

FASO RUSSIA FEDERAL RESEARCH CENTRE
«KOLA SCIENCE CENTRE OF THE RUSSIAN ACADEMY OF SCIENCE»
Institute of North Industrial Ecology Problems (INEP)

INEP structure and main activities



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INEP (Institute of Industrial Ecology Problems in the North, Kola Science Center, RAS) & UHEL-INAR (University of Helsinki, Institute for Atmospheric and Earth System Research)

Kola Science Centre of the Russian Academy of Sciences was originated from the Khibiny mountain station of the USSR Academy of Sciences (Tietta) in 1930 and was transformed into the Kola base of the USSR Academy of Sciences in 1934. It made possible to start permanent integrated researches of the regional productive forces for needs of different branches of national economy. At present, the KSC RAS comprises 6 research institutes and 3 scientific centers incorporated to the FRC KSC RAS.



the Khibiny mountain station of the USSR Academy of Sciences (Tietta)

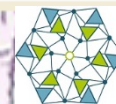


The building of administration KSC RAS (2009)

The administration building of the Kola Base 1940s



**Kola Science Center of Russian
Academy of Sciences**



ФИЦ
КНЦ
РАН



**Институт
проблем промышленной экологии
Севера**

**Institute
of the Industrial Ecology Problems
of the North**

**Кольский научный центр
Российская Академия наук**

**Kola Science Center
the Russian Academy of Sciences**

(ИППЭС КНЦ РАН)

(INEP KSC RAS)

Kola Science Center of the Russian Academy of Sciences

Geological Institute	Mining Institute	Institute of Chemistry and Technology of Rare Elements and Mineral Raw Materials	Polar Geophysical Institute
166	207	271	166

Murmansk Marine Biological Institute	Polar Alpine Botanical Garden – Institute	Institute of North Industrial Ecology Problems
176	112	86

Institute of Economic Problems	Institute of Informatics and Mathematical Modelling of Technological Processes	Center of Physical and Technical Problems of the Northern Energetics	Center for Humanitarian Problems of the Barents Region
93	40	35	16

Center of Adaptation of Human in Arctic	Center of Nanomaterials
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Technical and Experimentictial Infrastructure

Experimental production works and pilot plants	Research base «Barentsburg»	Technopark «Apatity»	Comprehensive monitoring test site «TIETTA»	Comprehensive monitoring test site «ECOVIT»
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Logistic Infrastructure

Scientific Library	Scientific archive	Publishing department
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Operating and maintenance and social infrastructure

Motor depot	Technical and community services	Hospital
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Federal Research Center "Kola Science Center of the Russian Academy of Sciences"

Mission

Performing scientific research and scientific and technological support for the implementation of the objectives of achieving strategic goals and priorities for sustainable development and security of the Arctic zone of the Russian Federation (Russian Arctic)

Areas of competence

Geology Mining Chemistry and Chemical Technology
Materials Sciences Ecology Information Technologies

Medicine Economics History and Culture

MAIN RESEARCH DIRECTIONS

■ ***ARCTIC NATURE: STATE AND EVOLUTION***

Research of properties and parameters of the Arctic natural systems, evaluation of their place and roles in global geosphere processes; study of temporary and space variability of natural systems aiming to reveal a natural evolution trends and forecast an expected change under technogenic effect.

■ ***RATIONAL NATURE USING AND DEVELOPMENT OF ECOLOGICALLY SAFE TECHNOSPHERE IN THE NORTH***

Exploration of natural resources in the Euro-Arctic region, development of the scientific bases for a harmless nature-using, creation ecologically safe technologies for rational utilization of natural and technogenic raw materials and for maintenance of an environment quality and life-support system in the North; development of monitoring systems and tools for stabilization of a balance between technosphere and environment.

■ ***SOCIAL SPHERE AND ECONOMY OF THE NORTH***

Study of a social and ethnic structure of the northern community, evaluation of a migration dynamics as well as formation and distribution of labour resources, a level and quality of life in cold climate regions; development of scientific bases for a sustainable development and social stability in the northern regions.

■ ***INFORMATIZATION OF THE NORTH***

Development of regional information networks and systems for training and education.



Development Program of FRC KSC RAS

Key landmarks and directions of development

**Sustainable
development of the
Arctic**

**Circular economy 3R
(Reduce, Reuse and
Recycle)**

**Nanomaterials
and
nanotechnologies**

**Artificial
Intelligence**

Big Data Technologies

Biotechnologies

**Economy of the
Northern
Dimension**

**Socio-humanitarian
and NBIC-technologies**

**Complex
Systems Study**



Institute of Industrial Ecology Problems in the North

**Incorporated into Kola Science Center of Russian academy
of Sciences**



**The main direction of
research:**
**Development of
scientific basis for
environmental
optimization of natural
resources using in the
industrially developed
regions in the North**

INEP Structure

- 1. Terrestrial Ecosystem Laboratory**
- 2. Aquatic Ecosystem Laboratory**
- 3. Laboratory for Interdisciplinary Environmental and Economic Research**
- 4. Industrial Ecology Laboratory**
- 5. Microorganism Ecology Laboratory**
- 6. Analytical Center for Collective Using**
- 7. Herbarium, including Main herbarium, Collection of microorganisms of the Kola Peninsula, Collection of diatoms from the Euro-Arctic region.**



ФНИЦ
КНИЦ
РАНИ



Within the framework of the Kolarctic Cross-Border Cooperation Program for 2014-2020 five projects of INEP were supported:

- 1) PAN KO2093 "Phenomena of Arctic Nature" - a stationary multimedia exhibition "Khibinarium" about the nature of the Khibiny National Park and sites for observing the Northern Lights will be created;
- 2) ACB KO1001 "Arctic Coast Bioremediation" - biotechnologies will be created for the restoration of oil-polluted coastal areas in the Arctic;
- 3) SALMUS KO1017 "Salmonid Fish and Freshwater Pearl Mussel - Riverine Ecosystem Services and Biodiversity in the Green Belt of Fennoscandia" and pearl oysters;
- 4) SEESIMA KO1030 "Supporting Environmental Economic and Social Impacts of Mining Activity" / "Supporting the environmental, economic and social sustainability of the mining industry" - developing environmentally friendly technologies for the mining industry in the Arctic;
- 5) ARINKA KO2011 "Arctic Railway Infrastructure in the Kolarctic Region" (ARINKA II) - methodological approaches to take into account environmental and natural factors, including climate change, will be substantiated when designing a reliable railway infrastructure in the Arctic .

Thanks a lot for Your attention!

