Environmental review

AREA, STRATEGIC GOALS AND METRICS	KEY PROJECTS AND HIGHLIGHTS OF 2022
CLIMATE Targets 12.4, 13.1, 13.2 Climate action and minimisation of GHG emissions 2028: gross emissions Scope 1 – **4,175.5** kt of CO_2-eq. Scope 2 – **794.7** kt of CO_2-eq. 2028: Scope 1 emissions – **109.1** kg of CO_2-eq./t	Gross emissions: Scope 1 **4,909** kt of CO_2-eq. Scope 2 **821.6** kt of CO_2-eq. Scope 1 emissions of CO_2-eq. **133.1** kg of CO_2-eq./t[1] • Climate Agenda project • Contracting TGC-1 as a supplier of green energy generated by HPPs • Assessing the impact of the carbon border adjustment mechanism on the Company's operating expenses • Low-carbon transition plan • Co-processing of phosphogypsum and carbon dioxide
ENERGY EFFICIENCY Targets 12.4, 13.1 Minimisation of Scope 2 GHG emissions to **794.7** kt of CO_2-eq. as part of the Energy Efficiency Programme	Self-sufficiency in electricity supplies **42.9** % **18** % of the mining and processing plant's output covered by green electricity • Upgrade of the lighting system to LED Construction of a heat and power plant with a 34 MW exhaust gas turbine and a water treatment system (Volkhov)
WASTE Target 12.4 Waste recycling 2025: **40** % of hazard class 1–4 waste recycled and decontaminated	**38.8** % of hazard class 1–4 waste recycled and decontaminated[2] • Enhanced ore processing (Kirovsk) • Use of phosphogypsum • Implementation of phosphogypsum conversion at Balakovo branch
AIR Targets 3.9, 12.4, 13.1 Minimisation of air emissions 2025: pollutant emissions **0.80** kg/t	Pollutant emissions **0.79** kg/t[3] • Installation and upgrade of gas recovery equipment in upgraded and new shops (Volkhov) • Dust suppression of dusty surfaces (Kirovsk) • Project of upgrading the process to return synthesis and purge gas to the fuel gas system without sending ammonia-containing gases to burners of the steam superheater
WATER Targets 3.9, 6.3, 12.4 Responsible water use 2025: waste water discharge into surface waters **4.16** m^3/t 2025: water withdrawal **5.16** m^3/t	Waste water discharge into surface waters **5.27** m^3/t[4] Water withdrawal **6.42** m^3/t[5] • Second stage of water use optimisation programme (Cherepovets) • Collection and treatment of seepage water from ANBP-2 tailing dump
BIODIVERSITY Targets 3.9, 15.1 Preservation of biodiversity in regions of PhosAgro Group's operation at a level securing sustainability	• Development of comprehensive programmes to protect biodiversity (Cherepovets, Volkhov, Kirovsk) • Release of young fish and larvae into water bodies across the Company's regions of operation

[1] The indicator was calculated as the ratio of the Scope 1 gross emissions under GRI 305-1 to the total output of finished and semi-finished products.
[2] The Group specific disclosure was calculated as the ratio of class 1–4 waste recycled and decontaminated to the total volume of class 1–4 waste.
[3] The Group specific disclosure was calculated as the ratio of total pollutant emissions discharged into the atmosphere to the total output of finished and semi-finished products.
[4] The Group specific disclosure was calculated as the ratio of waste water discharged into surface water bodies, including mine and pit waters, to the total output of finished and semi-finished products.
[5] The Group specific disclosure was calculated as the ratio of total water withdrawal to the total output of finished and semi-finished products.

Strategy

SASB EM-MM-160a.1, RT-CH-410b.2

At PhosAgro, we attach much importance to environmental protection and safety, as well as climate risk management, putting every effort into all of these areas to secure the Company's sustainable development and well-being of the regions across its geography.

Our Strategy to 2025 is designed to observe strict compliance with legislative environmental responsibility standards and practices aimed at minimising the impact of the Company's operations throughout the whole life cycle of a fertilizer, from mine to food products.

We strive to produce fertilizers in a safe and eco-friendly manner, thus contributing to the sustainable agricultural development worldwide. Committed to continuous improvement, the Company keeps working to lessen the environmental impact of its production operations and across the value chain.

The key priorities set out in PhosAgro's Environmental Policy are careful use of natural resources and reduction of the environmental footprint.

We had a comprehensive assessment of our operations, determining key focus areas of such impact, both direct and indirect, and weighed it against the UN Sustainable Development Goals (UN SDGs).

Based on the assessment results, we mapped out six strategic focus areas of environment protection, including:

- Climate
- Energy efficiency
- Waste
- Air
- Water
- Biodiversity

Since 2020, we have been implementing the **Climate Strategy** based on PhosAgro's vision and expertise in GHG emissions management. The document reviews climate risks and opportunities extensively, setting targets for GHG emissions and presenting the low-carbon transition plan.

The Company acts on the **Energy Efficiency Programme** designed to ensure compliance with the Climate Strategy and the Energy Efficiency and Energy Saving Policy tightly integrated into the Company's Strategy to 2025.

Strategy to 2025 also seeks to **minimise waste generation** substantially. Having developed a system for accumulating and analysing data on production and consumption waste from our operations, we are now implementing a range of projects aimed at minimising waste generation and increasing the share of recycled waste.

In the scope of the strategic objectives to **minimise air emissions**, PhosAgro **is running a programme** to re-equip production facilities and cut pollutant emissions.

In addition, in 2020, we adopted the **Water Strategy** to minimise our impact on water bodies by means of lean treatment of resources: less water withdrawal and waste water discharge. As part of the Strategy, we assessed water use risks and opportunities, including potential scarcity of water resources, set targets for water withdrawal and waste water discharge and designed a detailed action plan for each site to achieve the targets.

PhosAgro sticks to its **biodiversity management system** comprising the assessment of potential impact, interaction with a wide range of stakeholders, as well as monitoring and reporting practices.

We believe that our requirements should be uniform both for us and our partners engaged in PhosAgro's projects. Everything we require of ourselves equally applies to our counterparties and is enshrined in the Code of Conduct for Counterparties.

Management approach

GRI 3-3

Effective environmental management is key to PhosAgro's long-term sustainability and indicative of the Company's commitment to run a socially responsible business, balancing its obligations to a wide range of stakeholders.

Traditionally, we put a special focus on environmental matters and stand in unconditional support of the vulnerable and rare habitats across our geography, leaving them intact and carefully treating natural systems and resources. Our operations undergo a stringent assessment for compliance with the Environmental Policy and the Company's internal regulations.

For PhosAgro's Environmental Policy, see the Company's website

We adopted a unified approach to environmental management that relies on

Company-wide control

Putting Strategy to 2025 into action and compliance with the Company's environmental policies are overseen by the Strategy and Sustainable Development Committee that regularly reports on the Company's progress to the Board of Directors. The Environmental Protection Department exercises executive control over the Company's environmental activities.

A unified management system

The consistency of PhosAgro's activities aimed at environmental protection and strengthening of the Company's environmental performance results from continuous development of the environmental management system that was recertified according to ISO 14001 in 2022.

Environmental compliance

Our environmental management system relies on strict compliance with applicable laws and regulations.

Environmental management system

Our environmental management system is integrated with the Company's overall management framework and is a key element in our approach to managing environmental responsibility

In 2022, the environmental management system was recertified across the Company's production sites and was found to be in full compliance with ISO 14001.

The full text of the certificate is available on the Company's website

PhosAgro's environmental management system embraces all management levels and all stages of the product's life-cycle, from R&D to manufacturing and product application by customers. This approach ensures uniform management requirements across all aspects of the Company's operations.

The facilities have also put in place a procedure to manage internal audits. Every year, they develop internal audit programmes taking into account the environmental significance of the reviewed processes, changes affecting the facility and previous audit outcomes. The audits provide input data for the management to analyse environmental management efficiency.

Environmental management framework

Unit	Management approach
BOARD OF DIRECTORS LEVEL	
Board of Directors	Defines the Company's environmental policy and sets strategic goals to ensure environmental protection and reduce the negative impact of its operations
Strategy and Sustainable Development Committee	• Maintains and regularly assesses PhosAgro's internal sustainability regulations and monitors their development, relevance, quality and efficiency, as well as compliance with applicable laws and internal sustainability objectives • Engages with key stakeholders and fosters healthy and sustainable communities across all regions of operation • Prepares recommendations to the Board of Directors on determining the Company's strategic sustainability objectives
GROUP MANAGEMENT LEVEL	
Department of Ecology and Environmental Management of JSC Apatit	Is responsible for general management, organisation and coordination of efforts to continuously enhance environmental management
OPERATIONAL LEVEL	
Environmental Control and Management Service	Fulfils commitments to the ongoing environmental improvement and reduction of the environmental footprint
Officers in charge of environmental protection	• Production units, which have the greatest environmental impact, have introduced a procedure for identifying and assessing risks and opportunities. Based on the results, we develop measures to bring risks pertaining to significant environmental aspects to an acceptable level. • Managers and experts responsible for making operational and other decisions that may adversely affect the environment take a specially designed training course in environmental safety. Only specially trained employees are cleared to handle hazard class 1–4 waste.

Our strategic environmental protection goals are set out in the Company's Strategy to 2025, climate and environmental agendas and their achievement is included in the KPIs of managers and senior executives.

Compliance

Environmental compliance is key to running a responsible business.

PhosAgro's environmental management practices ensure our compliance with the applicable environmental and nature conservation regulations. To that end, the Company has developed an internal and external control framework, which includes internal audit and external compliance reviews, a reporting system designed in accordance with legislative requirements, and a staff training system.

All our facilities that have an adverse environmental impact are included in dedicated state registers, with relevant categories assigned to them. PhosAgro has all necessary permits in place for each of these facilities.

None of PhosAgro's enterprises uses ozone-depleting substances in the production process. A small amount (not more than 250 kg/year) of carbon tetrachloride (CCl_4) is used for some laboratory testing.

We do not undertake cross-border hazardous waste transportation and our production sites are not situated in protected areas. Hence, there are no significant restrictions on our operations.

Spending on environmental protection, RUB mln

Item	2020	2021	2022
Operating costs of environmental protection (form 4-OS)	4,825.3	5,510.3	6,534.6
Investments in fixed assets aimed at environmental protection (form 18-KS)	3,120.4	4,168.8	2,396.7
Environmental impact payments	174.6	178.4	192.6
Environmental fines and damages	0.02	4.258	2.464
Total	**8,120.3**	**9,860.7**	**9,126.4**

The slight decline in expenses in 2022 was due to the fact that the bulk of CAPEX associated with the Company's key environmental investment project, the aluminium fluoride production upgrade in Cherepovets, was incurred in 2021. In 2022, a considerable part of investment projects with an environmental impact were at the design stage.

The Company took steps to remedy the harm caused by an emergency in 2019 by committing RUB 2,274,000 to the reproduction of aquatic biological resources in 2022.

In 2022, local bodies of the Federal Service for Supervision of Natural Resources carried out nine unscheduled audits of Apatit, including six audits of class 1 capital construction projects, resulting in Apatit being held administratively liable under Articles 8.1 and 8.2 of the Code of Administrative Offences of the Russian Federation and required to pay a penalty of RUB 190,000.

Environmental impact payments, RUB mln

	2020	2021	2022
ATMOSPHERE			
MPE	2.901	2.440	2.797
TPE	0	0	0
O-limit	0	0.018	2.355
AQUATIC ENVIRONMENT			
SPD	2.165	3.886	4.864
TPD			
O-limit	0	0	0
WASTE			
Limit	169.487	172.091	182.606
O-limit	0	0	0
Total	**174.553**	**178.416**	**192.620**
Over-limit	0	0.018	2.355
Share of over-limit in total payments, %	0	0.01	1.22

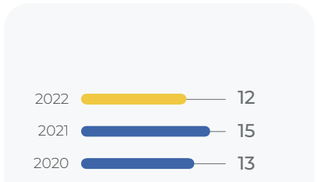
In 2022, over-limit payments accounted for 1.22% of total environmental impact payments. An over-limit payment was calculated and paid due to exceeding the permissible emission limit for nitrogen oxides by one of the emission sources at the Cherepovets facility. Nevertheless, the increase in the Company's environmental impact payments in 2022 was 8%, while the statutory indexation rate for environmental impact payments in 2022 was set at 10%, which points to the effectiveness of our efforts to reduce emissions.

Assessment, analysis, and monitoring

Continuous improvement is inherent in our environmental management. The Company identifies areas for improvement by reviewing its management system using an effective mechanism, which includes external and internal audits of the environmental management system (EMS), activities to monitor and assess the Company's performance, including by a wide range of stakeholders, and the analysis and assessment of the Company's performance by the Company's management. These efforts enable the Company to work out corrective action plans and proposals on how to develop and improve the EMS.

Stakeholder engagement is essential for the Company's planning. Public hearings are a legitimate and effective mechanism for establishing dialogue with stakeholders using a discussion platform to express their opinions and make suggestions on the initiatives under consideration. This mechanism has a positive impact on the decision-making process and improves its efficiency. Engaging the general public and a wide array of stakeholders in discussion plays an important role and helps ensure that all points of view are considered.

PhosAgro public hearings coverage



The list of public hearings is available on the Company's website

When assessing the Company's performance, much attention is paid to the analysis of ESG ratings and investor feedback

Risks and opportunities

Environmental risk management is an integral part of the Company's risk governance framework.

The following strategic risks affect our environmental protection objectives:

- **7** environmental risks;
- **13** regulatory risks;
- **19** climate risks.

For more information, see the Strategic Risks section on page 70.

The environmental protection risks include:

1. Non-compliance with the existing environmental impact regulations
2. Failure to achieve energy efficiency targets

The Company develops corrective measures as necessary and unlocks opportunities to mitigate those risks. Below you can find more information about what we do on this front.

Climate

SASB RT-CH-110a.2 / EM-MM-110a.2

Our targets

Reduce total GHG emissions (Scope 1, 2, 3)

by 14 %

by 2028 vs 2018

Reduce GHG emissions per tonne of finished and semi-finished products (Scope 1)

by 31 %

by 2028 vs 2018

2022 highlights

Scope 1 emissions

4,909.0 *kt of CO_2-eq.*

Reduction of specific Scope 1 emissions

2.4 *kt of CO_2-eq.*

per tonne of finished and semi-finished products by 2021

18 %

of phosphate rock and nepheline concentrate.

We organised a “pilot site” of circa 650 ha of a carbon farm as part of a carbon footprint compensation project in the Vologda region.

Gross and specific GHG emissions (Scope 1 and 2) across the Group, CO_2-eq.

Indicator	2018	2020	2021	2022	2028
Gross GHG emissions (Scope 1), kt	4,624.6	4,856.5	4,775.8	4,909.0	4,175.5
Gross GHG emissions (Scope 2), kt	924.1	978.3	893.3	821.6	794.7
Specific GHG emissions (Scope 1), kg/t	150.5	143.6	135.5	133.1	109.1

PhosAgro has LEAD status under the UN Global Compact and is a participant of the Climate Ambition, an initiative launched under the UN Global Compact. In 2021, the Company partnered with CGI Russia (Climate Governance Initiative), an organisation established by the World Economic Forum to raise awareness and boost efficiency of boards of directors with respect to climate change. The organisation assists in developing climate strategies and implementing them, as well as integrating the climate change agenda into day-to-day and long-term business decisions.

Starting from 2021, PhosAgro publishes an annual TCFD report fully addressing the climate aspects of its operations, strategy, risks, opportunities, governance, performance, and metrics. In June 2021, PhosAgro publicly declared support for the TCFD and its recommendations.

The Company’s representatives are members of climate change and sustainable development task and expert groups instituted by government authorities and non-governmental organisations, and are actively engaged in discussions on current global challenges.

The full text of our 2020 TCFD report is available on the Company's website

Strategy and management approach

GRI 3-3

The Company focuses on climate change in line with the double materiality principle. On the one hand, it identifies and assesses the impact of its operations on climate all along the value chain from extraction of raw materials to consumption of finished products. On the other hand, it projects how climate change affects PhosAgro's business, strategy, and financial planning.

Climate matters feature prominently in PhosAgro Group’s strategic and investment decisions, as well as in its day-to-day business management. In 2022, we developed mechanisms to integrate the internal carbon price into the evaluation of investment projects and introduced them in early 2023. The Company has identified, assessed, and prioritised climate risks, establishing their short, medium and long term consequences for its production and business processes. We make our strategic plans and day-to-day management decisions with full awareness of the nature and extent of climate impact (both environmental and political) on the Company’s business, strategy, and financial planning. The Company develops and takes systemic measures to reduce its carbon footprint and closely interacts with partners across its value chain (suppliers and consumers) and other stakeholders in Russia and worldwide.

PhosAgro's Climate Strategy was adopted in 2020. It is a comprehensive document setting out the Company's climate policy in the face of growing climate change and uncertainty.

Main principles of PhosAgro’s Climate Strategy

- Setting up targets to minimise GHG emissions in line with the Science Based Targets initiative; using climate scenario analysis
- Integrating climate risks into the comprehensive risk management framework for investment and day-to-day business activities
- Focusing not only on technology-related measures, but also on proper organisation and management, as well as changes in the social and personnel policy in the effort to reduce GHG emissions
- Identifying not only risks, but also attractive climate-related investment opportunities and making long-term plans for them
- Promoting awareness of the Company's climate initiatives and plans, as well as cooperation in specific areas.

The Strategy has set the following goals:

- to minimise GHG emissions while increasing output;
- to improve energy efficiency and environmental performance of the key production processes;
- to reduce energy and carbon intensity per unit of output;
- to enter into new emerging markets for green products;
- to retain and expand the existing market niches by ensuring PhosAgro’s competitive edge in terms of energy and carbon intensity.

PhosAgro is currently focused on creating particular metrics reflecting the impact of climate action in production and management processes on financial indicators.
The Company has analysed the impact of the carbon border adjustment mechanism (CBAM) on PhosAgro's operating expenses. The new mechanism will cover Russian industrial products, including, most likely, mineral fertilizers. Given the uncertainties as to the emission scopes the CBAM will apply to, the ability to account for PhosAgro's individual emission levels, and the changing carbon dioxide prices, we have determined the estimated ceiling and floor of the mechanism's impact on the Company's financial performance in 2023–2030.

Actions to deliver the Climate Strategy
The Climate Agenda project was implemented to create the climate action management system and push forward the low-carbon transition plan.

In 2022, we developed technical and technological initiatives to reduce direct GHG emissions with due regard to their economics. To this end, we engaged one of the global leaders among consulting firms.

Apart from that, the following has been developed as part of the project:

- rules for using the internal carbon price;
- guidelines and methodology for calculating the carbon footprint of products (validated by a reputable international certification body);
- a procedure for cooperation across the value chain involving suppliers, customers, and other stakeholders;
- a mechanism for the transition to low-carbon energy sources and acquisition of green energy.

The Company's experts continued to explore options for absorbing greenhouse gases in order to select the most suitable ones. In 2022, we launched the Carbon Footprint Compensation project aimed at absorbing (compensating for) GHG emissions, with a carbon footprint compensation farm being set up in the Vologda region. Its pilot site was organised in 2022.

Low-carbon transition plan

The low-carbon transition plan is based on the specialised research data and seeks to support economic development of PhosAgro that builds on the priority of keeping GHG emissions to a minimum.
It is implemented to ensure that the GHG emission reduction targets are delivered across all scopes.

Risks and opportunities

GRI 201-2

PhosAgro identifies its climate risks and opportunities taking account of climate change.
The process is influenced by physical (changes in natural processes or phenomena) and transitional (changes in the policy and regulation with a view to fulfilling low-carbon transition) factors of various nature.

Risks
R1 – disruptions in production processes and logistics operations due to increasing acute climatic effects and other climate-related factors.

R2 – flaws in supply chains, construction design, health and safety; negative environmental footprint and reduced flows of ecosystem services; lower resilience of infrastructure and communications due to increasing climatic effects.

R3 – PhosAgro Group's failure to comply with regulations reducing its negative environmental footprint (following the adoption of the carbon border adjustment mechanism).

R4 – deterioration of the Company's sustainability reputation.

R5 – increased costs and losses (as a result of customers' failure to meet their obligations, rising prices for feedstock, materials and services, higher borrowing rates) and shrinking revenues (as a result of a decline in sales, customers, countries and regions of operation).

Opportunities
O1 – boosting PhosAgro Group's appeal as an environmentally and climatically responsible supplier of products with a positive climate profile.

O2 – improved logistics driven by the new export opportunities amid shortened seasonal freeze-up of rivers and lakes due to climate change.

O3 – new financial products that open up new sources of cheaper funding (such as green bonds) for companies that embraced environmental and climate sustainability.

Climate scenario analysis
The Company views climate scenario analysis as a tool to make its climate strategy resilient to uncertainties and risks related to climate change. In line with that, we adopted climate scenarios and determined respective scenario parameters that are most probable and significant for the Company in the short, medium and long term.

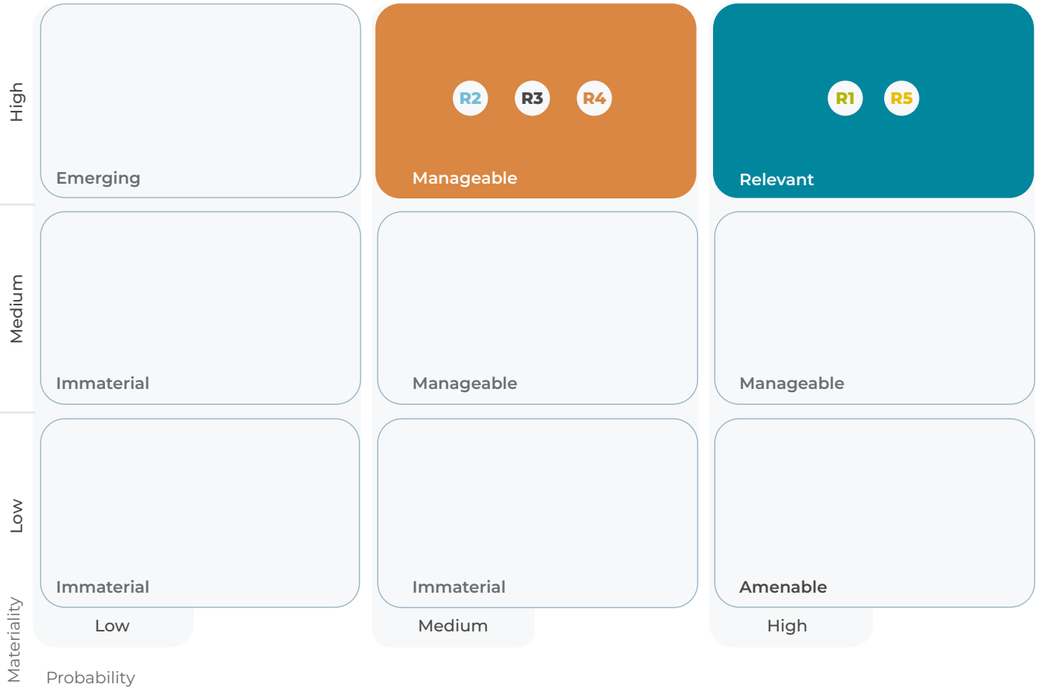
PhosAgro assessed the impact of climate-related risks and opportunities on its operations under two climate change scenarios: global warming of 2°C and 4°C.
The key features of the scenarios are:

- 2°C scenario is expected to result in stringent climate policy measures that will increase market volatility (goods, services, finances, etc.). This is projected to bring about low-carbon transition, putting in place mechanisms of a low-carbon economy that will slow down physical climate-related impacts going forward;
- 4°C scenario is expected to result in less stringent climate policy measures as compared to the 2°C scenario, triggering faster physical climate-related changes.

PhosAgro identified projected changes in climate risks and opportunities under the adopted climate scenarios based on risks, opportunities, scenario parameters, and time frames. In doing so, the Company focused on its operations, strategy, and financial planning.

Processes to identify and assess climate change risks are being integrated throughout the value chain – from design, procurement and apatite-nepheline ore mining to finished product delivery

Climate risk priority map



We identify, assess, and manage climate risks within our comprehensive risk management framework. Covered value chain stages – direct operations

up and down the value chain. Climate risk management process is baked in the company-wide risk management processes.

The assessment is done quarterly. Covered time horizon(s) – short-term, medium-term, long-term.

Process description

The Company's climate risk management forms an integral part of its comprehensive risk management system (RMS), with all its elements embedded in PhosAgro's existing structure. The RMS relies on the Company's Risk Management and Internal Control Policy and other internal policies and procedures, as well as the applicable Russian and international standards.

Key initiatives in 2022

Focus areas	Climate-related risk and opportunities	Description and results
Introduce HR actions to support the implementation of PhosAgro's Climate Strategy, including additional training to improve staff competence and raise staff awareness in climate change	**R1**, **R2**, **O1**	Our employees took part in webinars dedicated to sustainable development and corporate climate responsibility.
Include climate metrics in incentive schemes of employees	**R2**, **O1**	We have continued to develop climate KPIs; they are planned to be aligned with the parameters of investment projects aimed at minimising and offsetting GHG emissions.
Establish a task group on reduction of GHG emissions and negative effect of climate change on the efficiency of management and production processes	**R1**, **R2**, **R3**, **O1**	By implementing the Climate Agenda project we took forward thoroughly researched and technically feasible proposals to reduce the Company's climate footprint, minimise risks and maximise opportunities related to growing climate change impacts (technology, equipment, energy generation, operations, etc.).
Develop a set of technological measures to mitigate the negative impact of production processes on climate	**R1**, **R2**	Technical and technological initiatives to reduce direct GHG emissions were developed and accepted for implementation and are now pending approval at a meeting on investment feasibility at Apaptit. To, we engaged one of the global leaders among consulting firms.
Approve a comprehensive plan of interaction with value chain participants	**R1**, **R2**, **R3**, **R4**, **R5**, **O1**, **O2**, **O3**	A plan of interaction with value chain participants was developed and adopted for implementation (company-customer and supplier-customer interactions).
Harmonise strategic documents (the Company's Development Strategy to 2025), financial planning and other policies and procedures with the low-carbon transition strategy and plan	**R1**, **R2**, **R3**, **R4**, **R5**, **O1**, **O2**, **O3**	Climate impact matters and the risks and opportunities arising from climate change were integrated into trainings, matters disclosed in the reports, data book, and considered by the Board committee and Board of Directors, which helps to embed this topic into PhosAgro's culture.
Arrange for identification, assessment, management and monitoring of climate-related risks	**R1**, **R2**, **R3**, **R4**, **R5**, **O1**, **O2**, **O3**	Climate change risks were integrated into PhosAgro's risk management framework.
Factor in climate change impacts in industrial engineering projects to build new facilities and upgrade transport infrastructure	**R1**, **R2**	At present, there is no need to proceed with this initiative. Reference documents used in engineering provide a sufficient margin of safety, with no factors driving accelerated climate changes observed.

Focus areas	Climate-related risk and opportunities	Description and results
Support R&D developments related to the use of low-carbon energy and low-carbon production Explore options for GHG capture and select the most efficient ones to be employed by the Company	**R3**, **R4**, **R5**, **O1**	In 2022, NIUIF developed, patented, tested and prepared for state registration in 2023 several grades of coated fertilizers with a low carbon footprint. In 2021, the Russian Academy of Sciences, PhosAgro, and the Vologda region signed a cooperation agreement to monitor climate change and minimise the environmental impact. The project envisages efforts in low-carbon transition, including regional monitoring of GHG emissions. Promising methods of farming focused on emissions prevention and carbon sequestration by soils will be developed and implemented in Russia. New forests and fields will be planted and created in the Vologda region to capture and store carbon. Their capacity is estimated at 0.7 mt of CO_2 per year. We organised a “pilot site” in a carbon farm in 2022.
Introduce regular climate-related reporting in accordance with Russian and international standards	**R3**, **R4**, **O1**	Since 2020, the Company has been preparing climate reports in line with the TCFD standards. GHG emission reporting for 2021 was verified for the first time.
Introduce an automated system to collect and process primary climate data	**R3**, **R4**, **O1**	Introducing a software solution for automated collection of input data and calculation of GHG emissions (total volumes by site and product). Guidelines for assessing products’ carbon footprint were developed and validated by a reputable international certification body.
Collaborate with international organisations and join climate initiatives	**R4**, **O1**	The Company participates in Climate Ambition, an initiative launched under the UN Global Compact; teams up with Climate Governance Initiative Russia; supports the TCFD; and takes part in task and expert groups of government authorities and non-governmental organisations.

Plans for 2023

Focus areas	Climate-related risk and opportunities	Description, current status, and expected outcomes
Implement a set of technological measures to mitigate the negative impact of production processes on climate	**R1**, **R2**	In 2021–2022, technical and technological initiatives to reduce direct GHG emissions were developed as part of the PhosAgro Climate Agenda project. In 2023, management decisions are expected to be made on their implementation, including the development of relevant business plans.
Prepare feasibility studies (business projects) for innovative climate-resilient products based on carbon dioxide utilisation. Develop production in high-potential areas	**R3**, **R4**, **R5**, **O1**	Diversifying production to facilitate expansion into new markets and improve the climate-related performance on the back of new products better meeting consumer needs and having a positive climate profile.
Reduce the negative impacts of climate change on operational processes such as disruptions in transportation of products and raw materials, increased water consumption for production needs, increased volume of waste water, product dusting, failures to use equipment in accordance with operating instructions and failures to create proper workplace conditions.	**R1**, **R2**, **O2**	Mitigating climate change risks for the Group’s operating processes. Work is in progress to assess the risks and identify actions needed to manage them.

A detailed description of climate risks and opportunities, in 2022 remained virtually unchanged and is presented in the TCFD report on the Company’s website

METRICS AND TARGETS

PhosAgro's climate metrics are aligned with the goals of the Climate Strategy approved by its Board of Directors.

The Company is working to expand and enhance the quality of climate-related measurements. Most metrics are locked on targets which are aligned with the goals of the Climate Strategy and other commitments of the Company.

The metrics are monitored and reported annually to stakeholders.

The Company's primary focus is on GHG emissions (carbon dioxide CO_2, methane CH_4 and nitrous oxide N_2O) in all three Scopes (1, 2, and 3). We calculate greenhouse gas emissions in accordance with the international guidelines:

- 2006 IPCC Guidelines for National Greenhouse Gas Inventories;
- The Greenhouse Gas Protocol: Scope 2 Guidance;
- The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition);
- ISO 14064-1 – Specification with Guidance at the Organisation Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals.

Calculations are based on global warming projections of the IPCC report "Climate Change 2021: The Physical Science Basis".

The Company's efforts include end-to-end monitoring of raw data (Scopes 1, 2 and 3) and analysis of supply chain participants' data (Scopes 2 and 3).

The targets are set in line with minimum qualitative and quantitative criteria based on RCP 2.6, a representative concentration pathway for reduction of global anthropogenic emissions, in order to keep global temperature rise below 2°C by 2100.

Direct (Scope 1) GHG emissions, CO_2-eq.

GRI 305-1, 305-4, SASB RT-CH-110a.1 / EM-MM-110a.1

Assets	2020[1]	2021[1]	2022
Gross emissions of the Kirovsk branch, kt	655.7	665.8	690.9
GHG emissions of the Kirovsk branch, kg per tonne of finished and semi-finished products	56.3	56.7	57.7
Gross emissions of the Balakovo branch, kt	225.3	238.0	236.6
GHG emissions of the Balakovo branch, kg per tonne of finished and semi-finished products	36.9	39.4	41.5
Gross emissions of the Volkhov branch, kt	155.6	155.2	191.5
GHG emissions of the Volkhov branch, kg per tonne of finished and semi-finished products	250.7	135.0	71.8
Apatit (Vologda region), gross emissions, kt	3,820.0	3,716.7	3 790.0
GHG emissions of Apatit (Vologda region), kg per tonne of finished and semi-finished products	247.0	227.7	229.1
Total gross emissions, kt	**4,856.5**	**4,775.8**	**4,909.0**
Total GHG emissions, kg per tonne of finished and semi-finished products	**143.6**	**135.5**	**133.1**

[1] Preparation of an inventory of greenhouse gas emissions as part of developing the Guidelines for Climate Impact Management of PJSC PhosAgro and other Group Entities identified new sources of emissions, resulting in a recalculation of data for 2020–2021 for consistency.

Indirect (Scope 2) GHG emissions, CO_2-eq.[1]

GRI 305-2, GRI 305-4

Assets	2020	2021	2022
Gross emissions of the Kirovsk branch, kt	723.9	622.5[2]	588.2[2]
GHG emissions of the Kirovsk branch, kg per tonne of finished and semi-finished products	62.2	53.0	49.1
Gross emissions of the Balakovo branch, kt	51.1	45.3	51.9
GHG emissions of the Balakovo branch, kg per tonne of finished and semi-finished products	8.4	7.5	9.1
Gross emissions of the Volkhov branch, kt	66.0	80.1	44.6
GHG emissions of the Volkhov branch, kg per tonne of finished and semi-finished products	106.2	69.7	16.7
Apatit (Vologda region), gross emissions, kt	137.3	145.4	136.9
GHG emissions of Apatit (Vologda region), kg per tonne of finished and semi-finished products	8.9	8.9	8.3
Total gross emissions, kt	**978.3**	**893.3**	**821.6**
Total GHG emissions, kg per tonne of finished and semi-finished products	**28.9**	**25.3**	**22.3**

Calculation of other indirect GHG emissions

GRI 305-3

Category	GHG emissions, t of CO_2-eq.			Share in total other indirect emissions, %		
	2020	2021	2022	2020	2021	2022
Purchased goods and services	3,118,660	1,963,324	2,425,375	23.47	16.21	18.28
Fuel- and energy-related activities not included in Scope 1 or Scope 2	328,501	407,740	350,275	2.48	3.37	2.64
Processing of sold products	764,119	704,402	720,223	5.75	5.82	5.43
Use of sold products	9,075,575	9,035,283	9,768,958	68.30	74.60	73.65
Total	**13,286,855**	**12,110,749**	**13,264,831**	**100.00**	**100.00**	**100.00**

Scope 3 greenhouse gas emissions were calculated for the above categories after an expert review identified them to be the most significant emission sources for the Company.

Scope 3 GHG emissions, CO_2-eq.

GRI 305-3, 305-4

Category	2020	2021	2022
Total gross emissions of production assets, kt	13,286.9	12,110.7	13,264.8
Total GHG emissions of production assets, kg per tonne of finished and semi-finished products	392.7	343.6	359.8

[1] Greenhouse gas emissions were calculated in line with the Guidelines for Climate Impact Management of PJSC PhosAgro and other Group Entities (using the IPCC methodology).
Energy indirect GHG emissions (Scope 2) are related to production of electricity and heat brought in from third parties to meet the Company's needs.
In 2022, we changed our approach to calculating Scope 2 GHG emissions related to electricity consumption. In 2020–2021, the methodology relied on emission factors defined by the International Energy Agency (IEA), while starting 2022, we use the energy indirect GHG emission factor for the First Synchronous Zone of the Russian Energy System defined by the Trading System Administrator of the Wholesale Electricity and Capacity Market

[2] Including electricity from renewable energy sources.

GRI 305-5

We have chosen 2018 as the base year for calculations because it was the Company's first GHG inventory year, and given the need to set GHG reduction targets for all three scopes based on the available emission data. In 2018, GHG emissions were as follows: direct GHG emissions (Scope 1) – 4,624.6 kt of CO_2-eq., indirect GHG emissions (Scope 2) – 924.1 kt of CO_2-eq., and other indirect GHG emissions (Scope 3) – 11,413.8 kt of CO_2-eq.

In 2022, Scope 1 GHG emissions declined by 17.3 kg/t, or 11.5%, vs 2018. In 2022, the reduction in total Scope 1 GHG emissions thanks to lower emissions per unit of finished and semi-finished products excluding the production volume growth totalled 638.9 kt vs the base year.

The reduction in emissions was primarily driven by the Energy Efficiency Programme and above all the heat and power plant project at the Volkhov branch.

For energy indirect (Scope 2) emissions, the reduction was 7.8 kg/t (or 25.9%) vs the 2018 level; the effect for total Scope 2 emissions excluding the production volume growth stood at 287 kt compared to the base year. The reduction was achieved thanks to the green electricity procured by the Kirovsk branch of Apatit, as well as energy efficiency initiatives.

Total Scope 3 GHG emissions were up by 1,851 kt in 2022 vs 2018, or by 16.2%, reflecting increased product shipments and higher consumption of input resources and, consequently, their total carbon intensity. Excluding the production growth effect, Scope 3 GHG emissions decreased by 427.4 kt vs 2018 thanks to the reduction of emissions per unit of finished and semi-finished products (by 3%).

The values of Scope 3 GHG emissions for 2020 and 2021 differ from the data previously provided by the Company in its CDP questionnaires for respective periods. The main reason for such changes are adjustments made to the calculation methodology following approval of the Guidelines for Climate Impact Management of PJSC PhosAgro and other Group Entities. Furthermore, the value for 2021 was adjusted due to a technical error identified in the Use of Sold Products category as part of a verification process.

List and description of existing metrics introduced for the monitoring of performance under the climate strategy

Metric	2020[2]	2021[2]	2022
Gross global emissions (Scopes 1 and 2) per currency unit of total revenue (GRI 305-4)[1], t of CO_2-eq. / USD mln	1,654.8	993.1	693.5
Gross global emissions (Scope 1 and 2) per FTE (GRI 305-4)[3], t of CO_2-eq. / FTE	326.1	309.4	288.8
Electricity purchased per unit of finished and semi-finished products, '000 kWh / t	0.068	0.066	0.062
Energy efficiency improvement costs, RUB mln	10,500.0	17.4	3,044.1
Share of feedstock suppliers providing necessary input data on GHG emissions (Scope 3), %	4.0	2.7	7.5

[1] The indicator was calculated as the ratio of the sum of Scope 1 and 2 gross emissions under GRI 305-1 and GRI 305-2 respectively to PhosAgro Group revenue according to consolidated financial statements converted into USD mln at monthly average USD/RUB exchange rates.
[2] Preparation of an inventory of greenhouse gas emissions as part of development of the Guidelines for Climate Impact Management of PJSC PhosAgro and other Group Entities identified new sources of emissions, resulting in a recalculation of data for 2020–2021 for consistency.
[3] The indicator was calculated as the ratio of the sum of Scope 1 and 2 gross emissions under GRI 305-1 and GRI 305-2 respectively to the total number of full-time employees under GRI 2-7.

Energy efficiency

Our target

Reduce Scope 2 GHG emissions

to 794.7 *kt of CO_2-eq.*

by 2028

2022 highlights

Consumption of all types of energy resources per tonne of finished and semi-finished products came in

at 2.33 *GJ/t*

In 2022, the consumption of all types of energy resources per tonne of finished and semi-finished products decreased

by 1.27 *%*

to 2.33 GJ/t.

The reduction was underpinned by the implementation of the Company's Strategy to 2025 and Energy Efficiency Programme.

The decrease in per unit energy consumption vs the data disclosed in reports for the previous years and recalculation of values for comparable periods were due to the application of a new energy resource accounting methodology.

Scientifically justified changes in the accounting methodology that will be described in more detail in this section could be introduced thanks to the implementation of the first stage of the project to analyse and upgrade the energy management system.

These changes enabled PhosAgro to enhance the transparency and completeness of information disclosed to stakeholders with respect to the consumption of energy resources (for example, natural gas) typical for the Company and mineral fertilizer industry. This unlocks new opportunities for developing a more nuanced understanding of all types of energy resources consumed by the Company. The Company will continue delivering on the project, as it will help PhosAgro achieve its energy efficiency and GHG emission minimisation goals.

The reporting year saw PhosAgro's self-sufficiency in electricity increase by 2.6%

to 42.9 *%*

The key driver in 2022 was the completion of construction and the ramp-up of the heat and power plant in Volkhov to its design capacity. Going forward, the Company will continue developing in-house power generation.

We started testing a solar power generation technology at the Company's facility in Balakovo to assess the viability of a further scale-up for the industrial solution leveraged since 2021. The tests will run until 3Q 2023.

Strategy and management approach

GRI 3-3, 302-4

In 2022, PhosAgro continued to follow the Climate Strategy approved by the Board of Directors, the Energy Efficiency and Energy Saving Policy, and the Energy Efficiency Programme, which are tightly integrated into the Company's Strategy to 2025.

The Energy Efficiency and Energy Saving Policy sets out the following key goals:

- continuously improving energy efficiency;
- using energy resources in a sustainable and efficient manner;
- streamlining the energy management process for all types of operating activities.

The Company pays particular attention to energy efficiency risks.

1 **A sufficient and reliable energy supply** is a material aspect and major concern for us. We thoroughly explore all opportunities to transition to renewable energy: among other things, in 2022, we purchased electricity generated by hydroelectric power plants on the Kola Peninsula.

2 **Risk of Scope 2 GHG emissions to be included in carbon regulation in the EU and other jurisdictions.** The Company's energy efficiency directly affects Scope 2 GHG emissions, which poses a potential risk, for example after full-scale implementation of carbon border adjustment mechanisms.

3 **Market availability of electricity from renewable energy sources.** The Company continuously monitors the market to ensure a sufficient supply of electricity from renewable energy sources.

The initiatives set out in the Energy Efficiency Programme are aimed at improving energy efficiency, developing energy management at each production site, and achieving strategic objectives in the following focus areas:

- in-house power generation through utilisation of sulphuric acid production steam; ;
- increase in the share of renewable energy sources;
- introduction of technologies aimed at loss reduction and energy savings (e.g. LED lighting, frequency converters, less heat energy losses).

In 2022, we implemented comprehensive energy efficiency projects at all of our sites.

Key initiatives in 2022

PROJECT	DESCRIPTION AND RESULTS	EXPENDITURES, RUB MLN	COMPLETION
Balakovo Installation of frequency converters on chemically treated water pumps	Reduced electricity consumption	1.8	4Q
Balakovo Upgrade of the lighting system to LED at wet-process phosphoric acid sections 3 and 4	Reduced electricity consumption	2.0	4Q
Volkhov Construction of a heat and power plant with a 34 MW high-efficiency electric turbine and a water treatment system at Apatit's Volkhov branch	Replacement of third-party electricity supply with in-house generation through utilisation of sulphuric acid production steam	3,018.0	2Q
Kirovsk Upgrade of drum drier sections, with thermal insulation replaced, stage 1 (four drum driers out of seven)	Reduced heat losses from drum drier surface and lower per unit consumption of fuel oil	7.0	3Q
Cherepovets Upgrade of the lighting system to LED at the pyrite cinder storage facility	Reduced electricity consumption	15.3	4Q

Initiatives planned for 2023

PROJECT	DESCRIPTION AND RESULTS	EXPENDITURES, RUB MLN	COMPLETION
Kirovsk Upgrade of the Rasvumchorrsky mine's compressor station	Lower cost of compressed air production as a result of reductions in per unit electricity consumption	105.7	2Q
Kirovsk Upgrade of the lighting system to LED at ANBP-2 of Apatit's Kirovsk branch	A 4.8 mln kWh reduction in annual electricity consumption, lower maintenance and repair costs	48.9	2Q
Kirovsk Upgrade of drum drier sections, with thermal insulation replaced, stage 2 (three drum driers out of seven)	Reduced heat losses and per unit consumption of fuel oil in concentrate drying	7.0	4Q
Cherepovets Optimisation of the heat supply system at the production site	Ca. 2.5 mln kWh of annual reduction in electricity consumption	8.0	4Q
Cherepovets Use of circulating water to cool feed water pumps	Reduced river water consumption with no discharges into the sewer system	10.6	4Q

METRICS AND HIGHLIGHTS

The energy efficiency metrics are used to monitor the Company's progress towards its energy efficiency improvement target and are set forth in PhosAgro's Energy Efficiency Programme and Action Plan, which helps keep track of electricity generation and consumption, energy intensity, etc.

The energy efficiency metrics are based on PhosAgro's raw data and are calculated in accordance with the approved statistical methodologies. The Company prepares its energy efficiency reports in accordance with the GRI 302: Energy 2016 standard.

In 2022, the Company's production facilities were 42.9% self-sufficient in terms of electricity needs, which is 2.6% more than in 2021. In absolute terms, the electricity generated by PhosAgro went up by 150 mln kWh year-on-year, driven by the commissioning of new power generating facilities at the Volkhov branch. Total electricity consumption grew by 115 mln kWh year-on-year, which is attributable to the commissioning of new production facilities at the Volkhov branch. In 2023, the share of electricity generated in-house is likely to further increase due to the ramp-up to design capacity of the heat and power plant in Volkhov.

In 2022, the volume of carbon-free electricity used in the production of phosphate rock at the Kirovsk branch grew to 300 mln kWh. As a result, green electricity from hydroelectric power plants supplied under an agreement with TGC-1 covers 17.8% of the plant's output

PhosAgro's energy consumption

GRI 302-1, 302-3, SASB RT-CH-130a.1 / EM-MM-130a.1

Item	Unit	Total for production facilities		
		2020	2021	2022
ELECTRICITY				
Purchased electricity, including	mln kWh	2,300.77	2,326.63	2,303.26
Purchased from renewable sources	mln kWh	-	299.00	300.00
Purchased per unit of finished and semi-finished products	'000 kWh / t	0.068	0.066	0.062
HEAT ENERGY				
Purchased (in hot water)	'000 Gcal	374.54	438.22	352.07
Supplied (in hot water)	'000 Gcal	200.78	161.23	187.49
Exhaust steam	'000 Gcal	8,091.16	8,538.81	8,923.70
NATURAL GAS				
As feedstock for ammonia production	mln m^3	1,953.86	1,926.10	1,968.06
As fuel, etc.	mln m^3	746.02	730.12	771.72
Total	mln m^3	2,699.88	2,656.22	2,739.78[1]
Consumption per unit of finished and semi-finished products[2]	'000 m^3 / t	0.022	0.021	0.021

Item	Unit	Total for production facilities		
		2020	2021	2022
LNG				
Consumption	t	2,273.4	2,951.57	2,380.30
FUEL OIL				
Consumption	t	146,785.8	151,291.8	152,895.5
HEATING OIL				
Consumption	t	725.50	779.4	766.4
DIESEL FUEL				
Consumption	t	53,054.25	55,695.87	58,276.73

PhosAgro Group's energy consumption, GJ[3]

GRI 302-1, 302-3

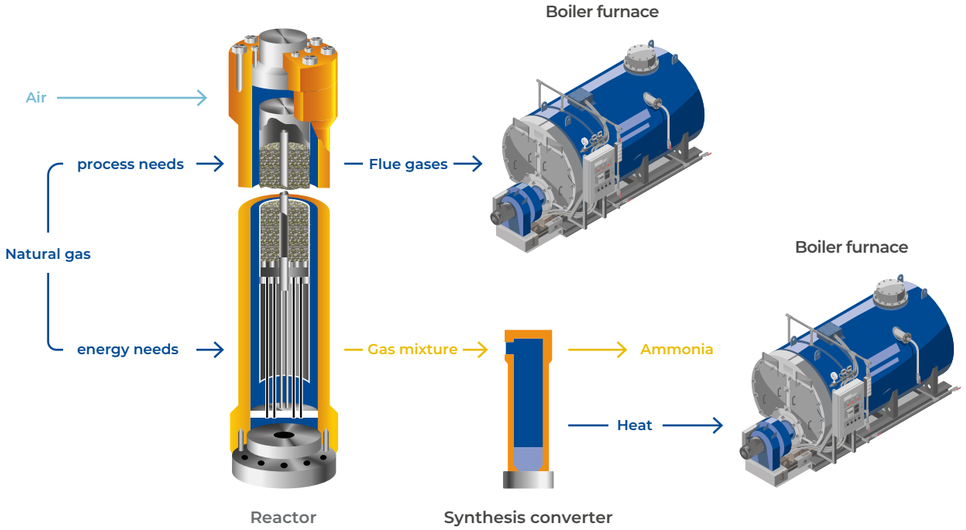
Item	2020	2021	2022
Internal use of electricity	8,282,776	8,375,878	8,291,723
Internal use of heat energy	34,603,584	36,910,017	38,050,823
Internal consumption of natural gas (excluding gas consumed as feedstock during production processes)	29,094,927	28,474,611	30,097,257
Internal consumption of LNG	123,673	160,565	129,488
Internal consumption of fuel oil	6,473,253	6,671,968	6,742,692
Internal consumption of heating oil[4]	33,518	36,008	35,407
Internal consumption of diesel fuel	2,419,273	2,539,731	2,657,419
Total internal consumption	**81,031,004**	**83,168,778**	**86,004,809**
Total energy consumption per unit of finished and semi-finished products, GJ/t[5]	**2.40**	**2.36**	**2.33**

[1] Calculations of total energy consumption include only gas consumed as fuel, whereas gas consumed as feedstock for ammonia production is provided for illustrative purposes and excluded from further calculations of total energy consumption (in GJ), as it is not used as an energy resource.
[2] Starting 2022, the Company excludes natural gas used as feedstock for ammonia production from the calculation of per unit energy consumption. Based on the principle of comparability, the data for 2020–2021 was recalculated using the new methodology..
[3] To convert energy consumption values into joules, the coefficients on the Berkeley Institute (USA) website were used (https://w.astro.berkeley.edu/~wright/fuel_energy.html).
[4] Starting 2022, the Company calculates consumption of heating oil (in J) using a ratio of 46.2, whereas previously it used a ratio of 44. Based on the principle of comparability, the data for 2020–2021 was recalculated using the new methodology.
[5] Starting 2022, the Company calculates total and per unit energy consumption excluding natural gas used as feedstock for ammonia production, as well as heat and electricity produced by the Company for its own consumption. Based on the principle of comparability, the data for 2020–2021 was recalculated using the new methodology.

In 2022, the Company initiated a project to define a set of metrics in energy consumption and energy efficiency to benchmark its performance against leading peers in the mining, chemical, and fertilizer production industries. The next step, which is also underway in 2022–2023, is detailed analysis of the Company's energy management system and review of gaps in terms of compliance with ISO 50001:2018. Based on the work completed to date, the Company has introduced certain amendments to its disclosure, including in terms of natural gas consumption.

The project showed that in its reporting, the Company is guided by international standards, which require aggregation of data based on total consumption of energy (electricity, heat, natural gas, fuel oil, petrol, LNG, and heating oil). The Company uses natural gas both as fuel and as feedstock in ammonia production. In ammonia synthesis processes, part of the natural gas is sent to the reactor to be used as chemical feedstock to produce hydrogen; however, natural gas is also used for energy needs as fuel (see the chart below).

Use of natural gas in ammonia synthesis



As a result, for its 2022 reporting, the Company decided to split the total amount of natural gas previously used in calculations of total and per unit energy consumption, so that GRI 302 reporting does not include natural gas that acts as chemical feedstock in ammonia synthesis.

The change in the methodology caused us to recalculate our energy consumptions values for the previous periods on a retrospective basis.

Still, given the link between data of GRI standards and the use of energy consumption data in GHG emission calculations, we carried out a review to make sure the changes in natural gas presentation approach does not compromise our calculations of GHG emissions in ammonia production.

Waste

Target

Increase in the share of recycled and decontaminated hazard class 1–4 waste

to 40%

by 2025

2022 highlights

38.8%

of hazard class 1–4 waste recycled and decontaminated

Strategy and management approach

GRI 3-3, 306-1

PhosAgro's Development Strategy to 2025 stipulates an increase in the share of recycled hazard class 1–4 waste to 40%.

Having developed a system for accumulating and analysing data on production and consumption waste from our operations, we are now implementing a range of projects aimed at reducing waste generation and increasing the share of recycled waste.

The management system covers:

- an inventory of resources that are used to manufacture products and become waste afterwards;
- data on the amount of waste generated from our own operations, including future waste in the form of products or their part provided to customers;
- waste characteristics;
- properties that limit or prevent the recycling (recovery) of the material or product or limit its useful life;
- continuous monitoring of known and potential negative characteristics of certain materials to prevent them from losing their consumer properties and going to waste;
- identification of activities and processes that generate significant amounts of waste.

PhosAgro's waste management is monitored on a regular basis and discussed by the Strategy and Sustainable Development Committee before being communicated to the Board of Directors.

Key initiatives in 2022

GRI 306-2

In 2021, we rolled out a Company-wide project to reduce the accumulation of phosphogypsum at dump sites by promoting it in various areas

In 2022, a decision was made to go ahead with an investment project for the

Balakovo branch of Apatit.

The unit is designed to process by-products of wet-process phosphoric acid – concentrated fluosilicate acid and dihydrate phosphogypsum – to produce a solution of ammonium sulphate and technical calcium fluoride.

The key process stages are as follows: fluosilicate acid is neutralised by ammonia liquor with dihydrate phosphogypsum. With an excess of phosphogypsum, the reaction results in calcium fluoride, silica gel, and a solution of ammonium sulphate. The resulting pulp is then filtered, technical-grade calcium fluoride is washed with water to remove ammonia sulphate and then sent to open air storage, and ammonia sulphate solution is neutralised with sulphuric acid to pH=4.5–5 and sent to the phosphate fertilizers unit to make granulated ammonium sulphate.

Enhanced ore processing mechanisms

PhosAgro and the Kola Science Centre of the Russian Academy of Sciences have signed a long-term cooperation agreement to implement a project for improving the processing of hard-to-process apatite-nepheline ores. The agreement prioritises joint projects focused on novel production technologies.

One of the outcomes of the cooperation with the Kola Science Centre is the resolution to set up a joint research centre to study key industrial ores, identify optimal mineral liberation and selective flotation modes, conduct technological and mineralogical 3D mapping of ore reserves, as well as select and develop efficient and eco-friendly flotation reagents.

Promotion of phosphogypsum

In April 2022, PhosAgro launched project to sell phosphogypsum as a commercial product in seven areas of application:

- ameliorant for farming;
- ground for road surface dressing and soil reinforcement;
- litter in poultry and livestock farming;
- reduction in soil salinity and contamination in urban areas;
- recultivation of unauthorised landfills and lands contaminated with oil products;
- raw material for the cement industry;
- raw material for construction materials (gypsum blocks, construction blocks, and construction mixtures)..

For this project, PhosAgro Group created a sales unit focused on phosphogypsum and tasked with R&D in each of the areas of its application, obtaining regulatory and technical documents, and promotion and sales of phosphogypsum accordingly.

Our project to promote phosphogypsum as a chemical ameliorant agent in agriculture first saw light in February 2021.

Its aim is to reduce the accumulation of phosphogypsum at dump sites across our production sites by promoting its agricultural use on saline soils as an ameliorant and source of sulphur, phosphorus and micronutrients.

In 2021–2022, over 50 trials were conducted to apply phosphogypsum in agriculture as an ameliorant for acidic, neutral, alkali and sodic soils. Based on the trials, extra yield averaged between 15% and 35% depending on the crop. Aside from better yields, all commercial products also demonstrated a reliable increase in quality indicators.

As part of the project, PhosAgro established a preparation and loading hub for bulk phosphogypsum and remodelled a railway to ensure its supply to farmers in other regions. In 2022, we were able to ship phosphogypsum in gondola cars and make deliveries to the Moscow, Tambov, Smolensk, Astrakhan and Volgograd regions and the Republic of Tatarstan.

Experiments were conducted to use phosphogypsum as poultry litter in floor housing of broilers. The results showed benefits of using phosphogypsum in the amount of 10–30% of the litter volume.

These benefits include:

reduction in litter moisture content

to 13 %

Reduction in levels of ammonia released into the air of poultry houses (day 28–35)

by 6–8 %

The use of phosphogypsum helps alter quality indicators of poultry litter:

- an 8–11% increase in the level of nitrogen in litter;
- a 2–3x rise in the level of calcium in litter

For more information about the project, see the Research and Education section on page 125.

METRICS AND HIGHLIGHTS

SASB RT-CH-150a.1

Share of recycled and decontaminated hazard class 1–4 waste[1], %

The reporting year saw a decline in the share of recycled and decontaminated hazard class 1–4 waste following a slight change in the ratio of recycled waste to waste disposed of, generated by an increased volume of repairs and cleaning of process equipment.

Waste generation by hazard class, t

GRI 306-3, RT-CH-410b.1

Waste hazard class	2020	2021	2022 (actual)
1	6.48	5.63	4.22
2	7.61	3.86	0.39
3	1,070.64	1,698.52	1,436.71
4	180,439.54	192,698.46	195,057.45
5	132,492,537.10	132,227,604.70	120,229,530.98
Total	**132,674,061.36**	**132,422,011.17**	**120,426,029.77**

The reduction in class 5 waste generation was due to increased use of overburden as a backfilling material at the Kirovsk branch.

[1] The Group specific disclosure was calculated as ratio of class 1–4 waste recycled and decontaminated to the total volume of class 1–4 waste.

Waste by type and disposal method, t[1]

GRI 306-4, GRI 306-5

Disposal method	2020	2021	2022
PhosAgro Group's waste reused internally	**21,877,032.2**	**19,203,406.7**	**27,753,191.6**
Hazardous waste	51,632.9	74,266.9	74,456.8
Non-hazardous waste	21,825,399.3	19,129,139.8	27,678,734.8
Total waste landfilled	**110,776,483.1**	**112,392,381.5**	**93,400,262.0**
Hazardous waste	113,597.1	119,050.2	120,688.6
Non-hazardous waste	110,662,885.9	112,273,331.3	93,279,573.4
Including landfilled at the Company's waste disposal facilities	**110,771,883.1**	**112,386,304.7**	**93,390,463.8**
Hazardous waste	109,096.9	113,463.9	110,976.1
Non-hazardous waste	110,662,786.2	112,272,840.8	93,279,487.7
Third-party recycled	**52,377.7**	**72,278.0**	**63,040.9**
Hazardous waste	16,402.3	1,432.2	1,449.9
Non-hazardous waste	35,975.4	70,845.8	61,591.0
Third-party decontaminated	**262.4**	**332.5**	**299.8**
Hazardous waste	262.4	332.5	263.1
Non-hazardous waste	0	0	36.7
Third-party processed	**1,590.9**	**2,756.7**	**2,880.6**
Hazardous waste	6.4	2.2	45.1
Non-hazardous waste	1,584.5	2,754.5	2,835.5

Disposal of beneficiation waste and overburden at Apatit's Kirovsk branch, t

SASB EM-MM-150a.1, EM-MM-150a.2

	Reused			Landfilled at waste disposal facilities		
	2020	2021	2022	2020	2021	2022
Apatite-nepheline ore processing waste (tailings)	12,015,508.0	12,535,665.7	13,065,273.3	12,947,652.0	13,483,863.3	12,865,355.7
Rocks and overburden mix	6,625,514.0	3,360,586.0	11,276,148.0	89,454,699.0	90,494,219.0	72,281,414.0

Waste generation, t per tonne of finished and semi-finished products

Production site	2020	2021	2022
Kirovsk branch	10.4	10.3	9.1
Balakovo branch	0.9	0.9	0.9
Volkhov branch	0.031	0.003	0.001
Apatit (Vologda region)	0.4	0.4	0.4
Total	**3.9**	**3.8**	**3.3**

Waste generation (hazard class 1–4), kg per tonne of finished and semi-finished products

Production site	2020	2021	2022
Kirovsk branch	0.3	0.5	0.8
Balakovo branch	16.7	21.3	21.1
Volkhov branch	27.0	0.6	0.5
Apatit (Vologda region)	3.8	3.6	4.0
Total	**5.4**	**5.5**	**5.3**

[1] Hazardous means hazard class 1–4 waste; non-hazardous means hazard class 5 waste.

Air

Our targets

23.7%

reduction in emission intensity by 2025 vs 2018 to 0.8 kg per tonne of products and semi-finished products

2022 highlights

The 2025 target to reduce GHG emissions was achieved.

Pollutant emissions, kg per tonne of products and semi-finished products

0.793 down ~1% vs 2021

RUB 3,916 mln

invested throughout the duration of the Clean Air Initiative, including RUB 315 mln in 2022

Strategy and management approach

GRI 3-3

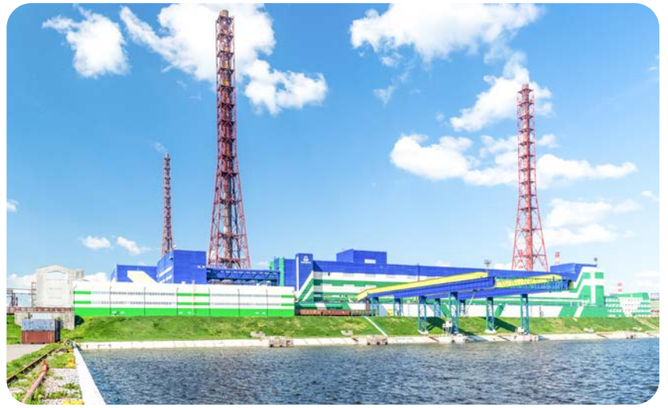
PhosAgro has developed and now maintains an emissions management process that includes assessment of planned activities, discussion of relevant matters with a wide range of stakeholders, as well as monitoring and disclosing pollutant emissions. To effectively reduce its environmental impact, PhosAgro is running a programme to re-equip production facilities and cut pollutant emissions.

PhosAgro takes part in the government's Clean Air initiative, which aims to drastically reduce air pollution in major industrial cities across Russia. As part of the initiative, the Company implemented a number of projects that helped reduce emissions by 20% in 2022 vs 2017, despite an annual rise in production output and launch of new capacities.

Air quality in sanitary protection areas near the Company's production sites complies with applicable hygienic requirements.

Key initiatives in 2022

Apatit's Cherepovets site implemented four out of five planned activities as part of the Clean Air initiative.



Activities	Status	Environmental efficiency, t	Year	Actual expenditures, RUB mln
Upgrade of the SK-600/3 sulphuric acid plant	completed	892	2018–2019	2,733.225
Deployment of new tailing gas pre-heating equipment for the UKL-7 plant	completed	105	2019	10.975
Upgrade of technological system No. 3, block 2.70 at the mineral fertilizer production site	completed	62.3	2020	776.62
Technical upgrade of the low-capacity absorption unit, blocks 7.00 and 7.01 at the mineral fertilizer production site	completed	402.6	2021–2022	321.84
Catalyst replacement at contact process units of the SK-600/1 and SK-600/2 technological systems	in progress	665 t reduction achieved in sulphur dioxide emissions (partial catalyst replacement at SK-600/2 and SK-600/1)	2021–2024	125.58
PROJECTS IN ADDITION TO THE COMPREHENSIVE PLAN'S ACTIVITIES				
Unit to recover ammonia from residual and synthesis gases of the first and second ammonia production lines	Design and expert reviews (implementation scheduled until end of 2024)	268	2022–2025	1.747
Upgrade of the process to return synthesis and purge gas to the fuel gas system without sending ammonia-containing gases to burners of the steam superheater at the first ammonia production line	implemented	effect to be determined in 2023	2022	5.594

At the Volkhov branch, the key activities of 2021–2022 to reduce the negative impact on the environment, including air, were implemented as part of an investment project to develop the Volkhov site: technical solutions to reduce per unit emissions and concentrations of pollutants at the sanitary protection zone boundaries near residential areas were provided for back at the stages of new construction and upgrades. The considerable reduction in per unit emissions confirms that we have chosen the right approach.

In 2022, the Balakovo branch completed the second stage of technical upgrade at technological systems 5 and 6 of the phosphate fertilizers unit, along with a revamp of gas recovery equipment. The impact will be assessed in 2023.

On an annual basis, **Apatit's Kirovsk branch** runs activities to minimise dust emissions from tailing dumps of beneficiation facilities. In 2022, the following work was completed:

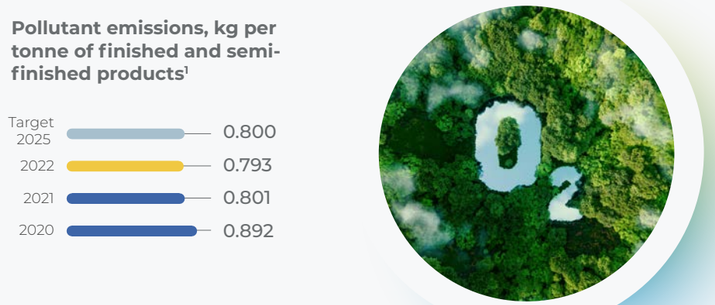
- chemical stabilisation using binding agents (PSKh-18 and DUSTBIND) for dusty surfaces in the beach area of tailing dumps:
- – at ANBP-2 across 631.1 ha,
- – at ANBP-3 across 410 ha;

- chemical stabilisation using binding agents (bitumen emulsion) for dusty surfaces in the beach area of tailing dumps:
- – at ANBP-2 across 2.6 ha;
- chemical stabilisation for dusty surfaces on service roads of tailing dumps:
- – at ANBP-2 across 141 ha,
- – at ANBP-3 across 50.7 ha;
- biological stabilisation using hydroseeding for dusty surfaces of dam slopes and beach area of tailing dumps:
- – at ANBP-2 across 3.19 ha,
- – at ANBP-3 across 33.597 ha;

- search for an optimal anti-dusting agent, with pilot tests held for nine new samples.

METRICS AND HIGHLIGHTS

Pollutant emissions, kg per tonne of finished and semi-finished products[1]



[1] The Group specific disclosure was calculated as the ratio of pollutant emission to the output of products and semi-finished products.

GRI 305-7, SASB RT-CH-120a.1 / EM-MM-120a.1

NO_x, SO_x and other significant air emissions, t

Pollutants	2020	2021	2022
TOTAL			
Kirovsk branch	10,003.4	10,120.3	10,141.3
Balakovo branch	7,286.2	6,876.0	7,323.8
Volkhov branch	1,068.9	1,165.8	1,575.0
Apatit (Vologda region)	11,830.7	10,065.3	10,193.5
Total	30,189.0	28,227.4	29,233.6
SOLIDS			
Kirovsk branch	5,148.6	4,939.8	5,011.1
Balakovo branch	429.5	425.8	497.1
Volkhov branch	461.7	528.6	234.9
Apatit (Vologda region)	917.3	1.055.1	771.7
Total	6,957.1	6,949.3	6,514.8
SULPHUR DIOXIDE			
Kirovsk branch	3,104.0	3,308.2	3,373.4
Balakovo branch	4,432.1	3,975.4	4,227.2
Volkhov branch	180.8	206.7	320.5
Apatit (Vologda region)	3,367.2	3,029.2	3,770.9
Total	11,084.0	10,519.5	11,692.0
CARBON MONOXIDE			
Kirovsk branch	711.1	777.0	798.1
Balakovo branch	870.0	933.1	949.4
Volkhov branch	92.4	115.3	106.3
Apatit (Vologda region)	1,573.5	1,274.8	1,324.2
Total	3,247.0	3,100.2	3,178.0
NITROGEN OXIDES (NO_x AS NO_2)			
Kirovsk branch	1,012.2	1,067.8	931.2
Balakovo branch	746.9	760.7	765.1
Volkhov branch	283.1	207.6	330.7
Apatit (Vologda region)	2,540.0	2,401.8	2,491.9
Total	4,582.1	4,437.9	4,518.9
HYDROCARBONS (W/O VOCS)			
Kirovsk branch	8.0	8.0	8.0
Balakovo branch	2.6	2.6	2.6
Volkhov branch	0.0	0	0
Apatit (Vologda region)	38.1	38.1	38.1
Total	48.7	48.7	48.7
VOLATILE ORGANIC COMPOUNDS (VOCS)			
Kirovsk branch	19.0	19.0	19.0
Balakovo branch	340.1	340.7	340.0
Volkhov branch	4.6	5.0	6.2
Apatit (Vologda region)	2.2	2.0	2.8
Total	365.8	366.7	368.0
OTHER GASEOUS AND LIQUID POLLUTANTS			
Kirovsk branch	0.5	0.5	0.5
Balakovo branch	465.1	437.7	542.4
Volkhov branch	46.2	102.6	576.4
Apatit (Vologda region)	3,392.6	2,264.3	1,793.9
Total	3,904.3	2,805.1	2,913.2

Water

RT-CH-140a.2 / EM-MM-140a.2

Our targets

Reduce water withdrawal

by 29.3 %

by 2025 vs 2018 to 5.16 m³ per tonne of products and semi-finished products

Reduce the discharge of waste water into surface water bodies

by 31.1 %

by 2025 vs 2018 to 4.16 m³ per tonne of products and semi-finished products

2022 highlights

Water withdrawal[1]

6.42 *m³/t* down 0.93% vs 2021

Waste water discharge into surface waters[2]

5.27 *m³/t* down 0.75% vs 2021

Strategy and management approach

GRI 3-3, 303-1

Water is an essential resource for the Company. There is no shortage of water sources in the regions where our facilities are based. According to the Water Risk Atlas and Water Risk Filter, all PhosAgro production sites are located in areas with low or moderate fresh water scarcity. However, access to clean water is a major issue facing the world.

Risks and opportunities

SASB RT-CH-140a.3

The main risks related to water consumption are water quality deterioration in water bodies across PhosAgro's footprint and the Company's non-compliance with statutory requirements for limiting negative impact on water bodies.

PhosAgro has implemented closed-loop water recycling systems at its sites in Volkhov and Balakovo to reuse water in production processes.

Going forward, we plan to improve waste water management by focusing on maximum reuse of water through closed-loop water recycling systems and better treatment of effluents discharged into water bodies in addition to ongoing monitoring of water bodies in the regions of operation.

The regulatory risks include tightened waste water quality requirements, as well as restrictions on the amount of water consumed and discharged into both water bodies and centralised waste water systems. There were no incidents of non-compliance associated with water quality permits, standards, and regulations.

To mitigate these risks, in 2020 we adopted and started implementing a Water Strategy that seeks to reduce water consumption and discharge and improve waste water quality.

The strategy is implemented at all PhosAgro sites, and we regularly analyse these measures to determine whether they are sufficient and effective enough to achieve our targets.

To identify the impact of the Company's operations on water bodies, we monitor these bodies in accordance with adopted programmes by engaging our own certified laboratory and external certified laboratories.

[1] The Group specific disclosure was calculated as the ratio of total water withdrawn to the total output of products and semi-finished products.

[2] The Group specific disclosure was calculated as the ratio of the volume of waste water discharged into surface water bodies, including mine and pit waters, to the total output of products and semi-finished products.

Key initiatives in 2022

At the Cherepovets site, we completed the first stage of the water use optimisation programme as part of our production upgrade initiative for 2022–2025

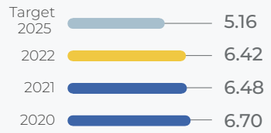
Phosphate facility

1. Engineering documentation developed for the project named The Technical Upgrade of a Water Treatment Station in a Utility and Drinking Water Supply System with Arrangements Made to Dehydrate Sludge Water at the Phosphate Facility of Apatit.
2. Pilot tests completed and core technical solutions developed for the technical upgrade of an acidic waste water treatment station, with the drafting of engineering documentation underway.
3. A base case design developed for the project named A Waste Water Treatment Unit with a Source Water Capacity of at Least 400 m³/h at the Phosphate Facility of Apatit. The general designer responsible for the facility's design (construction, networks, auxiliary systems) is NIUIF.
4. The development of engineering documentation is underway for the project named A Saline Waste Water Sewerage at the Phosphate Facility of Apatit. The documentation is expected to be completed in 1Q 2023.
5. Implementation of the Water Use Optimisation Programme at the Cherepovets site of Apatit as part of the production upgrade initiative for 2022–2025.

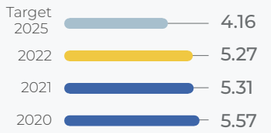
Nitrogen facility:

1. Work started to design a saline waste water treatment unit. The designer of the saline waste water facilities is NIUIF.
2. As part of the Electricity Generation Based on the System of Chemical Water Treatment (Heat and Power Plant) initiative, the Volkhov branch successfully piloted the reuse of effluents resulting from boiler blowdown at a heat and power plant and chemical water treatment concentrate. This led to the reduction of waste water discharged into sanitary protection zones by 135 tonnes per hour.

Water withdrawal, m³ per tonne of products and semi-finished products[1]



Discharge of waste water into surface water bodies, m³ per tonne of products and semi-finished products[2]



Total water withdrawal by source, '000 m³

GRI 303-3, SASB RT-CH-140a.1 / EM-MM-140a.1

Indicators	2020	2021	2022
SURFACE WATER			
Total water withdrawal from surface sources, including:	170,862	175,943	182,276
process water	59,081	60,747	62,164
drinking water (internal use)	995	1,193	1,187
drinking water (for supplies to third parties)	399	557	632
mining and pit waters	104,475	107,633	111,751
drainage water	3,312	3,170	2,401
rainwater	2,600	2,642	4,142
GROUND WATER			
Water withdrawal from ground-water sources	2,832	2,912	3,357
Total water received from third-party suppliers, including:	52,898	49,600	51,240
process water received from suppliers	28,443	28,373	28,644
water from municipal supply (internal use)	8,138	9,126	8,400
water from municipal supply (for supplies to third parties)	17	47	32
waste water from other waste water discharge systems	16,300	12,054	14,164
Total	**226,592**	**228,456**	**236,873**

Measurement of total and specific water withdrawal including and excluding mining and pit waters

Indicators	2020	2021	2022
Total water withdrawal, including mining and pit waters, '000 m³	226,592	228,456	236,873
Specific water withdrawal, including mining and pit waters,[2] m³ per tonne	6.70	6.48	6.42
Total water withdrawal, excluding mining and pit waters, '000 m³	122,117	120,823	125,122
Specific water withdrawal from surface sources, excluding mining and pit waters,[3] m³ per tonne	3.61	3.43	3.39

[1] The Group specific disclosure was calculated as the ratio of total water withdrawn, including mining and pit waters, to the total output of products and semi-finished products.
[2] The Group specific disclosure was calculated as the ratio of the total volume of waste water discharged into surface waters to the total output of finished and semi-finished products.
[3] The Group specific disclosure was calculated as the ratio of total water withdrawn, excluding mining and pit waters, to the total output of products and semi-finished products.

Water consumption includes both mining and pit waters. The volume of mining and pit waters depends on the intensity of precipitation and the size of the catchment area. It tends to increase with the development of new horizons.

Total water discharge by source, '000 m³

GRI 303-4

Indicators	Total		
	2020	2021	2022
WATER DISCHARGE INTO SURFACE WATER BODIES			
Total water discharge into surface water bodies, including:	188,455	187,012	194,447
mining and pit waters	104,475	107,633	111,751
drainage water	3,312	3,171	2,401
waste water from other waste water discharge systems	15,901	11,673	13,782
SUPPLIES TO THIRD PARTIES			
Total water supplies to third parties including:	4,147	4,222	4,406
waste water to the public water discharge system (after use)	3,314	3,238	3,219
waste water to the public water discharge system (unused)	399	381	523
water supplies to third parties from surface sources	417	557	632
water supplies to third parties from municipal sources	17	47	32
Total	**192,602**	**191,234**	**198,853**

Measurement of total and specific waste water discharge including and excluding mining and pit waters

Indicators	2020	2021	2022
Total water discharge into surface water bodies, including mining and pit waters, '000 m³	188,455	187,012	194,447
Specific water discharge into surface water bodies, including mining and pit waters,[1] m³ per tonne	5.57	5.31	5.27
Total water discharge into surface water bodies, excluding mining and pit waters, '000 m³	83,980	79,379	82,696
Specific water discharge into surface water bodies, excluding mining and pit waters,[2] m³ per tonne	2.48	2.25	2.24

[1] The Group specific disclosure was calculated as the ratio of waste water discharged into surface water bodies, including mining and pit waters, to the total output of products and semi-finished products.
[2] The Group specific disclosure was calculated as the ratio of waste water discharged into surface water bodies, excluding mining and pit waters, to the total output of products and semi-finished products.

Treated effluents (reused in the production cycle)

Asset	2020	2021	2022
Total, mln m³	**240.4**	**244.7**	**241.7**
Share of reused water, %	88	87	86

Water consumption, '000 m³

GRI 303-5

Indicator	Total		
	2020	2021	2022
Total water withdrawal (all sources)	226,592	228,456	236,873
Total water discharge (all sources)	192,602	191,234	198,853
Water consumption	**33,990**	**37,222**	**38,020**

Water discharge in 2022, mln m³

GRI 303-4

Indicator	2020	2021	2022
WASTE WATER DISCHARGE INTO SURFACE WATER BODIES			
Kirovsk branch	173.7	173.9	180.0
Balakovo branch	0	0	0
Volkhov branch	0	0	0
Apatit (Vologda region)	14.8	13.1	14.4
Total	**188.5**	**187.0**	**194.4**
DISCHARGED WITHOUT TREATMENT (% OF TOTAL WATER DISCHARGE)			
Kirovsk branch	0	0	0
Balakovo branch	0	0	0
Volkhov branch	0	0	0
Apatit (Vologda region)	0	0	0
Total	**0**	**0**	**0**

Waste water discharge at Apatit

		Receiving water body
KIROVSK BRANCH		
Discharge 1	Discharge from ANBP-3	Zhemchuzhnaya River
Discharge 2	Discharge from ANBP-2	Belaya River
Discharge 3	Rainwater at ANBP-2	Belaya River
Discharge 4	Mining waters of the combined Kirovsky, Central and Rasvumchorrsky mines	Lake Bolshoi Vudyavr
Discharge 5	Mining waters of the Koashva and Njorkpahk open pits	Lake Kitchepahk
Discharges 6, 9	Waters of water-lowering wells of the Vostochny mine	Vuonnemyok River
APATIT (VOLOGDA REGION)		
Effluents from the phosphate facility		Rybinsk Reservoir
Effluents from the nitrogen facility		Rybinsk Reservoir

Biodiversity

Target

Preservation of biodiversity in regions of PhosAgro Group's operation at a level securing sustainability

2022 highlights

Over 1.2 *million*

juvenile fish of various species and pike larvae were released into water bodies across PhosAgro's geographies in 2019–2022

Strategy and management approach

GRI 3-3

The Company's Environmental Policy sets forth PhosAgro's obligations to preserve biodiversity, natural landscapes and habitats across its footprint and prevent its projects from causing any harm to the same.

Before building any new production facilities or renovating existing ones, PhosAgro conducts an environmental impact assessment (EIA) based on the results of engineering and environmental surveys. Assessment of the local flora, fauna and landscapes, as well as research, analysis and consideration of public attitudes towards biodiversity protection are integral to our EIA procedures.

For a number of years, the Company has been working to preserve biodiversity and replenish biological resources. In 2020, the Company started developing comprehensive biodiversity protection programmes in partnership with research institutions. The effort is aimed at assessing and restoring environmental conditions across the Company's footprint and establishing its priorities in protecting biodiversity based on indicator species monitoring.

Key initiatives in 2022

GRI 304-3, SASB EM-MM-160a.3

Comprehensive biodiversity protection programmes were implemented at the Volkhov branch, one of the Kirovsk branch's facilities and Apatit's Cherepovets production site.

187,222 *juvenile fish*

of various species and pike larvae were released into water bodies across the Company's geographies in 2022

GRI 304-2, SASB EM-MM-160a.3

In 2022, the **Cherepovets facility** completed research of flora and fauna within the footprint of pyrite cinder storage facility No. 1–3 (System for Hydraulic and Dry Stacking of Pyrite Cinder).

The research revealed that the area's wildlife includes endemic European and Siberian species and is typical of the Vologda region.

The field and desktop studies proved that none of the plants or animals found in the reviewed area are included in the Vologda region's Red Data Book or in the Red Data Book of the Russian Federation.

As part of the efforts to develop biodiversity protection programmes, the Company joined forces with Kolsky Research Centre of the Russian Academy of Sciences to conduct a comprehensive environmental study of the area within the footprint of Apatit's Kirovsky mine. The researchers walked over 150 km of trails and completed 62 geobotanical descriptions. The total distance walked to take stock of the endemic birds and mammals exceeded 121 km. The study of hydrobionts was carried out at three stations and lasted from July until September.

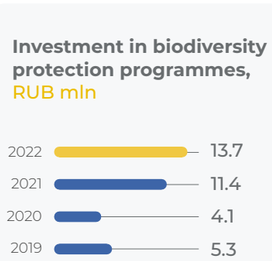
The research revealed that the biome of terrestrial ecosystems within the footprint of the Kirovsky mine includes over 900 species of fungi, lichens, mosses and vascular plants, as well as 135 species of birds and 11 species of mammals. The realm of lichens and plants within the footprint of the Kirovsky mine is amazingly diverse and idiosyncratic, which is a reason enough to develop designated initiatives for protecting the unique flora of the Khibiny Mountains. The diversity of bird and mammal species was strongly affected and disturbed by human activities in the area. Their incidence in natural habitats corresponds to standard incidence in slightly disturbed areas and predictably enough shows signs of structural transformation in populations inhabiting areas impacted by humans.

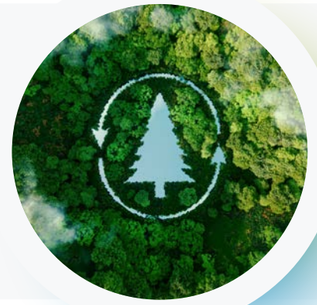
Water ecosystems within the footprint of the Kirovsky mine exhibit relatively high taxonomic diversity due to a wide range of conducive factors. The efforts to take stock of fish fauna within the footprint of the Kirovsky mine led to the identification of four fish species. Lake Bolshoi Vudyavr currently fits the habitat requirements for these species, as it offers ample food supplies for both salmonids (brown trout, Arctic char) and European smelt.

As part of the programme for environmental monitoring of biome (flora and fauna), the Volkhov branch researched an area within the sanitary protection zone.

The study of the area within the footprint of Apatit's Volkhov branch revealed that structure of animal species across the reviewed biotopes is typical for the region in question. A total of 52 bird species were found to live within the facility's footprint and in adjacent areas.

Investment in biodiversity protection programmes,
RUB mln





GRI 304-3

Juvenile fish released into water bodies across PhosAgro's geographies

Water body	2020	2021	2022
SARATOV REGION			
Volgograd Reservoir	45,911	55,838	60,838
Saratov Reservoir	26,393	28,151	28,151
LENINGRAD REGION			
Lake Ladoga	2,116	–	1,584
Nakhimovskoye Lake	–	28,715	–
MURMANSK REGION			
Umba River	4,000	5,000	–
Kovdozero Reservoir	–	–	11,502
VOLOGDA REGION			
Sukhona River	–	22,933	11,743
Sheksna Reservoir	–	3,500	3,000
VOLOGDA AND YAROSLAVL REGIONS			
Rybinsk Reservoir	654,400	–	70,404
YAROSLAVL REGION			
Gorky Reservoir	6,500	–	–
Total	**739,320**	**144,137**	**187,222**