

## **A Training of Russian Students-Ecologists to Handle Urgent Environmental Problems of Russian Far East (on example of Vladivostok State University of Economics and Service)**

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Russian Far East occupies more than 1/6 of the whole territory of Russia. This region is traditionally considered to be the main supplier of natural resources for the country. Primorskiy Krai (Territory of Primorskiy Krai) - the most densely populated and developed region situated on the South of Russian Far East. This region is characterized with the range of natural and socio-economic features. First, Primorskiy Krai is the place of natural resources extraction for the last 150 years. Its present and future depend on the availability of the natural resources. Secondly, the territory of Primorskiy Krai forms the unique natural complex where the many species of flora and fauna are of the special biosphere importance.

The modern concept of rational nature management suggests not only the inventorying and monitoring of the resources but also the practical activities directed to the conservation of all mineral and biological resources as well as the biodiversity itself.

Despite the facts that 80% of the territory of the Primorskiy Krai is covered by the forest and the whole population of the region comprise only about 2 million people there are several zones of ecological crises caused by technological activities of people. These are Dalnegorskiy Region (chemical pollution), Amurskiy Bay (industrial and municipal pollution), lake Hanka (industrial and agricultural pollution) and Vladivostok (pollution with car fleet discharge). Actually there are more than 20'000 of enterprises and companies working in the region. Many of them use the ecological services (ecological expertise and ecological auditing). There are a lot of institutes of Russian Academy of Sciences operating in the Primorskiy Krai as well as the system of nature reserves. There are also organisations responsible for ecological security operating in the region. Primorskiy Krai is the place of rapid development of ecological tourism. All the above mentioned predetermine the need in conducting of special trainings for ecologists. These trainings are conducted in 5 universities and several colleges.

Vladivostok State University of Economics and Service (VSUES) - the second largest university of Russian Far East, conducts tutorials in 40 different majors. The training of ecologists started in VSUES 10 years ago when the Department of Ecology and Nature Management was formed. From the first years of its foundation the Department works in close cooperation with institutes of Russian Academy of Science working with their staff and laboratories. Actually the present day task of the university is not only the training of the specialists in full correspondence with state educational standards and up-to-date level of rapidly developed science and technologies but also to provide its graduates with the sufficient demand on the labor market. The second task is not a simple one under the times of economic crisis.

Department of Ecology and Nature Management of VSUES has its own research laboratories such as laboratory of eco-monitoring which is specialised on ecological expertise and laboratory of plant resources specialised on researches of biologically active substances extracted from vegetable materials. At the same

time the Department of Ecology and Nature Management expands the full scale base for industry based learning for students-ecologists. Currently the Department conducts the industry based courses for the students in many companies of Primorskiy Krai as well as in the institutes of Far East Branch of Russian Academy of Sciences operating in the field of natural science. After 3-4 years of study in university the industry based courses develop into the complex preparation of research based work which involves elaboration of real world scientific and applied tasks. The way of study based on the close cooperation between education, science and real world production is the only way of present day training for the junior specialists. In order to assist junior specialists to get a proper job the Department continuously monitors the career of the graduates who are currently work in the companies of Primorskiy Kray, Sakhalin, Kamchatka and Siberia.

The future specialisation, personal interests and present day needs of science and production are the trends which predetermine the topic of research based works of students. Let us enumerate some of them:

- The elements of the ecological passport for manufacturing enterprise based on example of corporation 'Dalzavod';
- Reconstruction of the sewage bio-purification plan in city Bolshoi Kamen;
- Methods of chemical pollution detection in vegetables of the Primorskiy Krai;
- The distribution of pollution to the atmosphere of Primorskiy Krai emitted by car fleet in 2007;
- The conservation of bio-resources (on example of Sea of Japan and Sea of Okhotsk);
- Eco-geographical expertise of the oil pipeline zone in cape Kamenniy;
- Ecological legal reasoning for the oil pipeline construction of the project Sakhalin-I;
- Improvement of the system of eco-payments in order to decrease the environmental pollution (on example of municipal enterprise 'VPOPAT-I');
- Ecological estimation of the operations of the air company 'Utair';
- Waste disposal of oil refining products and oil accident elimination;
- Waste management in 'Coca Cola HBC Eurasia' in Vladivostok;
- Prospects of eco-tourism development in Primorskiy Krai on the example of tourist company 'Elit-tour';
- Ecological legal reasoning for waste disposal ground in city Nakhodka;

It can be observed from the adduced list that most of the researches have real world base that facilitate junior specialists to find jobs in different companies of Russian Far East.