

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.



40%

A donut chart for Surface Water. The chart is a blue circle with a brown arc representing 40% of the circle. A small white cloud icon is positioned above the brown arc.

SURFACE WATER

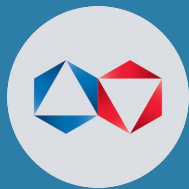


17%

A donut chart for Underground Water. The chart is a blue circle with a green arc representing 17% of the circle. A small white cloud icon is positioned below the green arc.

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

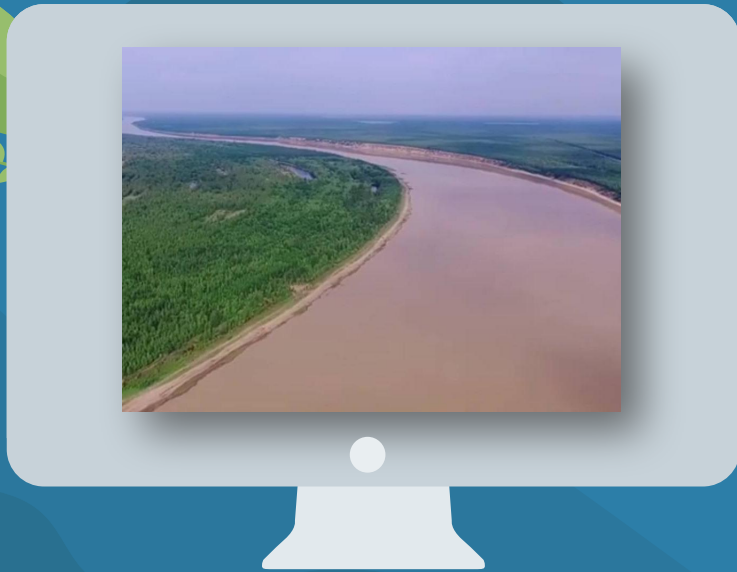
the possibility of surface-level brine contamination by expanding the current network of drainage water injection wells.



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



SALTWATER

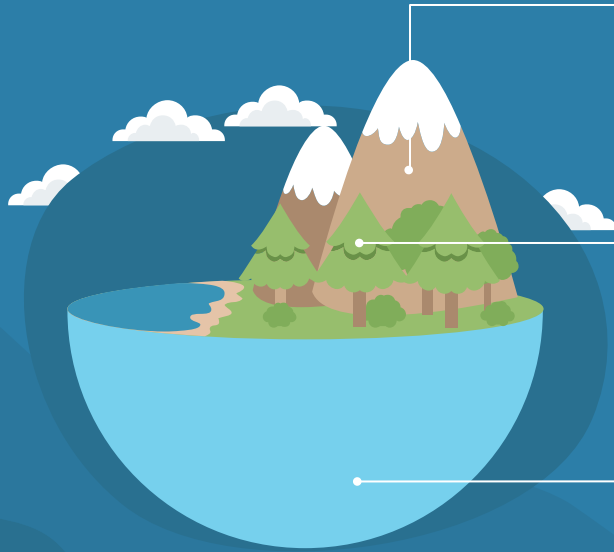
injection (associated
water from open pit
mines and
underground mines)
to the underground
water-bearing
horizon



MONITORING

water object, control
of natural and
sewage water
quality

PRACTICES 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 save on costs and maximize wastewater reuse
- Corporate Water Management Audit
- Employee Training & Engagement as the part of corporate culture

