

## **Institute of North Industrial Ecology Problems (INEP KSC RAS )**

Established in 1989 and is a leading institute in the field of scientific foundations development on ecological optimization of nature management, natural environment preservation and biodiversity of the Russian Arctic industrialized regions.

Currently, the staff of the Institute amounts to 81 people, including 36 research associates, among them: 5 researchers with Doctorate Degree , 28 with Ph Degree and 10 post-graduates.

### **Study of the natural environment and its components**

The main areas of research are:

- study of the ecology, diversity and functioning of freshwater and terrestrial ecosystems in the Arctic under changing environment and climate conditions;
- development of scientific principles for the methods of ecological and biochemical monitoring; indication of ecological components state in the natural and natural-economic systems; monitoring of rare endangered species of living organisms, valuable and rare plant communities; estimation of permissible loads
- inventory of the Arctic biodiversity, formation of biological collections;
- assessment of the adventive invasive impact on biodiversity and ecosystems in the Arctic;
- scientific justification of the development and modernization of the specially protected natural network of areas in the Arctic;
- development of scientific foundations for technologies of restoring the damaged ecosystems, including those polluted with oil products;
- temporal and spatial dynamics analysis of the geochemical and biochemical transformation for a substance in the Arctic natural systems.

### **Industrial ecology**

**The principal trends of activity include:**

1. Applying combined processing and hydrometallurgical methods, geo- and biotechnologies in dressing and processing poor ores and man-made raw materials (overburden dumps, tailings, slag).
2. Developing methods for producing building and ecology-oriented materials (meliorants, binding agents etc.) from mining waste.
3. Study of the water management and water disposal impact on the Subarctic environment; development of the water protection measures implemented at mining and metallurgical enterprises.
4. Justification of methods for protecting natural reservoirs and waste water treatment from pollution and its mitigation using modified natural and artificial sorbents and geochemical barriers

### **Research assisting subdivisions:**

- The International Relations Department
- Centre for collective use of physical and chemical analysis methods of natural environment and biological objects
- "IMANDRA" station for complex ecological monitoring
- Network for intensive monitoring of boreal forest state on the Kola Peninsula
- Herbarium of INEP KSC RAS

One of the priorities of the Institute is training highly qualified personnel and participation in ecological education. INEP KSC RAS is the basic organization for higher educational institutions of the Murmansk region in the field of ecology, biology, geoecology and rational nature management. Researchers of the Institute are actively engaged in teaching at Apatity Branch of Murmansk Arctic State University (ABMASU) and Apatity Branch of Murmansk State Technical University (AB MSTU)

The Institute supports post-graduate courses on specialities:

05.06.01 – Earth sciences "Geoecology"

06.06.01 – Biology sciences "Ecology"

<http://www.ksc.ru/instituty/institut-problem-promyshlennoy-ekologii-severa/>