education of Ukraine and Moldova of new teaching materials (courses, programs, methods, practices), distribution of results of the project.

It is planned, that the first year will be concentrated basically on the first stage (Results 1,2,3) and there will be a promotion to the second and third stages (Results 4,10). The second year will be devoted to Results 5,6,7 and, partly, 8,10. In the third year it is necessary to finish results 4,8 and finally to execute Results 9, 10.

Details of the schedule of works on performance of the project are given in tables « the Working plan » on years. The description of each separate activity and corresponding results and resources are reflected in tables « Results/Productions and activity ».

Within the limits of the first stage it is planned, that the actions connected with Result 1 « the Selection and retraining of teachers and students » will include: registration (selection) of teachers from universities of participants, informing teachers about the program of the project, seminars for teachers with participation of professors and experts-ecologists from UB, Estonia, Ukraine and Moldova. The feedback, based on the general principles, will be analyzed with participants of the project concerning the further development of detailed approaches to the program. The prepared teachers carry out a set of students at the universities and spend with them seminars and sessions-trainings. Actions also include necessary language preparation of teachers and students for perfection of language of dialogue (especially for participants of the countries-partners). Work by Result 1 is especially important for content of the further performance of the program of the project and education of working groups of teachers from the EU countries and the countries-partners.

Actions within the limits of Result 2 « Development of the content, structure and methodology of ecological practice in basin of the Dnieper », on the one hand, are based on experience and methodological approaches of each member of a consortium, and on the other hand, should consider specific environmental problems of basin of the Dnieper. Therefore the actions connected with Result 2, should be developed by working groups together with ecologists-experts on basin to systems and the academic scientists.

The route and the plan of carrying out of field researches will be developed, chosen monitoring parts of a river-bad of the Dnieper; groups of parameters of quality of water are fixed and the equipment necessary for gaugings is defined (the quantity and importance for quality of parameters of water will depend on the equipment presented by universities and got at implementation of the project); the enterprises which essentially influence on ecology in basin of the Dnieper are chosen and the plan of their visitings is made; subjects and the plan of lectures

and constantly operating seminars are developed; the contract with Richflot of Ukraine is concluded on booking seats on steamships.

The actions undertaken Result 3 « Carrying out of ecological practice in basin of the Dnieper », complex enough and responsible. Carrying out of ecological practice by the ship is planned. It will pass across the Dnieper on a route Kyiv — Kaniv — Cherkasy — Dnipropetrovsk — Zaporizhya — Kherson — Odesa. It is a route of the first basic group of 30 students, which are divided into working groups of 5-6 students and one-two teachers. The second basic group will take the ship in Odesa and will go across the Dnieper on a return route. During a route working groups do gaugings in the chosen marketing points, count parameters of quality of water; listen to thematic lectures and participate in seminars and round tables; on parking visit the chosen enterprises and make the analysis of a condition of ecomanagement on them; participate in the cultural-historical program, etc.

Actions within the limits of Result 4 « Processing and the analysis of results of practice » assume the following. After completing of ecological practice working groups at the universities with other teachers (the academic mobility)

- Build and analyze tables and schedules of parameters of water quality, which correspond a route;
- Analyze a condition of the coastal zone of Dnipropetrovsk storage pools; evaluate conditions of ecology of the Dnieper;
- Define a degree of introduction of International Standards ISO 14000 at the enterprises in basins of the Dnieper, estimate quality basin control system. On the basis of the received materials, taking into consideration the European experience, recommendations are developed for improvement of a condition and preservation of the environment; materials (articles, training courses and practical works) for publication and implementation in educational process are prepared. At the same time wide attraction of the academic stuff of universities is carried out. Plans of training will be developed for each course chosen for development within the limits of the project. Contents of lectures and seminars will be prepared. Actions of Result 4 take place within the second year (approbation and examination) and the third year (introduction and distribution) of implementation of the project program.

Actions within the limits of the second stage (component) of the project (Results 5,6,7 and 8) basically are spent during the second year of realization of the project and devoted to carrying out of ecological practice in basin of the Dniester - the river which flows across the territory of Moldova, and Ukraine. It is planned to carry out these actions according to experience of implementation of the first stage (1-st year) of the project, therefore they will repeat, in one way or another, actions of Results 1, 2, 3, 4, but in accordance with environmental

problems of basin of the Dniester and problems connected with improvement of quality of higher education of Moldova.

Thus, the actions connected with Result 5 « the Selection and preparation of teachers and students for carrying out of practice in basin of the Dniester », as well as a Result 1, include: a selection of teachers from universities of the countries-participants, their training at seminars with participation of the academic staff and ecologists; enrollment of students and creation of working groups; seminars and sessions-trainings, including, language training of working groups.

Actions within the limits of Result 6 « Development, the content and methodology of passing of ecological practice in basin of the Dniester » are similar to actions of Result 2, but have the specific features.

***P.S. Features and tasks need to be coordinated in more detail with representatives of Agrarian university of Moldova.***

***The same situation with actions by Result 7 « Carrying out of ecological practice in basin of the Dniester ». Problems and their implementation should differ from works of the 1-st year (practice across the Dnieper).***

Actions of Result 8 « Processing and the analysis of results of practice in basin of the Dniester » are carried out as a consequence of Results 6 and 7. Processing of results of practice across the Dniester includes not only actions on the analysis of quality of water in the river, but also fulfillment of some problems connected with a cadastre and a geodesy. Working groups, the academic staff of universities and experts of the corresponding Ministries participate in work. As a result recommendations on decrease of environmental pollution in basin of the Dniester, in territory of Moldova, and Ukraine are prepared; according to problems, teaching materials are created. They are examined, published and taken root into educational process. Actions of result 8 continue also within the third year of performance of the project.

Within the limits of the third stage of the project, action of Result 9 are directed to work on the analysis and generalization of results of international practice of students in basins of the Dnieper and the Dniester; development of generalizing recommendations on improvement of quality of potable water, improvement of a condition of an environment in basins of the rivers, more intensive introduction of the International Standards of Series ISO 1400 on the enterprises of Ukraine and Moldova, application of basin principle of control of a water economy of the countries-partners and others.

The second, not less important, part of action by Result 9 is work on introduction of the teaching materials developed in Result 4, and also continuation (generalization) and expansion of the works passed by Result 8. Development of structures for the corresponding courses based on

the analysis of the Western and East-European practice and results, received in the project is planned. Rates, within the limits of this result, will be based on the updated and new courses necessary for higher education in the field of ecological engineering. Special training-session will be organized for teachers with the purpose of development of skills and creations of special electronic versions of courses for interactive remote education. In KNUTD the new laboratory «Methods and means of environmental protection» will be created. On the basis of this laboratory not less than six new laboratory works will be developed and methodical instructions for fulfillment of these works are created.

The important part of actions within the limits of result is the general approach to a feedback with participants of the project by means of sessions-trainings for teachers, lectures and seminars for students, preparation of special publications, which will supplement the developed courses. The obligatory constant control of activity over monitoring of adequacy of the updated courses will be developed to provide data for development of system with two levels of training. Thus it is guaranteed, that teachers and students will be provided by the full, all-round information. All these actions will be carried out during the project to check up developed materials and to receive a feedback on training from students.

Actions of Result 10 « Distribution of the received results », include:

- Publications in scientific and research editions, and also in mass media;
- Carrying out of round tables, conferences, seminars, and meetings with the invitation of government officials and representatives of related establishments (high schools, firms, the ministries);
- Development of structure for regular distribution of the new materials developed within the limits of the project, among other establishments of education in various areas of Ukraine and Moldova;
- Preparation of booklets of the project, pens, folders, etc. for distribution of the information on the project;
- Development and content of a web site which contains materials which are developed within the limits of the project, news about achievements of the project, interactive pages.

All this will provide an additional feedback from other establishments, will improve professional contacts and will facilitate cooperation with representatives of the central and regional educational bodies with the purpose of development and distribution of results of the project.

### Working plan of the first year project

Items/subitems and activity		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
№	Name												
T.1	Selection and retraining of teachers and students	O											
1.1	List and information for teachers on program of the first stage	==xx	xx==										
1.2	Training and implementation of seminars and sessions – trainings of teachers		==xx	xxxx	==xx								
1.3	Selection and training of students				==xx	xxxx	xx==						
T.2	Elaboration of content of practice in basin of the Dnieper	O											
2.1	Organization of working-groups with participation of trained teachers, ecologists and academic staff			==	=xxx	xxxx	xxx=			==xx	==xx		
2.2	Elaboration of program and contest of practice				==	=xxx	xxxx	==					
2.3	Preparatory works on organization of practice		==xx	xxxx	xx==	=xxx	xxxx	=					
T.3	Implementation of ecological practice in basin of the Dnieper												
3.1	Works on determination of indexes of water quality and condition of storage pools of the Dnieper							xxxx	xxxx				
3.2	Implementation of lectures and seminars on problems of the Dnieper							=xxx	=xxx				
3.3	Visiting of chosen establishments in basin of the Dnieper and analyzes of their ecomanagement							xxxx	xxxx				
T.4	Processing and analyze of practice results												
4.1	Science and methodical processing of practice results								==	=xxx	xx==	xxxx	==xx
4.2	Elaboration of recommendations on protection of environment in the Dnieper basin										==xx	xx==	xxxx
4.3	Elaboration of teaching materials and courses								=	===x	xxxx	xx==	xxxx

**P.S.** Working plan of the second year will be similar to this one, but it will reflect specialities of ecological practice in the basin of the Dniester.

Working plan of the third year will be devoted to elaboration of generalized recommendations, to elaboration, implementation into studying process and dissemination of teaching materials and courses.