

# 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** m<sup>3</sup>/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** m<sup>3</sup> per capita per year



# WATER AVIABILITY IN RUSSIA

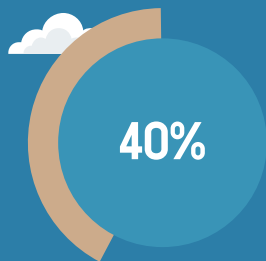


Many regions in Russia experience major problems with water availability due several factors:

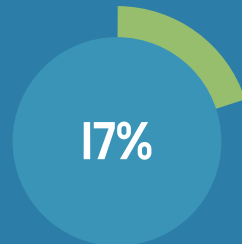
- to extremely uneven distribution of surface water resources;
- high time-variability;
- high degree of pollution.

# SURFACE WATER QUALITY

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



**SURFACE WATER**

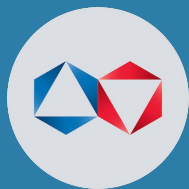


**UNDERGROUND WATER**



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**

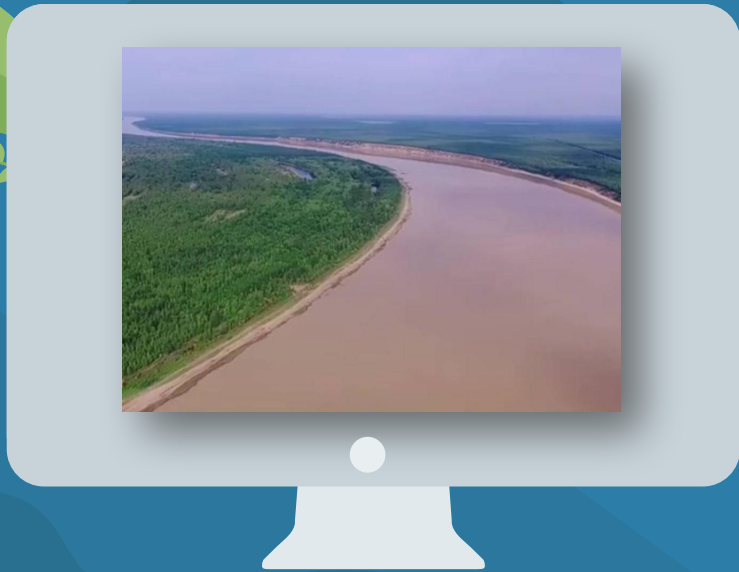
the possibility of surface-level brine contamination by expanding the current network of drainage water injection wells.



**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

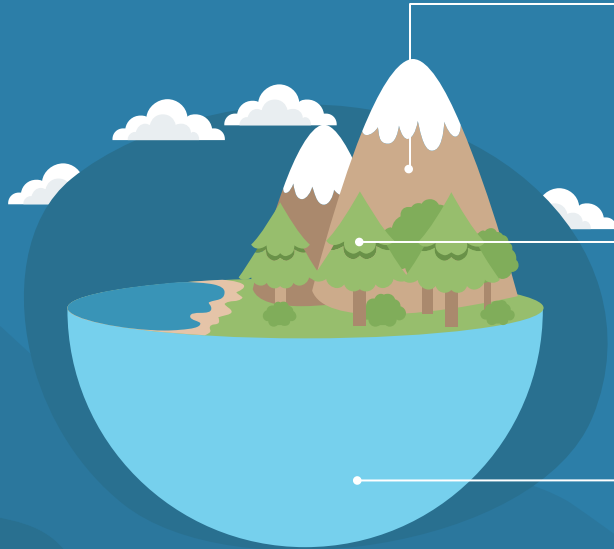
injection (associated water from open pit mines and underground mines) to the underground water-bearing horizon



## MONITORING

water object, control of natural and sewage water quality

# 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 Forum<sup>7</sup> 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

