WATER-SAVING INITIATIVES IN RUSSIA

BSIEM 2022 Project

INTRODUCTION

- The Russian Federation does not lack natural water resources.
With a per capita availability of **31,000** m3/year,
it holds the **3rd** place in the world after Canada and Brazil.

- About **120 000** rivers - each more than **10 km** long - flow across the territory of Russia.
Their total length is **2.3** million km.

- By **2025**, according to the UN,
Russia, Nordic countries, South America and Canada will still rank among nations
with the highest availability of fresh water with more than **20 000** m3 per capita per year

WATER AVIABILITY IN RUSSIA

Many regions in Russia experience major problems with water availability due several factors:

- to extremely uneven distribution of surface water resources;
- high time-variability;
- high degree of pollution.

SURFACE WATER QUALITY

The poor condition of many sources and systems negatively affects water supply to the population.

SURFACE WATER

UNDERGROUND WATER

fail to comply with sanitary standards and norms (**SanPiN**)

ALROSA

Russian group of diamond mining companies that specialize in exploration, mining, manufacture, and sale of diamonds

ALROSA IN RATINGS

2017

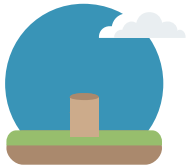
Ranked Top 5 of companies with sustainable development (Polar Index)

2018

Ranked #10 in Transparency in Corporate Reporting (Russia)

2021

Ranked #53 in Arctic Environmental Responsibility Index (AERI)



ALROSA'S PRODUCTION SET OF MESURES

01

DEPLOYING

water reclamation systems at production facilities to reduce their clean water intake;

02

REDUCING

the volume of pollutants emitted into the environment by upgrading the purification facilities

03

ELIMITATING

the possibility of surface-level brine contamination by expanding the current network of drainage water injection wells.

04

SHIFTING

to a water reclamation system at its ore treatment facilities

INCIDENTS

In 2019 as a result of mining activities, the territory in general and Vilyuy river in particular, tremendously suffered severe heavy metal contamination.

CONSEQUENCES

The judges passed by the Arbitration Court of the Republic of Sakha (Yakutia) to bring ALROSA to administrative responsibility making it pay a fine of **50,000 rubles ($867.68)** for violating the local water-use conditions.

incident went almost non-covered by the media outlets neither in Russia, nor in the world.

ALROSA'S FUTURE TRENDS AT REDUCING IMPACT ON WATER BODIES

REDUCTION

of raw water intake for production purposes due to water reuse systems applied

CONTROL

leakages from public and industrial water supply pipes and heating pipes and elimination of the leakages

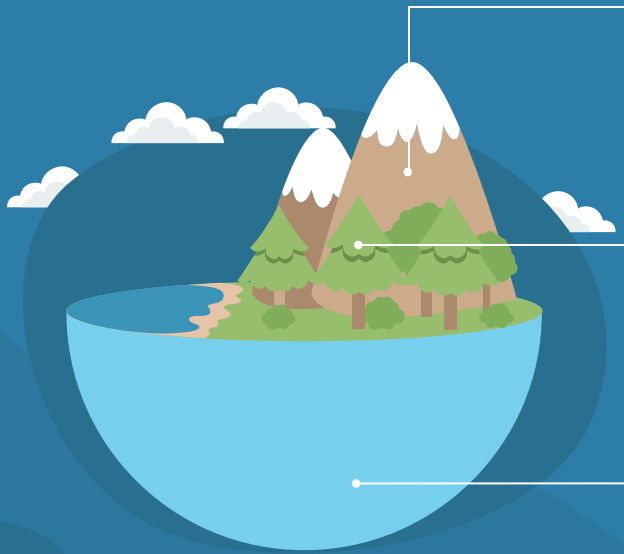
SALWATER

injection (associated water from open pit mines and underground mines) to the underground water-bearing horizon

MONITORING

water object, control of natural and sewage water quality

PRACTICIES WITHIN FOREIGN COUNTRIES



FORD

dry-paint-spray system eliminated water from the car-painting process, and a new lubricant saved about 280,000 gallons per production line

COLGATE-PALMOLIVE

reduced the plant's water use by 1.8 million gallons annually while also significantly reducing the amount of time required for cleaning and sanitizing.

LEVI STRAUSS

launched a Recycle & Reuse compliance program, which requires that each supplier meet certain limits; use a blend of at least 20 percent recycled water in its facility processing

FINAL CONCLUSION

The mining industry is currently faced with significant challenges not only in terms of energy usage, but water consumption as well.

The World Economic Forum7 predicts a shortfall of **40%** between demand and supply of water by **2030**. This represents the greatest global economic risk over the next decade.

Saving water is vital for the long-term sustainability of the mining industry. Embracing new technologies and strategies is one step in the right direction.

RECOMENDATIONS

- Act aligned to the existing sustainable practices
- Shifting to a water reclamation system at the processing plants
- Replacement of obsolete energy-consuming equipment
- Implement water reducing technologies on production cycle
- Assess and plan for installations, considering the capacity and probability and frequency of failures
- Install mechanisms for the timely detection of leaks in process water
- AI that can reduce energy in water/wastewater treatment processes to s on costs and maximize wastewater reuse
- Corporate Water Management Audit
- Employee Training & Engagement as the part of corporate culture