



Environmental problems of Republic Sakha (Yakutia)

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Republic of Sakha (Yakutia)



□ Republic of Sakha (Yakutia) is one of the rare places on Earth where the purity of nature and a correspondingly amazing variety of flora and fauna are left untouched.



Area	
- Total	3,083,523 km ² (1,190,555 sq mi)
Area rank	<u>1st</u>

Yakutia is well endowed with raw materials. The soil contains large reserves of oil, gas, coal, diamonds, gold, silver, tin, tungsten and many others.

Republic of Sakha (Yakutia) produces 99% of all Russian diamonds and over 25% of the diamonds mined in the world



□ However, Republic of Sakha (Yakutia) has serious environmental problems and today the key problem is preservation of these enormous natural riches.

Yakutia's environmental issues



- Yakutia's environmental issues
 - Global warming
 - deforestation
 - Urban development
 - Toxic wastes
 - Mining
 - Air, water pollution



Pollution of Lena River

- Siberia's Lena River is one of the longest rivers in the world. It rises west of Lake Baikal in southern Russia and eventually flows north for 4,400km before emptying into the Laptev Sea.



Ecological problems:

- Overfishing
- Mining
- Forestry
- Grazing
- Expanding agricultural activities
- Water diversion for irrigation
- Pollution from fertilizers and pesticides



Deforestation

- ❑ Almost half of Yakutia's land is covered by forests.
- ❑ Timber or wood is another important resource found in Republic of Sakha (Yakutia).
- ❑ Often, timber is cut down to make room for a mineral mine.
- ❑ Deforestation reduces water quality, causes erosion, & kills animals' habitats.



Forest fires

- ❑ Forest fires are dangerous guests in the central Yakutia, which annually brings a lot of trouble.
- ❑ Fire burns up valuable forests, burn the soil, the plants are destroyed, killed a lot of wild animals, birds and insects.
- ❑ Toxic products of combustion are washed away by rains into rivers and lakes and pollute the environment.



The use of mineral resources and protection of natural resources

There are valuable resources beneath the soil. It is very important to economy of Republic of Sakha (Yakutia).


Minerals:

- Gold
- Silver
- Copper
- Zinc
- iron ore, uranium, nickel and others





Threats of mining processes:

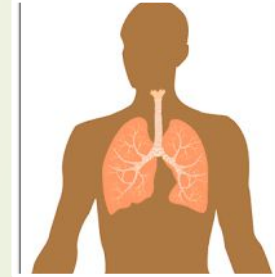
- ❑ Blasting & digging with heavy machinery are reasons that the land around mines is damaged and the environment is often ruined
 - ❑ Slag or leftover rock from the smelting process, is often dumped in any convenient place
 - ❑ Mining processes release harmful chemicals into the air, which causes acid rain.
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Air pollution. Causes and effects



Causes of air pollution

- Burning of Fossil Fuels
- Agricultural activities
- Exhaust from factories and industries
- Mining operations
- Indoor air pollution



Effects of air pollution

- Respiratory and heart problems
- Global warming
- Acid Rain
- Effect on Wildlife
- Depletion of Ozone layer

Main causes of air pollution in Republic of Sakha (Yakutia)

□ Burning of fossil fuels:

- Fossil fuel is geologic deposits of organic materials, formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the earth's crust over hundreds of millions of years.
- The burning of fossil fuels by humans is the largest source of emissions of carbon dioxide, which is one of the greenhouse gases that allows radiative forcing and contributes to global warming.



Main causes of air pollution in Republic of Sakha (Yakutia)



- ❑ **Mining operations:**
- ❑ Mining is a process where in minerals below the earth are extracted using large equipment.
- ❑ During the process dust and chemicals are released in the air causing massive air pollution.

Ways of solutions for Air Pollution

- ❑ Use public mode of transportation
- ❑ Conserve energy
- ❑ Understand the concept of Reduce, Reuse and Recycle
- ❑ Emphasis on clean energy resources
- ❑ Use energy efficient devices



The most polluted regions in Republic of Sakha (Yakutia)

Central Yakutia has high population density

- Yakutsk has a lot of enterprises located in the windless places (60 smog days in a year), transport produces 80% of emissions.



The most polluted regions in Republic of Sakha (Yakutia)

Western Yakutia - (Mirny, Ayhan, Udachnyi, Lensk)

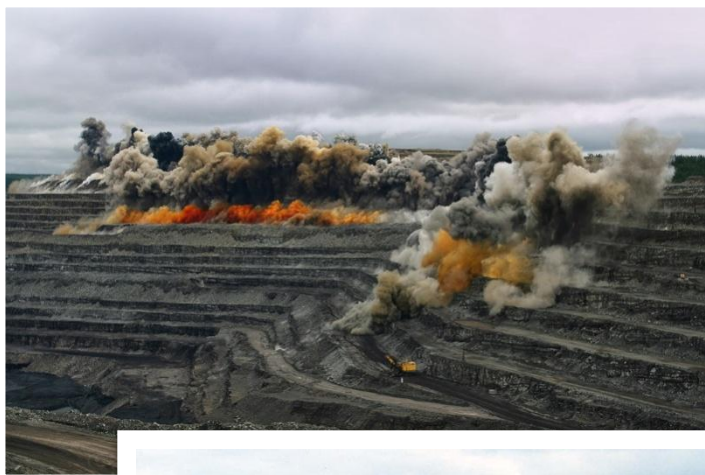
- There are the diamond industry, oil and gas companies.
- Also river Viluy is polluted by phenols, hydrogen sulfide. There has been a dramatic reduction in fish stocks, trout, whitefish, sturgeon have disappeared.
- Ecosystem got radiation (accidental explosions "Kraton-3" and "Crystal") as a result of underground nuclear explosions.



Рыболовные дневники — FIONRU



The most polluted regions in Republic of Sakha (Yakutia)



- ❑ **In South Yakutia** there are large mining and enrichment companies.
- ❑ Coal mining in Neryungri, GRES are the major contributors to the pollution emissions.
- ❑ Priority pollutants - nitrogen oxide and dioxide, benzopyrene, sulfur dioxide.
- ❑ Unique lake Big Toko is under threat from pollution and destruction in connection with the development of Elga coals.

Ways of solving environmental problems

- introduce non-waste technology;
- conservation and protection of nature, all of its components, forests;
- reforestation, planting;
- waste management;
- limit on hunting, fishing;
- monitoring;
- Creation of environmental safety information;
- Creation of a system of environmental education;
- Changes in people's consciousness.





Everyone has the right to ecological security, but also the duty of every person, citizen is to preserve and protect nature.



Thanks for attention!