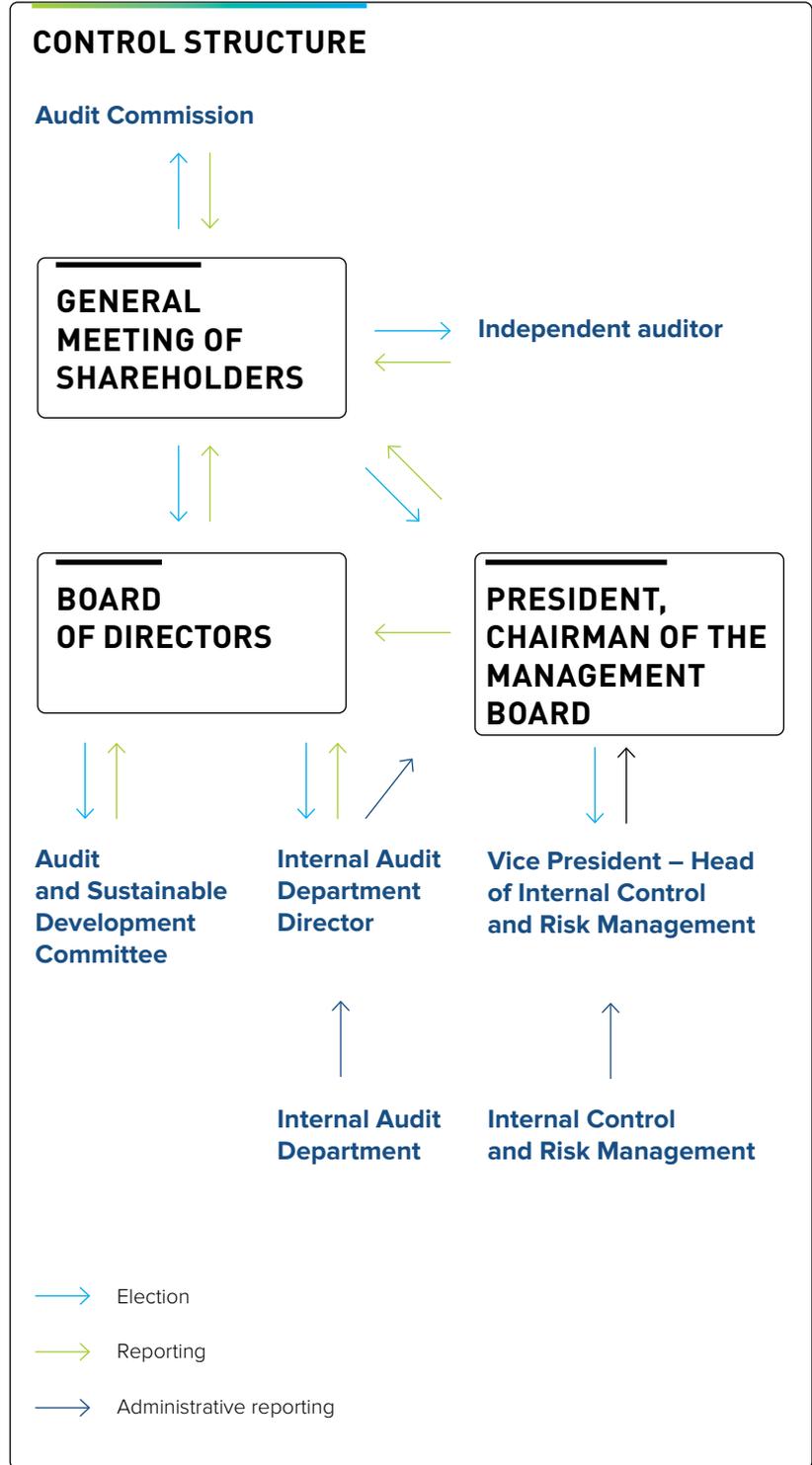


CONTROL SYSTEM AND RISK MANAGEMENT

CONTROL SYSTEM



AUDIT COMMISSION

The Audit Commission is Nornickel's standing internal control body that monitors its financial and business operations. The Audit Commission works in the shareholders' interests and reports to the General Meeting of Shareholders, which elects members of the Audit Commission to hold office until the next Annual General Meeting of Shareholders. The Audit Commission is independent from the officers of Nornickel's governance bodies, and its members do not serve on the Company's governance bodies.

AUDIT COMMISSION'S PERFORMANCE

In 2020, the Audit Commission audited Nornickel's business operations for 2019, with the [auditors' report](#) presented

to the shareholders as part of materials for the Annual General Meeting of Shareholders. A report on the audit of the Company's business operations for 2020 will be presented to the Annual General Meeting of Shareholders in 2021.

The Annual General Meeting of Shareholders held on 13 May 2020 re-elected the incumbent members of the Audit Commission.

The elected members of the Audit Commission have the necessary business experience and expertise in accounting, finance and control to contribute to the Commission's effectiveness and its objectives.

Remuneration payable to members of the Audit Commission who are not Nornickel employees was approved by the Annual General Meeting

of Shareholders on 13 May 2020. Members who are Nornickel employees are remunerated for performing their roles under their employment contracts.

In 2020, remuneration of the Audit Commission totalled RUB 8.1 million (USD 112 thousand). No bonuses or other rewards were paid.

MEMBERS OF THE AUDIT COMMISSION

Name	Primary employment and position
Alexey Dzybalov	Analyst, UC RUSAL, IPJSC (until 25 September 2020: United Company RUSAL Plc)
Anna Masalova	Chief Financial Officer, Pizza Restaurants
Georgy Svanidze	Head of the Financial Department, member of the Management Board at Interros Holding Company
Vladimir Shilkov	CEO of AG, CIS Investment Advisers, and Orion Property; Deputy Project Manager at the Financial Control Service of MMC Norilsk Nickel
Elena Yanevich	CEO of Interpromleasing

INTERNAL CONTROL

The Company has in place an internal control framework covering key business processes and all management levels across the Group. The framework comprises the following supervisory bodies:

- Internal Control and Risk Management, comprising the Internal Control Department, Financial Control Service, Risk Management Service, and Inspectorate for Monitoring Technical, Production and Environmental Risks
- Audit Commission
- Audit and Sustainable Development Committee
- Internal Audit Department

The Internal Control Department regularly monitors the reliability of the Company's system of accountings of metal-bearing products, as well as high-risk business

processes – procurement and investment operations, capital construction and corporate insurance transactions. The Department also continuously monitors compliance with regulatory requirements to counter the misuse of insider information and combat money laundering and the financing of terrorism.

The performance and maturity of internal control framework elements is evaluated annually as part of a financial statement audit and internal control framework self-evaluation. Reports containing the internal control framework evaluation results are reviewed by Nornickel's management and the Audit and Sustainable Development Committee of the Board of Directors.

The Financial Control Service audits financial and business operations of Nornickel and its subsidiaries to make updates and recommendations for the President and members of the Board of Directors. The Head of the Financial Control Service is appointed by resolution of the Board of Directors..

CORPORATE TRUST SERVICE

Nornickel runs the Corporate Trust Service speak-up programme established within the Internal Control Department to respond promptly to reports of non-compliance, wrongdoing or embezzlement. Employees, shareholders and other stakeholders can report any actions that cause or may cause financial or reputational damage to Nornickel. The key principles underlying the operation of the Corporate Trust

Service include guaranteed anonymity for whistleblowers, and timely and unbiased review of all reports. Nornickel will in no circumstances retaliate against an employee who raises a concern via the Corporate Trust Service, meaning that no disciplinary action will be taken (dismissal, demotion, forfeiture of bonuses, etc.).

Reports can be submitted via toll-free hotlines 8,800,700 1941 and 8,800,700 1945, via e-mail skd@nornick.ru or the reporting form on Nornickel's website.

REPORT STATISTICS

Indicator	2018	2019	2020
Total number of reports	961	1,181	1,037
Total number of reports that triggered investigation	394	481	451
Percentage of corruption reports	1.5% (6 reports, including 0 substantiated)	0.2% (1 report, including 1 substantiated)	0% (0 reports)

FOR MORE DETAILS ON REPORT STATISTICS, PLEASE SEE THE SUSTAINABILITY REPORT.

INTERNAL AUDIT

Internal audits are aimed at assisting the Board of Directors and senior management in enhancing Nor Nickel's management efficiency and improving its financial and business operations through a systematic and consistent approach to the analysis and evaluation of risk management and internal controls as tools providing reasonable assurance that Nor Nickel will achieve its goals.

In order to ensure independence and objectivity, the Internal Audit Department functionally reports to the Board of Directors through the Audit and Sustainable Development Committee and has an administrative reporting line to Nor Nickel's President.

The Internal Audit Department conducts objective and independent audits to assess the effectiveness of the internal control framework and risk management framework. Based on the audits, the Department prepares reports and proposals for the management on improving internal controls, and monitors the development of remedial action plans.

IN 2020, THE DEPARTMENT:

- performed 19 audits of production management, IT asset management, activities of the Russian division, and corporate governance processes
- performed an annual evaluation of Nor Nickel's corporate risk management framework and internal control framework in 2020. The review concluded that the corporate risk management framework and internal control framework remain effective overall, with some minor improvements required.

Based on the recommendations issued during the audits, the management developed corrective actions and implemented a total of 322 such actions in 2020. The actions included updating regulatory documents, developing new or amending existing control procedures, communicating them to employees, training employees, identifying and assessing risks. The Internal Audit Department continuously monitors the implementation of initiatives developed by management, with the resulting insights on types and number of initiatives regularly reviewed by the Audit and Sustainable Development Committee.

DIGITALISATION OF INTERNAL AUDIT

In 2020, the Internal Audit Department adopted the SAP Audit Management information system. The successful implementation enabled the Company to:

- create a tool to automate standard procedures for planning, auditing, reporting, making and following up on recommendations, preparing analytical and statistical reports
- create a single point of access to the Internal Audit Department's data, ensure convenient storage of documents and monitoring of audits, increase the transparency of internal audit activities by introducing a single workspace
- ensure the management of databases on controls and risks for internal audit.

In 2020, the Department started preparing for rolling out the SAP Audit Management system across internal audit units of the Russian division and the Company's branches. The system's implementation is planned for 2021.

The Internal Audit Department focuses on expanding the use of data analysis tools in audits. In 2020, in addition to IT audits, the Internal Audit Department used digital data processing methods to audit procurement processes and transportation services.

ANTI-CORRUPTION

Nornickel complies with anti-corruption laws of the Russian Federation and other countries in which it operates, as well as any applicable international laws and Nornickel's own internal documents. This commitment enhances Nornickel's reputation and boosts trust and confidence among our shareholders, investors, business partners, and other stakeholders.

Nornickel openly declares its zero tolerance to corruption in any form or manifestation. Members of Nornickel's Board of Directors/Management Board and senior management role model a zero-tolerance approach to corruption in any form or manifestation at all levels across the organisation. Facilitation payments and political contributions to obtain or reward the retention of a business advantage are strictly prohibited by Nornickel's policy. Nornickel will not tolerate any retaliation against an employee who reports a concern about suspected bribery or corruption, or refuses to offer a bribe, facilitate bribery, or take part in any other corrupt activities, even if their refusal to do so has resulted in a lost opportunity or a failure to obtain a business or competitive advantage for Nornickel.

The corporate [Anti-Corruption Policy](#) is Nornickel's key anti-corruption document, setting out the main objectives, principles and scope of anti-corruption efforts.

As part of its anti-corruption efforts, Nornickel has developed and approved the following key anti-corruption documents:

- [Code of Business Ethics of MMC Norilsk Nickel](#)
- [Code of Conduct and Ethics for Members of Board of Directors](#)
- [Regulations on the Product Procurement Procedure for Norilsk Nickel Group Enterprises](#)
- [Standard anti-corruption agreement – an appendix to the employment contract](#)
- [Regulations on Information Security](#)
- [Regulations on the Prevention and Management of Conflicts of Interest](#)
- [Regulations on Business Gifts](#)
- [Procedure for Anti-Corruption Due Diligence of Internal Documents by the Head Office of MMC Norilsk Nickel](#)
- [Regulations on the Conflict of Interest Commission](#)
- [Regulations on the Information Policy](#)

Having joined the Russian Anti-Corruption Charter for Business, Nornickel is implementing a range of dedicated anti-corruption measures based on the Charter and set forth in Nornickel's Anti-Corruption Policy. In January 2020, the Company submitted its Declaration on Compliance with the Russian Anti-Corruption Charter for Business to the Russian Union of Industrialists and Entrepreneurs, and its participation in the Charter was extended until 2021.

The Company regularly informs its employees on corruption prevention and combating. Starting from 2015, all Nornickel employees make their personal anti-corruption commitments by signing a relevant form. The corporate Anti-Corruption Policy and related regulations are communicated to all employees upon commencement of employment. Norilsk Nickel Group provides training for employees on an ongoing basis, including anti-corruption induction briefings for all new hires, regular anti-corruption distance learning courses, and individual advice on compliance with anti-corruption requirements.

Nornickel maintains a Preventing and Combating Corruption section on its corporate intranet, providing information on anti-corruption regulations and measures taken to combat and prevent corruption, provide legal education, and promote lawful behaviours among employees.

CORPORATE SECURITY

Nornickel's corporate security system management is based on a set of programmes to ensure economic, corporate, information, on-site, and transport security, as well as transparency of procurement and counterparty selection procedures. Particular emphasis is placed on supporting the Company's socially significant investment and environmental projects.

The Company continues to cooperate with the United Nations Interregional Crime and Justice Research Institute (UNICRI) and the United Nations Office on Drugs and Crime (UNODC) in areas including the implementation of the UN Economic and Social Council Resolution 2019/23 on combating transnational organised crime, illicit trafficking in precious metals, and illegal mineral extraction.

Nornickel's representatives co-chair the Security Committee of the International Platinum Group Metals Association. The Security Committee guides its members to ensure security and combat illicit trafficking in platinum group metals. The International Platinum Group Metals Association is the only international industry association of PGM producers.

The Company cooperates with law enforcement and supervisory bodies, sits on public and scientific advisory councils at the Ministry of Internal Affairs, Investigative Committee, Transport Prosecutor's Office, Federal Security Service of the Russian Federation, and interdepartmental working groups.

In 2020, Nornickel collaborated with the Federal Security Service, Ministry of Internal Affairs and EMERCOM to conduct a total of 127 trainings, 65 general and 12 tactical and special drills.

The protection of human rights is reflected in the by-laws of the Corporate Security Unit (MMC Norilsk Nickel's Anti-Embezzlement Regulations, In-House Investigation Regulations, etc.).

INFORMATION SECURITY

SHIFT TO WORK FROM HOME

The COVID-19 pandemic has affected virtually every industry in Russia and globally, including information security. To mitigate potential health risks for the Company's employees and prevent the potential consequences for operations, Nornickel's management decided to shift a significant part of its personnel to remote work. Along with providing employees with the necessary equipment to work from home, additional measures were taken to enhance the information security of corporate resources and infrastructure. The Company tightened security requirements and controls for remote computers and devices used in audio and video conferencing. Remote work is monitored on a daily basis, and reminders and guidelines for users are updated.

IMPLEMENTING INFORMATION SECURITY PROGRAMMES

Despite the pandemic-induced restrictions, the Company continues implementing its scheduled measures and programmes to protect corporate information systems and automated process control systems (APCS) at its Head Office and in the regions of operation. Nornickel continued providing project support for its IT initiatives programme and to introduce security tools to build the target information security architecture.

The Company has approved information security standards and plans to bring all information systems and APCSs into compliance with these standards in the medium term.

IMPLEMENTATION OF POLICIES FOR EMPLOYEES

The principle information security rules for employees are summarised in a single document – Guidelines on Permitted Use of Information Assets. The information security procedures which involve the Company employees include:

- identification and classification of information assets
- raising information security awareness
- managing access to information assets
- managing information security incidents
- assessing IT projects for compliance with information security requirements.

TRAINING AND EDUCATION

Employee information security training and upskilling, along with raising information security awareness (beyond dedicated units) are directly linked to the implementation of the corporate HR policy. New hires are requested to take a respective test and complete an induction briefing. Nornickel developed and approved the Procedure for Raising Information Security Awareness and has in place annual employee training plans compiled with account for current trends, new risks and cyber threats. All employees of the Company's Head Office and facilities located across its regions of operation undergo training and knowledge checks. The Company conducts training courses on the Digital Academy corporate platform. A total of 47 video conference trainings were held in 2020, covering 7,000 employees.

SUSPICIOUS ACTIVITY REPORTING PROCESS

Nornickel improves the corporate information security system through regular trainings and drills, including simulations of phishing attacks and other illegal schemes to affect the corporate IT infrastructures. Following the trainings, instructions and guidelines for employees are updated, and relevant information is also included in the quarterly bulletin forwarded to heads of the Company's structural units. All Nornickel's internal documents on information security prompt employees to report suspicious activities to the corporate Information Security Incident Response Centre using available communication channels.

CYBER INCIDENT RESPONSE SYSTEM

The Company has an Information Security Incident Response Centre which uses advanced technical solutions as well as Russian and global best practices for managing cyber defence. Processes and procedures in place to ensure information security continuity in case of emergency are tested regularly, at least once per quarter.

COMPLIANCE WITH REGULATORY REQUIREMENTS

In accordance with Federal Law No. 187-FZ dated 26 July 2017 the Group categorised critical IT infrastructure facilities (APCSs) and submitted the results to the Federal Service for Technical and Export Control. Nornickel obtained licences for information security monitoring activities, and signed a number of data sharing agreements with state regulatory authorities to counteract cyberattacks on IT resources and infrastructure of leading Russian industrial corporations.

The Company also improved its methodology and regulations covering personal data and trade secret protection, which are rolled out across its regions of operation.

The Group consistently implements the Information Security Management System across its facilities, covering operational production management, procurement of feedstock and process materials, and control over the achievement of targets in production and shipment of finished products. In 2020, Nadezhda Metallurgical Plant and Copper Plant (Nornickel's Polar Division) implemented the information security management

systems certified to ISO/IEC 27001:2013. In the course of the year, Nornickel engaged BSI (British Standards Institution), a leading international standards body, to conduct four audits, which confirmed the effectiveness of Nornickel's efforts and compliance of its information security management systems with international standards and global best practices.

The Company regularly passes external information security audits for compliance with the requirements to personal data and critical information infrastructure protection, international cyber security management standards, as well as testing and security assessments, vetting inspections to control information security in maritime and river navigation, etc.

Nornickel's efforts to develop and implement advanced cyber security solutions for industrial assets have been repeatedly acknowledged by the professional community and industry associations.

ENGAGEMENT OF THE BOARD OF DIRECTORS AND SENIOR MANAGEMENT

Nornickel's Information Security Policy outlines the respective engagement boundaries and responsibility of governance bodies, including the Board of Directors and the Management Board. Their responsibilities include setting up an information security risk management system, reviewing and approving the budgets of relevant programmes and projects.

The Company's senior management regularly reports to the Board of Directors on information security at meetings of the Audit and Sustainable Development Committee.

PARTICIPATION IN CONFERENCES AND FORUMS

The Information Security and IT Infrastructure Department took part in the 8th international conference Kaspersky Industrial Cybersecurity Conference 2020, one of Russia's leading dedicated forums, to share their experience and solutions in industrial cybersecurity and cyber protection of technology processes. Nor Nickel's

achievements and willingness to share its solutions as models to be deployed by Russia's industrial majors were highly praised by the professional community. The Company received a badge of honour For Leadership, Openness and Responsible Approach to Protecting Industrial Facilities.

For its contribution to the development of the Russian Privacy Professionals Association, the Department won a Russian Privacy Award in the Expert of the Year category.

In addition, throughout 2020, employees of the Information Security and IT Infrastructure Department spoke at events such as the international conference TB Forum (co-organised by the Federal Service for Technical and Export Control), the 8th Conference on Information Security of Automated Control Systems for Critical Facilities, etc.

INDEPENDENT AUDIT

Competitive bidding to select an independent auditor for MMC Norilsk Nickel's financial statements is carried out as per the Company's existing procedure. The Board's Audit and Sustainable Development Committee reviews the pre-selection results and makes a recommendation to the Board of Directors regarding a proposed auditor to be approved by the Annual General Meeting of Shareholders of MMC Norilsk Nickel.

In 2020, the General Meeting of Shareholders approved JSC KPMG as the auditor for MMC Norilsk Nickel's RAS and IFRS financial statements for 2020.

The fee paid to JSC KPMG for its audit and non-audit services in 2020 totalled RUB 305.8 million (USD 4.2 million), net of VAT, with the share of non-audit services accounting for 45% of the total amount.

To avoid conflicts of interest, JSC KPMG has in place a policy covering different types of services provided to audited companies, which complies with the requirements of the International Ethics Standards Board for Accountants (IESBA), the Russian Rules for the Independence of Auditors and Audit Organisations, and other applicable standards.

AUDITOR'S FEE

Service type	RUB mln, net of VAT	USD mln, net of VAT
Audit and related services	168.1	2.3
Non-audit services	137.7	1.9
Total auditor's fee	305.8	4.2
Share of non-audit services	45%	

RISK MANAGEMENT

Nornickel continuously manages risks that can affect its strategic and operational goals.

This process comprises the following stages:

- Identification of risks that have external and/or internal sources
- Risk assessment based on their impact on key financial and non-financial metrics
- Development and implementation of measures to prevent risks and/or minimise their implications

Nornickel pursues the following key risk management objectives:

- Increase the likelihood of achieving the Group's goals
- Improve resource allocation
- Boost Nornickel's investment case and shareholder value

The risk management framework is based on the principles and requirements set out in Russian and international laws, as well as professional standards, including the Corporate Governance Code recommended by the Bank of Russia, GOST R ISO 31000–2019 Risk Management. Principles and Guidelines, and COSO ERM Enterprise Risk Management – Integrating with Strategy and Performance.

To manage production and infrastructure risks, Nornickel develops, approves and updates business continuity plans which in case of emergency consecutively set out:

1. a procedure for interaction between business units in rescuing people, minimising property damage, and ensuring process sustainability
2. a current operations support or resumption plan
3. a restoration or retrofit plan for affected assets.

In 2020, Nornickel improved its risk management framework as follows:

- The President-led Risk Management Committee was set up under the Management Board, along with a number of dedicated function-level risk management committees. The roles of the Risk Management Committee under the Management Board are focused on improving and developing the corporate risk management framework
- A project to automate the risk management system based on a GRC solution was moved into the implementation phase. The solution's functionality includes defining key risk indicators
- Risk trainings for Group employees were offered on a regular basis
- In order to update the development roadmap, a self-diagnostic and an external maturity assessment were carried out to assess

the compliance of the corporate risk management framework and risk management within certain business areas with global best practices

- Quantitative risk assessments for investment projects were regularly reviewed at Nornickel's investment committees to enable risk-based decision making
- As part of rolling out the approach implying the use of simulation modeling for investment project risk assessment, the aggregate impact of the risks related to key investment projects on the Company's financial and physical performance was assessed (the assessment took into account the opportunities related to each of the investment projects)
- A dedicated inspectorate was set up within the Internal Control and Risk Management vertical to monitor technical and production risks as well as environmental risks. It will focus on improving the processes of identifying, analysing and assessing technical, production and environmental risks
- A scenario-based assessment was carried out for investment projects to assess risk impacts, including the impact of the COVID-19 spread
- A number of tasks were accomplished as part of developing scoring assessment methods for certain categories of technical and production risks



In line with risk management framework improvement plans for 2021 and beyond, the following areas have been prioritised:

- Development of a target quantitative model for assessing equipment failure risks at Kola MMC, including the development of an IT system to monitor buildings and structures within the Norilsk Division, ensuring automated risk management and prevention
- Regular self-diagnostic of the risk management framework’s performance and its assessment for compliance with global best practices
- Improvement of risk management practices in strategic and operational planning
- Improvement of the approach implying the use of simulation modelling for investment project risk assessment
- Enhancement of the methodology to analyse and manage various categories of technical and production risks
- Development of a methodology for capturing a range of climate-related risk factors
- Analysis of risks within Nornickel’s logistics and operations supply chain
- Implementation of a project to automate the risk management process based on a GRC solution

Risk management framework

BOARD OF DIRECTORS
AUDIT AND SUSTAINABLE DEVELOPMENT COMMITTEE OF THE BOARD OF DIRECTORS

Key roles

- Approves the Corporate Risk Management Policy
- Supervises the building of the risk management system
- Prepares the Corporate Appetite Statement (annually)
- Manages strategic risks on an ongoing basis
- Reviews and approves the risk management development roadmap and assesses its implementation status (annually)
- Reviews report on strategic and key risks (annually/quarterly)
- Assesses risk management performance at Nornickel (annually)

MANAGEMENT BOARD
RISK MANAGEMENT COMMITTEE UNDER THE MANAGEMENT BOARD

Key roles

- Reviews strategic risks and reports on key risks
- Reviews materialised risks and lessons learned
- Reviews risk appetite metrics
- Makes decisions related to key risk management
- Reviews business continuity plans
- Reviews the strategy and development plans for the Corporate Risk Management Framework (CRMF) and Internal Control System (ICS)
- Reviews the performance of dedicated risk management committees within business verticals

RISK MANAGEMENT SERVICE

Key roles

- Develops and updates the risk management methodology
- Prepares report on Nornickel’s Top 20 risks (annually)
- Prepares report on strategic risks (annually)
- Enhances quantitative risk assessment using simulation modelling tools
- Improves the business continuity management system
- Ensures employee development and training in practical approaches to risk management

RISK OWNERS
HEADS OF BUSINESS UNITS

Key roles

- Day-to-day risk management within the integrated risk management model
- Risk-based decision making

INTERNAL AUDIT

Key roles

- Makes independent assessments of the effectiveness of risk management, internal control and corporate governance (annually)

NEW EMERGING RISKS

Nornickel's new emerging risks typically have external sources. It is hard to identify these risks and mitigate their negative impact due to the lack of predictive information. Management of new emerging risks is critical to fostering Nornickel's long-term sustainability and maintaining the Company's competitive edge in the metals market. Nornickel assesses new emerging risks and manages them based on their potential implications while considering how fast they can materialise, as well as the Company's actual capabilities to prevent and/or curb their impact.

A team of internal risk champions identifies and monitors new emerging risks, ensuring the preliminary identification and assessment of risks related to all activities of Nornickel. Once the severity of a new emerging risk is assessed and mitigation measures are identified, risk owners become responsible for managing the risk.

New emerging risks are assessed on a regular basis, including their reassessment and evaluation of their criticality to Nornickel, with an emphasis on preventing risk occurrence and mitigating potential negative implications. Controls used by Nornickel include the implementation of business continuity plans to manage external risks that can have a disastrous impact on Nornickel's operations and business processes. These controls increase Nornickel's resilience to external shocks.

In 2020, Nornickel completed a project to improve its approach to managing strategic risks that could affect its long-term performance. Trend analysis tools and questionnaires targeting a wide range of management-level respondents were used to identify, assess and prioritise risks. The results of these efforts were discussed by the Risk Management Committee under Nornickel's Management

Board and the Audit and Sustainable Development Committee. Nornickel sees the following groups of risks as its key risks: aggressive expansion of the Company's investment programme, the aging of its production assets, and the mismatch between skills supply in the labour market and the Company's needs in the context of advances in new technology and digitalisation.

INSURANCE

Insurance is an essential tool used to manage risks while protecting the property interests of Nornickel and its shareholders against any unforeseen losses related to operations, including due to external effects.

Nornickel has centralised its insurance function to ensure the consistent implementation of its uniform insurance policy and standards. Nornickel annually approves a comprehensive programme that defines key parameters by insurance type, key business area

and project. Nornickel has implemented a corporate insurance programme that covers assets, equipment failures and business interruptions across the Group. Nornickel maintains corporate insurance policies with major Russian insurers under the corporate insurance programme, involving an international broker to ensure that Nornickel's risks are underwritten by highly reputable international re-insurers.

Nornickel's freight, construction and installation, aircraft and watercraft insurance programmes are also based on the principle of centralisation. The Group's entities, directors and officers carry relevant liability insurance. Nornickel applies industry best practice and takes into account insurance market trends to negotiate the best insurance and insured risk management terms.

CLIMATE RISKS

Repercussions of climate change, including abnormal weather or lasting changes in weather patterns, may affect Nornickel's operations in the longer run. Physical consequences of climate change can include soil thawing, changes in water levels in water bodies, precipitation amounts and wind loads, which can have a material adverse effect on Nornickel's operations. As part of its risk management strategy, Nornickel implements a full range of measures to monitor and control these risks, including the introduction of a system to monitor buildings and structures in the Norilsk Industrial District. The measures taken by Nornickel to mitigate these risks are outlined in the Key Risks section.

bodies review risk information on a quarterly basis, including on risks associated with climate change.

Nornickel's plans for 2021 and beyond include the implementation of a unit- and asset-level climate change risk management strategy. Nornickel intends to collaborate with the scientific community to launch a comprehensive study of factors affecting climate in the Norilsk Industrial District; to work out proposals to expand and upgrade the climate monitoring system in the Norilsk Industrial District; to identify key initiatives to mitigate climate change risks; to improve energy efficiency and keep CO2 emissions within its stated GHG emission targets; and to develop a relevant capex plan and determine capex project timelines.

The Company also plans to develop a list of measures to ensure compliance with TCFD¹ standards.

IMPACT OF CLIMATE RISKS ON PRODUCT PORTFOLIO

Climate-related risks may offer additional opportunities for Nornickel driven by the changing structure of demand for metals required in a future low-carbon economy. Nornickel has recently assessed climate change risks based on the International Energy Agency's Sustainable Development Scenario envisaging the temperature rise in 2100 limited to 1.5 °C. In general, Nornickel expects a positive impact on its product portfolio under this scenario, driven by the development of the electric vehicle sector: a neutral impact on PGMs and a positive impact on base metals.

CLIMATE RISK MANAGEMENT

Climate risk management is part of the corporate risk management framework. Nornickel's governance

Decarbonisation of the global economy: risk assessment for Nornickel's metals

2040	Ni	PGMs	Cu
 Growth of market share of BEVs	↗	↘	↗
 Growth of hybrids	↗	↗	↗
 Fuel cells	→	↗	→
 Growth of renewables/low carbon fuel in power generation	↗	↗	↗
 Storage and grid expansion to support growth of xEVs	↗	→	↗
Net impact	↗	→	↗

¹ The Task Force on Climate-related Financial Disclosures

MAP OF NORNICHEL'S MATERIAL RISKS WITH YEAR-ON-YEAR CHANGE IN 2020

A high-level map of Nornickel's material risks reflects global best practices in risk management. The risk map ranks material risks by their impact on the Group's goals and by source.

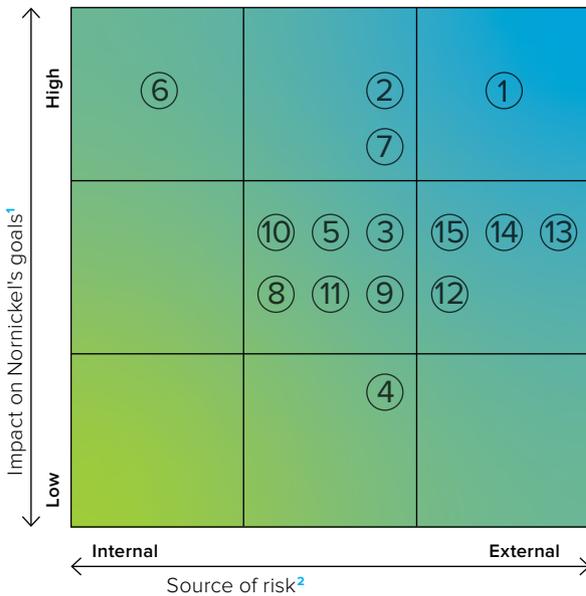
In 2020, a technical and production risk occurrence was recorded – the destruction of above-ground emergency diesel fuel storage tank No. 5 at CHPP-3. Risk assessment had been carried out at CHPP-3 facilities including storage tank No. 5 on a regular basis. The storage tank destruction risk had been identified, with its probability assessed as low. The risk assessment relied on a number of documents prepared

by experts (including the conclusions presented in the industrial safety review and declaration prepared by an expert organisation and registered with the Federal Environmental, Industrial and Nuclear Supervision Service (Rostekhnadzor)), as well as NTEK's internal regulations on risk management.

An investigation into the incident suggested that its main causes included an increase in permafrost temperature and the fact that some of the piles were not installed into hard rock, as required by the design. In addition to a thorough reassessment of the risks associated with hazardous production facilities and an increase

in the scope of the energy infrastructure upgrades programme, a range of measures were identified, including the implementation of a project to create an IT system for geotechnical and satellite monitoring of the Company's facilities located within the permafrost zone.

RISK MAP



Risk

1. Price risk (decline in market prices for Nornickel metals) ⊖
2. Market risk (lower competitiveness of Nornickel products) ⊖
3. Tighter environmental regulations ⊖
4. FX risk ⊖
5. Investment risk ⊖
6. Work-related injury risk ⊖
7. Information security risk ⊖
8. Technical and production risk³ ⊖
9. Power outages at production and social facilities in the Norilsk Industrial District ⊖
10. Compliance risk ⊖
11. Social risk ⊖
12. Changes in legislation law-enforcement ⊖
13. Lack of water resources ⊖
14. Permafrost thawing ⊖
15. Risk of epidemics⁴ ↗

- ↗ Risk increased year-on-year.
- ↘ Risk decreased year-on-year.
- ⊖ Risk has not changed year-on-year

¹ Risk an impact of uncertainty on the goals (ISO / GOST P 31000).
² Source of risk: an element which, alone or in combination with other elements, may cause a risk (ISO / GOST P 31000).
³ The information on the risk occurrence is disclosed in the Annual Report.
⁴ The description of the risk is provided in the Annual Report.

KEY RISKS

Nornickel's risks are all inherent to its strategic and operational development and business continuity goals. Key risks have a varying degree of impact on Nornickel's ability to achieve its goals. Some risks also affect several goals at a time.

7

PRICE RISK

Potential decrease in sales revenues due to lower prices for Nornickel metals is subject to actual or potential changes in demand and supply in certain metals markets, global macroeconomic trends, and the financial community's appetite for speculative/investment transactions in the commodity markets.



Impact on goals:
high



Source of risk:
external



Year-on-year change in risk:
stable

Key risk factors	Impact on Nornickel's development goal and strategy	Mitigation
<p>Lower demand for metals produced by Nornickel. A slowdown in the global economy in general and in the economies consuming Nornickel metals in particular. Supply and demand imbalance in metals markets.</p>	<p>Enhancing Nornickel's leadership in the nickel and palladium markets.</p>	<p>Nornickel is consciously accepting the existing price risk for now. To manage this risk, Nornickel:</p> <ul style="list-style-type: none"> continuously monitors and forecasts supply and demand dynamics for key metals secures feedstock supplies for key consumers through long-term contracts to supply metals in fixed volumes as a member of the global Nickel Institute and the International Platinum Group Metals Association, works with other nickel and PGM producers to maintain and expand the demand for these metals. <p>Should the price risk materialise, Nornickel will consider cutting capital expenditures (revising the investment programme for projects that do not have a material impact on Nornickel's development strategy).</p>

MARKET RISK

Lower competitiveness of Nornickel products in the market may result in their lower liquidity, discounts to the market price and a decrease in Nornickel's income.

 Impact on goals: **high**
 Source of risk: **mixed**
 Year-on-year change in risk: **stable**

Key risk factors	Impact on Nornickel's development goal and strategy	Mitigation
<p>Stricter market requirements on product quality and ESG compliance.</p> <p>Competition from producers of cheaper nickel.</p> <p>More aggressive transport decarbonisation programmes.</p> <p>Changes in consumption patterns for high-tech products.</p> <p>Foreign regulators imposing new foreign trade restrictions that impact Nornickel's activities (tariff and non-tariff regulatory measures).</p>	<p>Enhancing Nornickel's leadership in the nickel and palladium markets.</p>	<p>To manage this risk, Nornickel:</p> <ul style="list-style-type: none"> • cooperates with other market participants to monitor and analyse changes in market requirements on product quality and ESG compliance • promotes global industrial and investment demand for its metals • monitors the development of transport electrification • searches for new applications and uses for palladium • diversifies its metal product sales across industries and geographies • improves and diversifies its product range • cooperates with industry institutions to maintain access to relevant sales markets for its metals • cooperates with Russian ministries and agencies to prevent/mitigate negative impacts of local or international regulation • implements an ESG road map • seeks partnership opportunities with key producers of batteries for electric vehicles • maintains strategic partnerships with car makers based on guarantees of long-term palladium supplies.

TIGHTER ENVIRONMENTAL REGULATIONS

Environmental regulations are tightening, including environmental permitting process and stricter governmental control over environmental compliance.

Impact on goals: **medium**

Source of risk: **mixed**

Year-on-year change in risk: **stable**

Key risk factors

Impact on Nornickel's development goal and strategy

Mitigation

Domestic and international focus on environmental protection and sustainability. Extensive changes in environmental laws and regulations. For example, the environmental permitting framework for category 1 facilities was amended on 1 January 2019, introducing a single environmental permit and a new system of standards setting out technological limits. Technological restrictions related to mine water and industrial wastewater treatment. An experiment to use emission allowances run across 12 Russian cities (Federal Law No. 195-FZ dated 26 July 2019), including Norilsk and Krasnoyarsk in 2020–2024. Tighter environmental control: use of a risk-based approach to industrial facility audits, spot checks during unfavourable weather conditions no longer require authorisation from prosecuting authorities.

Compliance by Nornickel and Norilsk Nickel Group entities with the applicable laws, regulatory requirements, corporate standards, and business codes.

- To manage this risk, Nornickel:
- carries out an environmental action plan to reduce emissions and discharges, as well as to ensure timely waste management
 - has in place the Environmental Performance Improvement Programme for category 1 facilities in the Polar Division. Nornickel's Environmental Performance Improvement Programme was approved by the relevant state interdepartmental commission
 - has prepared documentation packages to obtain a single environmental permit for category 1 facilities in the Polar Division and filed them with the relevant authorities
 - takes measures to reduce emissions during unfavourable weather conditions as per the plan agreed with the Ministry of Ecology and Environmental Management of the Krasnoyarsk Region
 - ensures the collection and transfer of baseline data on emissions across the Polar Division and the Russian division to provide inputs for summary estimates of emission concentrations for Norilsk as part of the experiment to use emission allowances run across 12 Russian cities
 - involves its employees in working groups of dedicated committees, regional ministries, and government agencies
 - takes part in joint projects with nature reserves located within Nornickel's regions of operation.



FX RISK

US dollar depreciation against the rouble, including due to changes in the Russian economy and the policy of the Bank of Russia, may adversely affect Nornickel's financial performance, as most of its revenues are denominated in US dollars, while most of its expenses are denominated in roubles..



Impact on goals:
low



Source of risk:
mixed



Year-on-year change in risk:
stable

Key risk factors

Impact on Nornickel's development goal and strategy

Mitigation

Increase in Russia's balance of payments, relatively lower imports, and steadily growing oil exchange prices. Country-specific macroeconomic changes, sovereign credit rating upgrade. Lower volatility in the financial markets of Russia and other emerging markets, making the rouble more attractive to investors.

Maintaining investment-grade credit ratings. A debt portfolio with a well-balanced profile in terms of maturity, currency composition, and sources of financing.

To manage this risk, Nornickel:

- maintains a balanced debt portfolio with USD-denominated borrowings prevailing
- implements regulations that limit pricing for expenditure contracts with prices fixed in foreign currencies
- uses derivatives to mitigate its exposure by balancing USD-denominated cash flows from revenues and cash flows from liabilities denominated in currencies other than the US dollar.

INVESTMENT RISK

Risk related to time and budget overruns, and performance targets of Nornickel's major investment projects.

 Impact on goals: **medium**
 Source of risk: **mixed**
 Year-on-year change in risk: **stable**

Key risk factors	Impact on Nornickel's development goal and strategy	Mitigation
<p>Changes in forecasts of ore volumes, grades and properties resulting from follow-up exploration.</p> <p>Changes in investment project timelines (including due to the pandemic).</p> <p>Further changes to budgets of investment projects.</p> <p>Amendments to project performance targets in the course of implementation</p>	<p>Strategic goal: growth driven by Tier 1 assets.</p> <p>Developing the mining, concentration and metallurgical assets.</p> <p>Developing the mineral resource base and upgrading core production processes at Nornickel's Tier 1 assets.</p>	<p>To manage this risk, Nornickel:</p> <ul style="list-style-type: none"> • carries out proactive exploration and updates performance targets and the mining plan (a long-term production plan) based on the progress of its major investment projects developing the mineral resource base • conducts resource, geomechanical and hydrogeological modelling • holds external expert audits of geological data • develops an in-house geological and mining information system • models mining options in geological and mining information systems • as part of the project assurance process, conducts internal (cross-functional) audits of major investment projects at each stage in their life cycle • improves incentives to drive project delivery and build skills and capabilities (including staff certification, identification of improvement areas and provision of tailored training) • improves project delivery standards, develops tools to digitise technical document management and project controls • promotes the use of pilot units across all technically challenging and unique processing stages.



WORK-RELATED INJURY RISK

Failure to comply with Nornickel's health and safety (H&S) rules may result in threats to health and life or temporary suspension of operations, or cause property damage.



Impact on goals:
high



Source of risk:
internal



Year-on-year change in risk:
stable

Key risk factors

Impact on Nornickel's development goal and strategy

Mitigation

Suboptimal methods of work organisation. Disruptions in technological processes. Exposure to hazards.

Health and safety.

Pursuant to the Occupational Health and Safety Policy approved by the Board of Directors, Nornickel:

- continuously monitors compliance with H&S requirements
- improves the working conditions for its employees and contractors deployed at Nornickel's production facilities, including by implementing new technologies and labour-saving solutions, and enhancing industrial safety at production facilities
- provides employees with certified state-of-the-art personal protective equipment
- improves the system of stationary gas analysers, provides employees with portable gas analysers
- carries out preventive and therapeutic interventions and enforces hygiene protocols to reduce the potential impact of harmful and hazardous production factors
- regularly trains and briefs employees on health and safety, assesses their health and safety performance and conducts corporate workshops, including by deploying special simulator units
- enhances methodological support for H&S functions, including through the development and implementation of corporate standards
- improves the risk assessment and management framework at the Group's production facilities as part of the Risk Control project
- reviews the competencies of line managers at Nornickel's production facilities, develops H&S training programmes and arranges relevant trainings
- holds H&S competitions
- communicates the circumstances and causes of accidents to all Nornickel employees, conducts ad-hoc safety briefings
- introduces frameworks to manage technical, technological, organisational and HR changes.

RISK OF EPIDEMICS

Risk related to the spread of infectious diseases and the subsequent preventive, safety and response measures.



Impact on goals:
medium



Source of risk:
external



Change in risk:
increasing

Key risk factors

Impact on Nornickel's development goal and strategy

Mitigation

Spread of viral infections. Anti-epidemic restrictive measures imposed by federal and regional authorities.

Social responsibility: comfort and safety of people living in Nornickel's regions of operation. Efficient delivery of finished products (metals) in line with the production programme. Timely supply of products to consumers.

Nornickel has implemented a range of measures to mitigate the risk impact, including:

- 100% of salaries maintained, with additional compensation for employees working on sites and in offices
- work from home for office employees
- personal protective equipment, tests, medical devices, sanitisers, etc. provided to all sites
- purchases of medicines and medical equipment (including 412 ventilators, 15 mobile and 2 stationary labs, 7 ambulances, and over 372 thousand tests)
- assistance in expanding local hospital capacity
- support for SMEs
- support for local volunteers who help employees requiring regular health monitoring
- arrangements for mandatory COVID-19 testing
- establishment of an emergency response team
- two-week quarantine for employees coming to the Norilsk Industrial District
- increased shifts for shift workers in Chita and Norilsk.

INFORMATION SECURITY RISK

Potential cybercrimes may result in an unauthorised transfer, modification or destruction of information assets, disruption or reduced efficiency of Nornickel’s IT services, business, technological and production processes.



Impact on goals:
high



Source of risk:
mixed



Year-on-year change in risk:
stable

Key risk factors	Impact on Nornickel's development goal and strategy	Mitigation
<p>Growing external threats. Unfair competition. Rapid development of Nornickel's IT infrastructure and automation of technological and business processes. Unlawful acts by employees and/or third parties. Shift to work from home and hiring remote employees outside Nornickel's regions of operation</p>	<p>Mitigation of the information security risk and risk of cyberattacks on Nornickel's information systems and automated process control systems.</p>	<p>To manage this risk, Nornickel:</p> <ul style="list-style-type: none"> • ensures compliance with applicable Russian laws and regulations with respect to the protection of personal data, insider information, trade secrets and critical information infrastructure • implements MMC Norilsk Nickel's Information Security Policy • categorises information assets and makes information security risk assessments • embeds and monitors compliance with corporate information security standards within information systems and automated process control systems • raises information security awareness among employees • uses technical means to ensure information security of assets and manage access to information assets • ensures information security of the automated process control system • monitors threats to information security and the use of technical protection means, including vulnerability analysis, penetration testing, cryptographic protection of communication channels, controlled access to removable media, protection from confidential data leaks, and mobile device management • develops an information security framework • sets up and certifies the Company's information security management system • implements measures to ensure safe remote access.

TECHNICAL AND PRODUCTION RISK

Technical, production, or natural phenomena which, once materialised, could have a negative impact on the implementation of the production programme and cause equipment breakdown or to need to compensate damage to third parties and the environment.

 Impact on goals: **medium**
 Source of risk: **mixed**
 Year-on-year change in risk: **stable**

Key risk factors	Impact on Nornickel's development goal and strategy	Mitigation
<p>Harsh natural and climatic conditions, including low temperatures, storm winds, and snow load. Unscheduled stoppages of core equipment caused by fixed assets' wear and tear. Release of explosive gases and flooding of mines. Collapse of buildings and structures. Infrastructure breakdowns.</p>	<p>Efficient delivery of finished products (metals) in line with the production programme.</p>	<p>To manage this risk, Nornickel:</p> <ul style="list-style-type: none"> ensures proper and safe operation of its assets in line with the requirements of technical documentation, as well as technical rules and regulations as prescribed by local laws across Nornickel's geographic footprint develops ranking criteria and criticality assessment for the Norilsk Nickel Group's key industrial assets implements an automated system for managing reliability, efficiency, and production asset risks ensures timely replacement of fixed assets to consistently achieve production safety targets regularly monitors the condition of Nornickel's buildings and structures via an information system for conducting geotechnical surveys uses satellite technology to monitor Nornickel's assets and further analyse the data implements automated systems to control equipment process flows, uses state-of-the-art engineering controls improves the maintenance and repair system trains and educates its employees both locally, on site, and centrally, through its corporate training centres systematically identifies, assesses and monitors technical and production risks, implements a programme of organisational and technical measures to mitigate relevant risks develops the technical and production risk management system, including by engaging independent experts to assess the system's performance and completeness of risk data develops and tests business continuity plans which set out a sequence of actions to be taken by Nornickel's personnel and internal contractors in case of technical and production risk causing maximum damage. These plans are aimed at the earliest resumption of Nornickel's production operations engages, on an annual basis, independent surveyors to analyse Nornickel's exposure to disruptions in the production chain and make assessments of related risks. <p>In 2020, insurance was taken out against key technical and production risks as part of the property and business interruption (downtime) insurance programme, with emphasis on best risk management practices in the mining and metals industry.</p>



POWER OUTAGES

Failure of core equipment at generating facilities and transmission grid facilities may result in power, heat or water shortages at key production and social facilities in the Norilsk Industrial District.



Impact on goals:
medium



Source of risk:
mixed



Year-on-year change in risk:
stable

Key risk factors

Impact on Nornickel's development goal and strategy

Mitigation

Isolation of the Norilsk Industrial District's power grid from the national grid (Unified Energy System of Russia).
Harsh natural and climatic conditions, including low temperatures, storm winds, and snow load.
Length of power, heat and gas transmission lines.
Wear and tear of core production equipment and grid infrastructures.

Efficient delivery of finished products (metals) in line with the production programme.
Timely supply of products to consumers.
Social responsibility: comfort and safety of people living in Nornickel's regions of operation.

To manage this risk, Nornickel:

- operates and maintains generating and mining assets as required by the technical documentation, industry rules and standards, and applicable laws
- monitors the technical condition of linear facilities, including with the involvement of external experts
- ensures timely construction and launch of transformer facilities, as well as timely replacement of transmission towers
- ensures timely retrofits (equipment replacement) of TPP and HPP power units
- ensures timely upgrades and repairs to trunk gas and condensate pipelines and gas distribution networks.

COMPLIANCE RISK

The risk of legal liability and/or legal sanctions, significant financial losses, suspension of production, revocation/suspension of a licence, loss of reputation, or other adverse effects arising from Nornickel's non-compliance with the applicable laws, regulations, instructions, rules, standards or codes of conduct.

 Impact on goals: **medium**
 Source of risk: **mixed**
 Year-on-year change in risk: **stable**

Key risk factors	Impact on Nornickel's development goal and strategy	Mitigation
<p>Discrepancies in rules and regulations. Considerable powers and a high degree of discretion exercised by supervision agencies</p>	<p>Compliance by Nornickel and Norilsk Nickel Group entities with the applicable laws, regulations, corporate standards, and business codes</p>	<p>To manage this risk, Nornickel:</p> <ul style="list-style-type: none"> ensures its compliance with the applicable laws defends its interests during regulatory inspections and administrative proceedings uses pre-trial and trial remedies to defend its interests ensures that agreements signed by Nornickel contain clauses safeguarding its interests implements anti-corruption, anti-money laundering, counter terrorist financing, and counter proliferation financing initiatives takes actions to prevent unlawful use of insider information and market manipulation ensures timely and reliable information disclosures as required by the applicable Russian and international laws has its employees attend insider information management and anti-corruption training courses ensures that all employees receive anti-corruption induction briefing. <p>In addition, the following internal documents have been developed and approved in 2020:</p> <ul style="list-style-type: none"> Regulations on Claims Management at MMC Norilsk Nickel (new version) Procedure for Payables and Receivables Management at MMC Norilsk Nickel (new version) Guidelines for Disclosing Performance Results of MMC Norilsk Nickel in the Unified State Federal Register of Information about Corporate Developments of Legal Entities (new version) MMC Norilsk Nickel's Internal Control Rules for Preventing, Detecting and Stopping the Unlawful Use of Insider Information and/or Market Manipulation Regulations on Procedures for Access to Insider Information of PJSC MMC NORILSK NICKEL, and Rules for Protection of Insider Information Confidentiality and Control over Compliance with the Requirements of Laws Related to Combating Insider Information Unlawful Use and Market Manipulation (new version)



SOCIAL RISK

Tensions may escalate among the workforce due to the deterioration of social and economic conditions in Nornickel's regions of operation.



Impact on goals:
medium



Source of risk:
mixed



Year-on-year change in risk:
stable

Key risk factors

Impact on Nornickel's development goal and strategy

Mitigation

Headcount/staff composition optimisation projects.
Rejection of Nornickel's values by individual employees and/or third parties.
Limited ability to perform annual wage indexation.
Dissemination of false and inaccurate information about Nornickel's plans and operations among the Group's employees.
Reallocation of funds originally intended for social programmes and charity.

Social responsibility:

- Partnering with regional and local authorities to develop a social infrastructure that supports a safe and comfortable living environment for local communities
- Facilitating the employees' professional and cultural development and building up talent pools across Nornickel's regions of operation
- Implementing long-term charity programmes and projects

To manage this risk, Nornickel:

- strictly adheres to the terms and conditions of collective bargaining agreements between the Group entities and their employees (the Group has signed a total of 23 collective bargaining agreements)
- actively interacts with regional authorities, municipalities and civil society institutions
- fulfils its social obligations under public-private partnership agreements
- implements the World of New Opportunities charity programme aimed at supporting and promoting regional civil initiatives, including by indigenous peoples of Taimyr
- implements infrastructure projects to support the accelerated development of the service economy and improved living standards across Nornickel's regions of operation through the Norilsk Development Agency, the Second School Centre for community initiatives in the Pechengsky District, and the Monchegorsk Development Agency
- implements regular sociological monitoring across its operations
- surveys Norilsk residents on living standards, employment, migration trends, and general social sentiment to identify major issues
- implements social projects and programmes aimed at supporting employees and their families, as well as Nornickel's former employees
- maintains dialogues with stakeholders and conducts questionnaire surveys when preparing the Group's public sustainability reports
- provides a range of social support measures to redundant staff under Kola MMC's social programmes and develops the Social and Economic Development Strategy of the Pechengsky District.

CHANGES IN LEGISLATION AND LAW-ENFORCEMENT PRACTICES

Changes in legislation may cause financial damages (extra costs to ensure compliance with stricter requirements, a heavier tax and levy burden, etc.). Changes in law-enforcement and judicial practices, uncertain legal treatment of certain matters may hamper Nornickel's business, entail extra expenses and delay or raise the cost of its investment projects.

 Impact on goals: **medium**
 Source of risk: **external**
 Year-on-year change in risk: **stable**

Key risk factors	Impact on Nornickel's development goal and strategy	Mitigation
Unstable legal environment (including lack of codified/uniform regulations in various areas). Frequent changes to legislation. Complicated geopolitical situation. Lack of treasury funds (the government needs to boost its tax and other revenues).	Compliance by Nornickel and Norilsk Nickel Group entities with the applicable laws, regulations, corporate standards, and business codes.	To manage this risk, Nornickel: <ul style="list-style-type: none"> continuously monitors changes in legislation and law-enforcement practices across all of its business areas conducts legal review of draft laws and regulations as well as relevant amendments participates in discussions of draft laws and regulations, both publicly and as part of expert groups engages its employees in relevant professional and specialist training programmes, corporate workshops, and conferences cooperates with government agencies to ensure that new laws and regulations take into account Nornickel's interests.



LACK OF WATER RESOURCES

Water shortages in storage reservoirs of Nornickel's hydropower facilities may result in failure to achieve required water pressures at HPP turbines, leading to lower power output and to drinking water shortages in Norilsk.



Impact on goals:
medium



Source of risk:
external



Year-on-year change in risk:
stable

Key risk factors

Impact on Nornickel's development goal and strategy

Mitigation

Extreme weather events (droughts) caused by climate change.

Efficient delivery of finished products (metals) in line with the production programme.
Timely supply of products to consumers.
Social responsibility: comfort and safety of people living in Nornickel's regions of operation.

To manage this risk, Nornickel:

- implements a closed water circuit to reduce water withdrawal from external sources
- carries out regular hydrological observations to forecast water levels in rivers and other water bodies
- cooperates with the Federal Service for Hydrometeorology and Environmental Monitoring (Rosgidromet) on setting up permanent hydrological and meteorological monitoring stations in order to improve the accuracy of water level forecasts for major rivers across Nornickel's regions of operation
- dredges the Norilskaya River and prepares its production facilities for reducing their energy consumption in case of risk occurrence
- refurbishes its hydropower plants to increase power output through improving the hydroelectric units' performance (implementation period: 2012–2021).

PERMAFROST THAWING

Loss of bearing capacity by pile foundation beds may lead to deformation and collapse of buildings and structures.



Impact on goals:
medium



Source of risk:
external



Year-on-year change in risk:
stable

Key risk factors

Impact on Nornickel's development goal and strategy

Mitigation

Climate change, average annual temperature increases over the last 15 to 20 years. Increased depth of seasonal permafrost thawing.

Efficient delivery of finished products (metals) in line with the production programme. Social responsibility: comfort and safety of people living in Nornickel's regions of operation.

- To manage this risk, Nornickel:
- regularly monitors the condition of foundation beds underneath buildings and structures built on permafrost
 - performs geodetic monitoring of the movement of buildings
 - uses satellite technology to monitor Nornickel's assets and further analyse the data
 - regularly monitors the condition of Nornickel's buildings and structures via an information system for conducting geotechnical surveys
 - monitors soil temperature in buildings' foundations
 - monitors the compliance of its facilities with operational requirements for crawl spaces
 - takes corrective actions to ensure safe operating conditions for buildings and structures.

