CONSTUCTION OF LAVNA COAL TRANSSHIPMENT TERMINAL (MURMANSK REGION, RUSSIAN FEDERATION)

NON-TECHNICAL SUMMARY

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Prepared for:
Black Sea Trade and Development Bank (BSTDB)
State Transport Leasing Company

ABBREVIATIONS

STLC	State Transport Leasing Company
UNECE	United Nations Economic Commission for Europe
KAE	Kola Archaeological Expedition
CTT	Coal Transshipment Terminal
SMEs	Small and Medium Enterprises
MTH	Murmansk Transport Hub
IFC	International Finance Corporation
IFIs	International Finance Institutions
NGO	Non-Governmental Organisation
NTS	Non-Technical Summary
OVOS	National Environmental Impact Assessment (Russian abbreviation); abbreviated name
LLC	Limited Liability Company
SEP	Stakeholder Engagement Plan
ESAP	Environmental and Social Action Plan
RAS	Russian Academy of Sciences
RF	Russian Federation
ToR	Terms of Reference
BSTDB	Black Sea Trade and Development Bank
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment

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INTRODUCTION

The State Transport Leasing Company (STLC) is seeking funding for financing the development of a greenfield Lavna Coal Transshipment Terminal (the ‘Lavna CTT’ or ‘the Terminal’) on the western coast of the Kola Bay in the Murmansk Region.

The STLC established Lavna Commercial Sea Port LLC (the ‘Company’ or ‘Lavna STP’) to undertake construction and operation of the future Terminal. Lavna Commercial Sea Port LLC as a Project Proponent received the construction permit and all necessary approvals for the site preparation works; the works are underway since July 2018.

The Lavna Coal Terminal Project (‘the Project’) is implemented on the basis of the Concession Agreement between the RF Government and Lavna Commercial Sea Port LLC[1] through a public-private partnership. The Agreement sets out the financial covenants governing the construction and operation of infrastructure projects in the Murmansk Sea Port.

The Project is part of the Murmansk Transport Hub (MTH) Sub-programme of the State Transport System Development Programme.

STLC approached the Black Sea Trade and Development Bank (‘BSTDB’ or ‘the Bank’) for an investment loan to finance the Project.

BSTDB requires that all projects supported by the Bank should comply with the national legislation and meet the environmental and social requirements of BSTDB Environmental and Social Policy (2014) and applicable international standards and good international industry practice (GIIP).

According to BSTDB Environmental and Social Policy, the Project is categorized as a Category A operation, which is subject to the bankable Environmental and Social Impact Assessment (ESIA) before the loan is approved.

The Ecoline Environmental Assessment Centre has been commissioned by BSTDB to undertake the review of the environmental impact assessment documentation for the Project. This Non-Technical Summary describes key findings of environmental impact assessment of the Project, conducted by the Company to date, as well as gaps relative to the BSTBB requirements. Based on the outcome of this review, the following documents have been prepared:

- Environmental and Social Action Plan (ESAP) outlining actions required to bring the Project in compliance with the BSTBB requirements; and
- Stakeholder Engagement Plan (SEP).

[1] RF Government Resolution of 1 October 2018 No. 2111-r.

1. APPLICABLE LEGISLATIVE AND OTHER REQUIREMENTS

The legal and regulatory framework includes the applicable requirements of Russian legislation and of BSTDB.

The BSTDB's E&S requirements are formulated in the BSTDB's policies (further mentioned as "Policy requirements"), international legal documents (EU Directives and international treaties, further mentioned as "EU/Global standards"), and Good International Industry Practice (GIIP) documents (further mentioned as "GIIP standards").

The BSTDB's E&S Policy requirements to operations financed by the Bank are presented in the BSTDB Environmental and Social Policy (2016)[2] (further mentioned as the BSTDB E&S Policy).

Bank's operations are categorised based on: i) the associated potential environmental and social risks and impacts, and ii) the scope of environmental and social assessment necessary to identify, assess and mitigate these impacts and risks. The following categories are applied: A, B+, B, C and FI.

The Project is classified a Category A operation, which implies it has "the potential to generate significant adverse environmental and social impacts which are diverse, irreversible, or unprecedented".

The Project (of Category A) is subject to ***Environmental and Social Impact Assessment (ESIA)*** process. The ESIA process should meet the requirements of the EIA Directive. EBRD's PR1 and IFC's PS1 are considered as the applicable GIIP standards.

For impacts and risks of concern relevant preventive and mitigation actions should be proposed and implemented throughout the Project lifetime. These actions are usually presented in a form of Environmental and Social Action Plan (ESAP), and its implementation is part of the operation' financing terms and conditions.

The stakeholder engagement should start during the ESIA process as early as reasonably possible and continue throughout the Project lifetime. The Policy requirements to the stakeholder engagement include Stakeholder identification and analysis, Disclosure of relevant E&S information to the general public, Meaningful stakeholder consultations.

The BSTDB requirements in the following areas apply to the project:

- Labour and working conditions;
- Pollution prevention and abatement, resource efficiency, and climate change;
- Community health, safety and security;
- Living natural resources, biodiversity, and ecosystem services;
- Cultural heritage.

With the BSTBB requirements in these areas being largely similar to the relevant provisions of the RF legislation, there are however differences in the details that result in gaps which require additional assessment and, in some cases, additional

[2]Black Sea Trade and Development Bank (2016). Environmental and Social Policy, February 2016. Available at https://www.bstdb.org/about-us/key-documents/policy-documents//Environmental_Policy_Feb2016.pdf.

mitigation measures for preventing or reducing adverse impact. This is the reason why one of key recommendations provided in the Environmental and Social Action Plan emphasises the need for additional assessment (‘Addendum to ESIA’ or ‘ESIA’).

2. PROJECT DESCRIPTION

The Lavna CTT’s site is located in the Kola District, Murmansk Region, on the western shore of the southern knee of the Kola Bay, in the Lavna River mouth (**Figure 1**). The Terminal will occupy an area of 108 ha. The Project site is situated within the administrative boundaries of Mezhdurechye Rural Settlement. The nearest settlements are Mezhdurechye and Mishukovo Villages located at a distance of more than 500 m of the site.

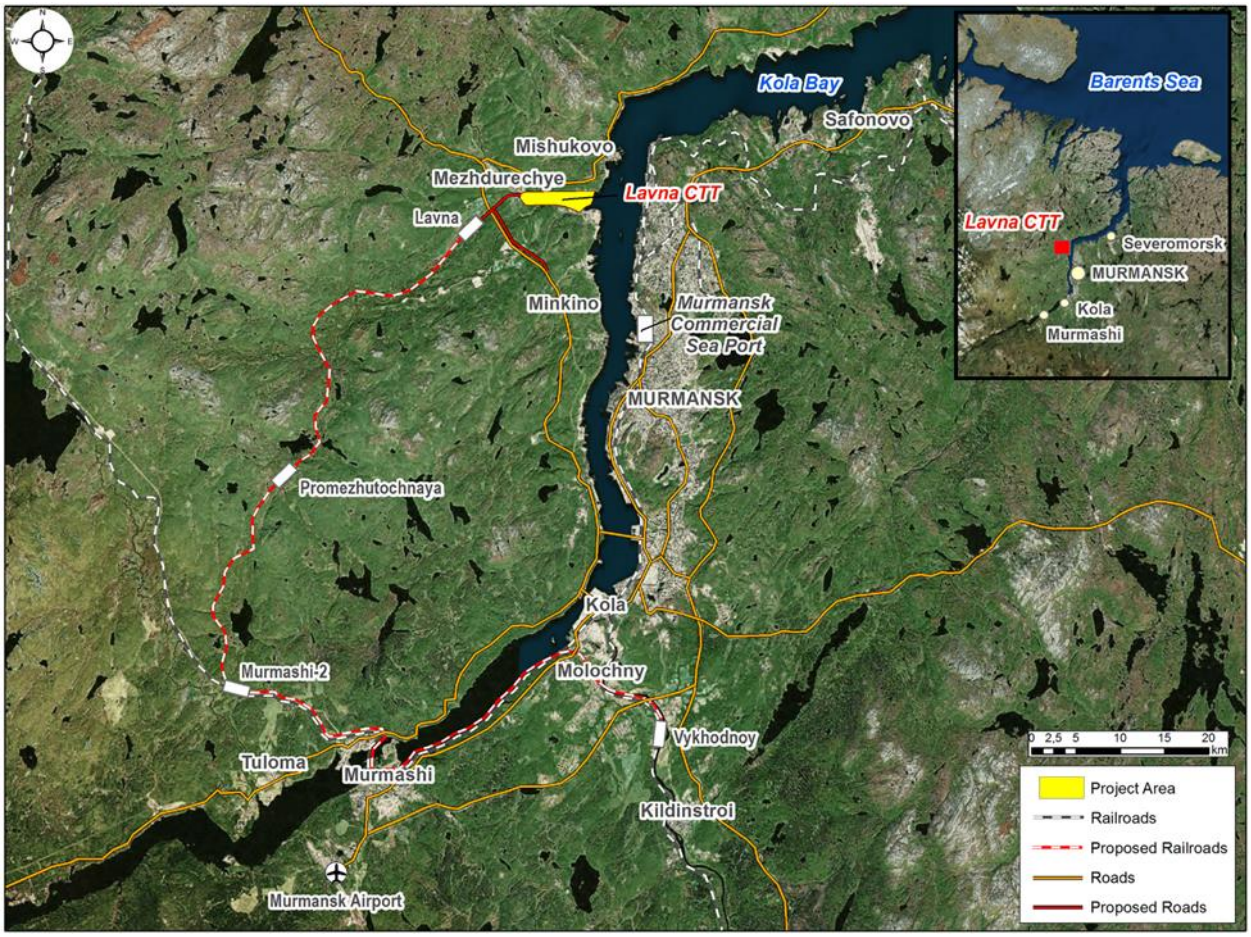

Figure 1. Project Location Map

The Lavna CTT is designed to be a modern high technology specialised terminal handling 18 million tonnes of coal per annum to serve the following purposes:

- Increase energy coal exports through the development of new coal transfer capacities across the Russian Federation;
- Shift freight flows from the Baltic ports to the Russian ports;
- Provide access to new coal markets due to possibility to accommodate vessels of high capacity.

The key advantages of the Project are as follows:

- The Project occupies a greenfield site;

- The Terminal has a deep ice-free area protected against storms and is able to accommodate vessels with a deadweight of over 150,000 tonnes;
- It provides direct access to the ocean without the need to pass through the waters of other countries;
- It is located close to the European and American markets.

The coal will be transported to the Lavna CTT via a new railroad built for this purpose. The coal will be unloaded in closed hangars, temporarily stored in the outdoor stockpiles and then transferred to vessels via closed conveyors and shipped further by sea.

The Project’s design provides for advanced preventive and mitigation measures to effectively control coal dust emissions. Modern transshipment equipment from market leaders such as the Thyssenkrupp Industrial Solutions AG (Germany) is planned to be installed at the Terminal.

Phase 1 of the Lavna CTT with the capacity of 9 million tonnes of coal per annum is planned to be commissioned in 2020. The Terminal’s capacity will be doubled to reach 18 million tonnes of coal per annum after the completion of the Project. The new coal terminal will increase the capacity of the Murmansk Commercial Sea Port (which handled 14.63 million tonnes of coal in 2017) and create at least 600 new jobs.

The CTT Project comprises the following key components:

- Railroad freight yard;
- Railcar thawing system (3 units);
- Railcar unloading system (3 units);
- Closed conveyor system;
- Coal stockyard with a capacity of 1.2 million tonnes;
- Waterfront facilities with 3 shiploaders;
- Deep-water berths for ships up to 150,000 DW tonnage (2 units).

Maximum coal storage capacity can be achieved by setting up 3 coal yards in the eastern part and one coal yard in the western part of the terminal site. Different grades and types of coals will be stacked separately. Stackers and reclaimers will be used to handle coal at the coal yards.

3. TECHNICAL DESIGN, ENVIRONMENTAL IMPACT ASSESSMENT, AND PERMITTING PROCESS

3.1. The Lavna CTT Project Design Process and Status

The Terms of Reference for the Lavna CTT design were prepared by the SOYUZMORNIIPROEKT Institute in 2007, and design documentation was disclosed to the public in 2012, when public hearings were held in the Mezhdurechye settlement and Kola town. The construction permit was issued to the Lavna STP Company in 2013 and amended by the Kola District Administration in 2018.

The design process continued and involved the revision of design solutions; the revised design underwent the environmental impact assessment procedure and was submitted to the relevant authorities for the state environmental review.

The Lavna STP Company officially commenced the first stage of the site preparation process in July 2018.

3.2. Associated Projects and the Status Thereof

The Lavna Terminal Project is closely intertwined, both functionally and spatially, with the following three associated projects that are vital to the implementation of the whole Project:

1. Bottom dredging works, service fleet base, and navigation system (a total investment of 3.0 billion RUB).
2. A 46 km Vykhodnoy-Lavna public railroad (a total investment of 42 billion RUB).
3. A 2.3 km access railroad connecting the Lavna Railway Station with the coal terminal (a total investment of 0.9 billion RUB).

Pursuant to the Concession Agreement, the first two projects are financed through the federal budget. The coal terminal itself with the access railroad will be financed through a mix of both private and loan funding (including a proposed BSBTB loan). For the purposes of attracting funding from the international lenders, the dredging works are considered to be part of the Project. The public and access railroads are considered as associated projects that also require ESIA.

The construction of the public railroad was commenced in 2014 and continues to date. The bottom dredging works and access railroad construction have not yet commenced.

The design of the access railroad connecting the Lavna Station and Coal Terminal, developed in 2009, will be revised in the early 2019. The design documentation for the bottom dredging works will be also prepared in 2019.

The lack of design documentation and environmental impact assessment for the access railroad and dredging works is considered as a gap that should be addressed in ESIA.

4. ALTERNATIVE OPTIONS

The existing design documentation does not include an analysis of any project alternatives other than the ‘zero or do-nothing alternative’. While the do-nothing alternative is a way to avoid any adverse environmental impact, it would hamper economic gains and thus impede the region’s socio-economic development.

The choice of construction site for the Lavna CTT was steered by the Murmansk Transport Hub Project as a whole including the construction of a new public railroad. The analysis of alternative options for the Project is therefore limited to those dealing with the coal handling and transfer processes. The design provisions for these processes are based on the use of modern coal dust management equipment and methods.

Considering that the design documentation for the Lavna CTT Project has already been finalised and submitted for the state environmental review procedure, the assessment of alternative options should rather concentrate on the review of the environmental protection solutions and mitigation measures based on both European and Russian BAT guidelines (EU BREFs and RF ITS documents).

5. BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS

5.1. Geographical Setting

The Project area is located on the right bank and near the mouth of the Lavna River, lying beyond the Arctic Circle. The landscape of the area is one of latitudinal Arctic tundra and forest tundra zones.

The Project area lies within the administrative boundaries of Kola District, Murmansk Region, which borders Norway and Finland in the west, Karelia in the south (both on land and in the Kandalaksha Bay of the White Sea), Arkhangelsk Region in the east (across the White Sea Throat), and Nenets Autonomous Okrug across the eastern section of the White Sea. In the north and north east, Murmansk Region is washed by Barents Sea which never freezes.

5.2. Climate

The climate in the Kola District is characterised by long and relatively mild winters, cool and wet summers, high air humidity, significant cloudiness, and monsoon winds. The climate of the area is shaped by intensive cyclone activity over the Barents Sea and periodic effects of warm air masses coming from the Atlantic Ocean and cold air masses from the Arctic Basin. The cyclone activity continues throughout a year, being most pronounced in winter when cyclones are accompanied by sharp temperature changes and heavy snowfalls.

The south western part of the Barents Sea virtually never freezes due to the effect of the warm Nordkap Current. January and February are the coldest months with an average temperature of (-)13.8°C and (-)14.0°C, respectively. July is the warmest month with an average temperature of 17.5°C. On the average, air temperatures remain above freezing for 109 days in a yea[3].

The multi-year meteorological observation data collected at the Murmansk Hydrometeorological Station indicate that wind regime is highly variable, being dominated by southerly winds, followed by south westerly and northerly winds. Southerly and south westerly winds prevail in the cold season, and northerly and southerly winds are predominant during the warm season. The wind rose diagram is presented in **Figure 2**.

[3] The 2017 Engineering and Hydrometeorological Investigations Report for the Lavna Coal Terminal Project Area in the Murmansk Sea Port

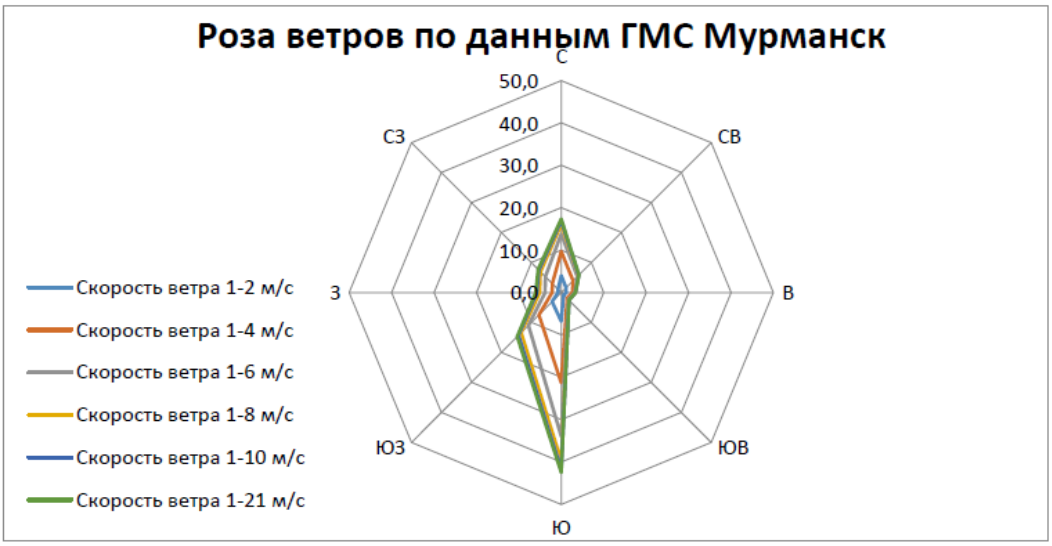

Figure 2. Wind Rose Diagram for Murmansk Meteorological Station

5.3. Ambient Air Quality

Available data on air pollution levels at the Project site, within the Sanitary Protection Zone (SPZ) and nearest residential areas is not sufficient for providing an accurate assessment of the ambient air quality and baseline concentrations of pollutants.

The maximum 20-minute concentrations of pollutants (particulate matter, nitrogen oxides, sulphur, and carbon) in the ambient air, measured during the engineering and environmental investigations, were found to be within the Russian air quality guidelines for populated areas. However, these results are difficult to compare with the European air quality guidelines due to different methods employed. The bankable ESIA should involve the measurement of daily concentrations of pollutants to ensure comparability with the European guidelines.

5.4. Topography and Landscape

The Kola Peninsula occupies the eastern part of the Baltic Shield composed of the crystalline basement rocks and loose Quaternary deposits.

The Project area has a small-mountain and hilly topography gently dipping towards the Kola Bay. The Project site morphology comprises the following features: the Lavna River floodplain, lower foreshore, first and second marine terraces, and bedrock shore of the Kola Bay.

One distinct feature of the local terrain relates to the shallowly but intensively dissected land surface and presence of major tectonic depressions. Absolute altitudes range from 0 to 100 m.

The area planned to be used for implementing the proposed Coal Terminal Project has already been affected by significant anthropogenic impacts from the residential developments in Mishukovo, Mezhdurechye, and Min’kino; ongoing oil terminal construction south of the proposed coal terminal; small and medium ship moorings, old structures etc.

Based on an initial assessment, the coastal landscapes in the Project area can be described as not unique and being typical of the Kola Bay coast. This conclusion will be revisited as part of ESIA which would provide a characterisation of existing landscapes.

5.5. Geology and Hydrogeology

The following geological formations occur in the Project area (top to bottom):

- Recent technogenic deposits (t IV);
- Recent marine alluvial deposits (am IV);
- Glacial deposits (gIII);
- Archean deposits (AR).

Recent man-made (artificial fill) deposits (t IV) comprise sand, gravelly and pebble-boulder deposits with sand fill. The artificial fill deposits contain gravel, pebble, crushed stone and boulders. The sand layer has a thickness of up to 6.0 m.

The only local aquifer is contained in the Quaternary coarse and sandy deposits and fractured bedrock zone. The aquifer is fed by precipitation and melt water; the groundwater flow is directed towards the Kola Bay which acts as the discharge zone, being in close hydraulic continuity with the aquifer.

5.6. Surface Water and Hydrological Regime

5.6.1. Inland Surface Waters

The main watercourse in the Project area is the Lavna River, which rises in the Lavna Lake and flows into the Kola Bay of the Barents Sea. The Lavna River Basin is intensively dissected, with flat areas alternating with rock ridges and marshes. The river has a length of 23.3 km and drains an area of 245.7 km^2. The Malaya (Small) Lavna River, whose length is 13 km, joins the Bolshaya (Great) Lavna River at a distance of 1.5-2 km from the mouth. The river current downstream of the confluence is slow, with the water levels being governed by the tidal regime in the Kola Bay.

The rivers in the area are mainly fed by snow and their annual flow regime is characterised by high spring flood flows, low winter/summer flows, and relatively low increases in river flow in summer and autumn due to rainfalls.

The Lavna River is the top (special) category fisheries watercourse. Forests and marshes occupy 40% and 10% of the river basin area, respectively.

5.6.2. Kola Bay

The Kola Bay has a length of 57 km and width of up to 7 km. The depths at the mouth section range from 200 to 300 metres. The geomorphology of the Kola Bay features three distinct sections (knees), namely the northern, middle and southern knees.

The maximum height of spring tide (occurring during new and full moon) is 4.2 m; the minimum height of neap tide is 0.1 m; and the mean seal level height above the sea level datum is 2.25 m. The mean spring tide height is 3.6 m.

The tidal and permanent currents dominate the pattern of currents in the Kola Bay. Water level variations due to tides are exacerbated by non-periodic wind-induced fluctuations caused by cyclones moving over the Barents Sea.

Changes in water temperature in the Project area are influenced by the following three main factors: atmospheric circulation, solar radiation, and heat advection from the Murmansk branch of warm Nordkap current. The highest recorded surface water temperature is 17.5°C (IV 1953), with the lowest and mean water temperatures being at –2°C and 11.2°C, respectively.

ESIA will involve a comprehensive characterisation of surface waters in the Project area including the areas affected by associated projects.

5.7. Soil

Podzols are the most common soils occurring in the area. Boggy soils are widely distributed, occupying depressions, vast plains and gentle slopes. Boggy soils in the Project area mostly comprise highly acidic and slightly decomposed peat. There are small spots of soddy soil developed in the nutrient-rich fluvial deposits. In terms of composition, the soil is predominantly sand with boulders covering vast areas.

As part of EES[4], soil samples were collected and tested for a range of parameters including chemistry, agro-chemistry, radiation, microbiology and parasitology. The test results showed that soil is classified as ‘clean’ and ‘acceptable’, i.e. can be used for construction purposes without limitations.

5.8. Vegetation Cover

The vegetation cover in the Project area is dominated by the Northern Taiga pine forests and crooked birch woods. Raised bogs covered with shrubs and sphagnum mosses widely occur in the Lavna River valley.

The 2017 geobotanical survey, carried out at the construction site and within a 1-km area of influence, showed that the survey area had been significantly modified by various developments (residential areas, agricultural coenoses, industrial zones, road network, power lines and other infrastructure) which caused a profound alteration in the natural vegetation cover.

The peripheral populations of six rare plant species included in the Murmansk Region Red Data Book were found to be present at the planned construction site.

5.9. Animal Life

The characterisation of the animal life in the Project area is based on previous observations and EEI survey findings (2017).

5.9.1. Terrestrial Fauna

A relatively low diversity of terrestrial vertebrate species in the Project area is attributed to its location in severe climatic zone, low or lacking variety of biotopes, low food capacity of habitats and profound alteration of the area as a result of human activities.

The characterisation of the animal life in the Project area is based on the findings of the 2017 zoo-geographic field survey which identified key animal habitats with different landscape conditions and inventoried the species diversity in various habitat conditions.

Local fauna comprises the representatives of 5 orders. The most widely occurring species include mouse-like rodents, hares, smaller mustelids and canids (the latter two being linked with the former two by a trophic chain). The occurrence of larger preying and hoofed animals is largely limited to occasional visits (glutton) or short-term stays during seasonal feeding migrations (elk).

[4] Report on the Engineering Surveys for the Lavna Coal Transshipment Terminal at the Murmansk Sea Port. YamalTransStroy JSC (2018)

The species diversity of the terrestrial bird fauna is relatively low, comprising 32 species from 14 families and 7 orders.

There are 2 reptile and amphibian species in the Project area.

The Project area is a reproduction habitat for the majority of bird species that use it only from spring through autumn; relatively few species stay here in winter.

The Project’s area of influence comprises habitats used by two rare species – peregrine falcon (Falco peregrinus) and dipper (Cinclus cinclus) – which are included in the RF and Murmansk Region Red Data Books. No other rare or endangered species included in the RF and Murmansk Region Red Data Books were found to be present in the Project area.

5.9.2. Marine Birds

Despite being classified as a water body modified by human activities where the level of disturbance is persistently high and trophic conditions have been altered due to human impacts, the Kola Bay sustains rich and abundant marine bird fauna. On the other hand, the diversity and abundance of its nesting fauna remain low. In fact, the Kola Bay area is used by marine birds and waterfowl as a wintering habitat and a place to rest during spring and autumn migrations and nomadic movements.

The bird migration routes lie outside the Project’s area of influence. Russia’s key ornithological sites (Lapland Biosphere Reserve, Ainov Islands, and Gavrilovsky Islands) lie tens of kilometres away from the Project area. No major terrestrial migration routes (migration corridors), breeding and nesting habitats were identified in the Project area.

5.9.3. Marine Mammals

Based on scientific sources and random observation data, the members of the Phocidae family and individuals representing the Balaenopteridae, Delfmidae, and Monodontidae families were recorded in the Kola Bay. Some mammal species were found to travel as far as the mouth section of the Lavna River.

Two Pinnipedia species and one dolphin species enjoy the protection status: harbour porpoise, common seal and gray seal are included in the Russian Federation and Murmansk Region Red Data Books.

5.9.4. Aquatic Biota in the Kola Bay

The aquatic biota in the Kola Bay is dominated by diatom algae (54 %), followed by dinophytes (35 %), with minor presence of other species.

The zooplankton community is dominated by Copepoda species, with Coelenterata species ranking second in terms of abundance and occurrence.

The bottom invertebrate fauna of the Kola Bay comprises 110 species, with copepods and euphausiids accounting for the major part of the community biomass.

The littoral area near the Lavna River mouth is home to 64 invertebrate taxa, which mainly represent the estuarine fauna.

5.9.5. Fish Fauna

The fish fauna of the Kola Bay comprises the following species: Asiatic brook lamprey, Greenland shark, starry skate, freshwater eel, Atlantic herring, capelin, humpback salmon, salmon, red trout, polar cod, Atlantic navaga, Atlantic cod, haddock, whiting, tusk etc.

The Lavna River hosts the following fish species: flounder, rockling, trout, whitefish, perch, and pike.

5.9.6. Ecosystem Services

The design documentation and OVOS Report (2018) do not provide a characterisation of ecosystem services in the Project area and its surroundings, and this gap should be addressed in ESIA, including the Project area itself and areas affected by associated projects.

5.10. Baseline Social Conditions in the Project Area

5.10.1. Murmansk Region

Murmansk Region is located in the north western part of the European Russia, being part of the North Western Federal District and occupying 144,902 km².

The regional economy relies on the mining, chemical and non-ferrous metallurgical industries, as well as on fisheries and transport.

Murmansk Region has 3 sea ports and 2 airports. The City of Murmansk is a home base for Russia’s nuclear-powered ice-breaking fleet, which serves to ensure year-round navigation in the Western Arctic region. The region’s transport fleet handles one fourth of Russia’s cargo shipments. The motorway and railroad connect the City of Murmansk with Saint Petersburg.

Murmansk is Russia’s largest non-freezing sea port located beyond the Arctic Circle. It is the base port for transporting freight to various destinations in the Extreme North, Arctic and far abroad.

Murmansk Region has a population of 757,600 people (as of 01.01.2017), which has been steadily declining. The population density is 5.2 persons per 1 km^2.

The total unemployment rate in the region is estimated as 7%, with the official unemployment rate standing at 1.6%. The average per capita income is about 34 thousand RUB, and average monthly wage level is about 41 thousand RUB.

5.10.2. Kola District

Kola District is located in the north western part of Murmansk Region, being bordered by Finland in the south west and the Barents Sea in the north. It has an area of 28,700 km².

There are 11 municipal entities and 34 human settlements (Kola town, 5 townships, and 28 settlements, railway stations and villages)[5]. It has a population of 41,200 people (2017).

Kola District is rich in natural resources including forest stock, deposits of building materials and semiprecious stones, and ore deposits (apatite-magnetite ore, copper-nickel ore, and titanium ore). Its coastal and inland waters sustain a wealth of biological resources. Two major regional rivers flowing across the territory of the district are home to Atlantic salmon.

[5] Draft Kola District Budget for 2018 and 2019-2020 Planning Period. Available at: http://www.adm-mo.ru/general-nyy-plan-sel-skogo-poseleniya-mezhdurech-e-kol-skogo-rayona-murmanskoy-oblasti-s-izmeneniyami-ot-15-07-2016.html

The district has a Central District Hospital, 3 hospitals and 13 outpatient clinics and rural health stations.

The local network of educational institutions comprises 16 day schools, 2 shift schools, 2 correctional facilities, and 25 preschool facilities.

Kola District has a network of 45 cultural establishments (23 libraries, 12 community entertainment centres, 9 advanced education centres, and 1 municipal museum).

5.10.3. Mezhdurechye Rural Municipality

The Mezhdurechye Rural Municipality comprises six settlements with a total population of 2,245 people (1,027 in Mezhdurechye, 255 in Mishukovo, 554 in Min'kino, 266 in Kilpyavr, 130 in Belokamenka, and 8 in Retinskoye)[6].

There are a secondary comprehensive school and music school in Mezhdurechye, and a special correctional residential school in Min'kino. The municipality has 3 kindergartens.

The Mezhdurechye Rural Municipality has an outpatient clinic (based in Mezhdurechye) and two rural health stations.

The socio-economic development plans for the Mezhdurechye Rural Municipality emphasise the following sectors and projects[7]:

- The development of the Murmansk Transport Hub including the Lavna Coal Terminal and oil terminal;
- Agriculture;
- Fisheries;
- The development of a modern engineered MSW landfill and waste sorting facility.

6. ENVIRONMENTAL IMPACT ASSESSMENT

6.1. Climate Change

With the Project occupying a relatively small site and not involving a large-scale clearing of forests, the Project impact on climate change is largely due to the greenhouse gas (GHG) emissions.

The Project contribution to the global GHG emissions at the construction stage is considered as not significant, being below threshold levels set both nationally and internationally for the mandatory reporting of GHG emissions.

It is recommended to prepare the inventory of GHG emission sources before the commencement of the CTT operations and assess both direct and indirect GHG emissions associated with the transportation of coal as a fuel for electricity and heat generation.

[6] Mezhdurechye Settlement (Kola District, Murmansk Region) Fact Sheet of 01.03.2018. Available at: http://www.adm-mo.ru/pasport-poseleniya.html

[7] The Mezhdurechye Rural Municipality Master Plan (as amended on 15.07.2016). Available at:

6.2. Ambient Air Quality

The assessment of Project impact on the ambient air quality was carried out using the Russian software (UPRZA Ekolog 4.5) for estimating predicted emission levels from various onsite sources. This data was used in the modelling of pollutant dispersion and estimating of expected pollutant concentrations at ground level.

The modelling results indicate that the estimated concentrations of pollutants on the sanitary protection zone (SPZ) and residential area boundaries will not exceed the RF air quality guidelines during both construction and operation phases.

The only major factor causing air pollution is the generation of coal dust emissions from the coal unloading and transfer processes. This issue has been addressed in the design, featuring the use of modern coal handling equipment manufactured by ThyssenKrupp & LNK Industries which, in combination with proposed mitigation measures designed to prevent and reduce coal dust generation (dust suppression, dust aspiration, wind shields at coal yards, closed conveyors, adherence to work schedules and process guidelines), would significantly reduce dust levels in the ambient air and adverse effects on local communities and onsite staff.

It is recommended to conduct the dispersion modelling exercise using the internationally recognised modelling software (e.g. AEROMOD, CALPUFF etc.) as part of the ESIA process to estimate Project-related ground-level pollutant concentrations and use these estimates for assessing community health risks.

ESIA will also involve an assessment of proposed design solutions against relevant BATs. The Dust Control and Emissions Management Plan will be developed to ensure a regular control of compliance with the identified mitigation measures designed to prevent and reduce adverse environmental and health effects.

6.3. Topography and Landscape

The Project-related cut and fill operations and bottom dredging will cause the alteration of local topography in the Project area including the sea bottom. The significance of this impact will be assessed in ESIA.

Though the landscape and visual effects of the Project have not been addressed in the OVOS Report, it can be assumed that the construction of a modern sea port would not undermine the aesthetic value of the coastal area which has been already modified as a result of past human activities. A more accurate assessment of visual amenity value of new seaport landscape will be provided in ESIA.

6.4. Geology and Hydrogeology

The coal terminal construction will cause effects on local geology as a result of drilling and blasting works, construction site preparation including soil stripping and moving, excavation for foundations, foundation drainage, changes in soil density and permeability due to compaction, and soil contamination by spills and surface runoff at the construction site.

According to the design estimates, potential effects on local geology and groundwater regime are expected to be minor due to a relatively small size of construction site and shallow depths of foundations planned to be excavated. Yet the significance of effects on local geology will be assessed in ESIA taking account of associated projects.

6.5. Surface Water

The construction of planned hydraulic structures is expected to cause significant and inevitable impact on water quality in the Kola Bay as a result of piling and dredging works, which will be accompanied by bottom erosion and release of suspended solids in significant quantities. The bottom dredging and dumping activities will also result in the release of suspended solids in water. The bottom dredging design will involve an assessment of turbidity plumes, their dimensions and stability; it will identify appropriate mitigation measures for reducing adverse effects of dredging on marine water quality and biota.

The pollution of marine waters during the construction and operation of coal terminal may also occur as a result of poorly treated wastewater and rainstorm water discharges, contaminated surface runoff, and release of petroleum products from auxiliary fleet and freight ships transporting coal to customers.

The proposed design provides that the discharge of sanitary sewage and oil-contaminated water from technical vessels and ships is not allowed. This wastewater will be collected and stored onboard in special sealed containers which will be picked up be special wastewater collection vessels and transferred to wastewater treatment facilities.

To reduce the risk of marine water pollution by oil products, only vessels certified under MARPOL 73/78 and listed in the Maritime Register will be permitted to conduct various works and transport coal.

The proposed mitigation measures will reduce the risk of water pollution provided that compliance with environmental requirements is monitored on a continuous basis.

The design documentation does not provide a complete assessment of impacts on coastal waters resulting from pollution caused by dredging, piling and dredge spoil dumping works. The impact of these works on the mouth section of the Lavna River due to the inflow of polluted waters with the tidal and wind-induced currents has not been assessed at all. The comprehensive assessment of these impacts should be provided in ESIA, which should also involve the development of the Water Resource Management Plan comprising water saving actions (introduction of closed-loop water systems) and pollution reduction measures.

6.6. Soil

The construction-related impacts on soil are expected to occur as a result of cut and fill works accompanied by soil redeposition and contamination due to spills, exhaust emissions from construction transport and equipment, and drilling and blasting works.

The operation of coal terminal may result in soil contamination due to coal dust generation, exhaust emissions from transport, and accidental spills.

These impacts can be significantly reduced through the implementation of planned mitigation measures, including, for example, topsoil stripping and stockpiling for future use onsite for landscaping and greening the coal terminal site. Available good practices for managing hazardous materials have proved efficient in ensuring their safe transportation, storage, handling and disposal. The risk of spills (especially major ones) is considered to be minor. Yet it is still required to ensure that adequate measures are in place for detecting and managing them.

6.7. Biodiversity

6.7.1. Vegetation Cover

Vegetation cover in the Project area and its surroundings is likely to be affected at the construction and operation phases as a result of site engineering works including forest clearing, topsoil stripping, construction of buildings, structures, linear transport infrastructure and power lines.

Vegetation cover in the Project area is typical of the region, comprising the Northern Taiga pine forests and crooked birch woods. This area has already been affected significantly as a result of human activities.

The Project-related impact on vegetation cover will include both direct (vegetation removal and disturbance) and indirect (modification of habitat conditions) effects. The complete degradation of natural plant communities is considered to be the most serious impact, which cannot be avoided during the cut and fill earthworks. At the same time, the magnitude and significance of this impact can be reduced by implementing appropriate mitigation measures including topsoil stripping and storage for future uses, as well as measures designed to ensure the conservation and reproduction of protected and valuable plant species. Minimizing the area of disturbance and restoring disturbed areas as soon as possible constitute an important component of mitigation strategy.

ESIA will involve an additional baseline assessment of vegetation condition in the Project area in order to estimate the ecosystem services in the Project area and their potential loss or reduction due to the implementation of the Project itself and its associated projects.

During the operation of the coal terminal, vegetation is likely to be affected by dust deposition in the Project area. This impact is considered to be minor provided that environmental protection solutions proposed in the design and mitigation measures identified in ESIA are properly implemented. The Monitoring Programme developed as part of ESIA should involve the monitoring of vegetation condition in the Project area and progress of restoration and greening works in the disturbed areas.

6.7.2. Animal Life

Terrestrial Fauna

As the Project area is characterised by low biotope diversity and limited food capacity of habitats, and has been profoundly altered as a result of human activities, the Project-related impact on the terrestrial fauna is expected to be minor. While minimising the extent of disturbance and ensuring compliance with construction schedules and guidelines are very important, some animal species will inevitably leave the Project area and move to new habitats as construction works approach completion.

During the construction and operation of the coal terminal, the existing biodiversity in the Project area is likely to be affected due to continuous exposure to noise and light. The appearance and expansion of synanthropic species in the surrounding areas is a potential impact associated with the Project, which should be addressed in ESIA.

The Project area lies away from the migration routes used by summer migratory birds. As part of ESIA, it is recommended to develop appropriate protection measures for valuable and protected bird species included in the national and

regional Red Data Books, including the monitoring of bird populations in the Project area.

Aquatic Biota

During the construction phase, significant adverse impact on aquatic biota is expected to arise from dredging activities due to the release of suspended solids in the marine waters. The dredging design and ESIA will assess the significance of this adverse impact and identify appropriate mitigation measures based on the use of the best available technologies and designed to prevent, mitigate and compensate it. In addition to water pollution, ESIA should also address the effects of vibration (caused by drilling/blasting, piling and dredging operations) on aquatic biota and develop appropriate mitigation measures.

It is also required to assess the effects of construction (including dredging and piling activities) on aquatic biota in the Lavna River. Any adverse Project-related effects on valuable fish fauna can be reduced through careful construction planning that takes account of seasonal fish spawning patterns.

The proposed compensation strategy aiming to offset adverse impact to fisheries involves the construction of a fish breeding farm for valuable fish species.

The continuous operation of the coal terminal and increase in ship traffic, including auxiliary fleet and freight vessels, will result in reduced occurrence of mammal species and fish shoals in the coastal waters. The monitoring programme to be developed as part of ESIA should include the provision for monitoring the condition and populations of key aquatic biota species on a regular basis.

6.8. Ecosystem Services

ESIA should include an assessment of the Project impact on ecosystem services in the Project area including the areas affected by associated projects.

6.9. Physical Factors

The effects of noise and vibration are likely to be significant at both construction (cut and fill earthworks, drilling/blasting operations, vehicle traffic, dredging and piling works, construction of buildings, structures and rail tracks) and operation (continuous operation, coal transport by rail) phases of the Coal Terminal Project.

Preliminary estimates (OVOS Report, 2018) indicate that the predicted maximum noise exposure levels will be within the relevant noise guidelines for residential areas and workplaces. ESIA should assess the sum of noise and vibration effects arising from all above mentioned activities. This assessment is not possible at this stage when the access railroad design is awaiting revision and dredging design process is at a very early stage.

To ensure the correct assessment of noise and vibration effects, the measurement of baseline noise and vibration levels should be conducted using methods adopted in EU, i.e. to measure noise and vibration over a 24-hour period (to capture daytime and night-time conditions).

Exposure to light in the Project area is likely to be significant due to the continuous character of the Project operations, especially for sensitive receptors (terrestrial and aquatic fauna). As this impact cannot be avoided, potential mitigation measures should be considered in ESIA to reduce it.

6.10. Waste Generation

The main environmental impact of waste generation during construction and operation is likely to be due to the contamination of the port site and surrounding areas including the bay area and Lavna river delta. The extent of this impact depends on whether the generated waste is properly managed, separated, landfilled or sent to specialised waste management companies during both construction and operation phases.

Waste management practices employed during the construction and operation of the coal terminal should meet the requirements of the Russian environmental legislation, good international industry practice standards and BAT recommendations. ESIA will involve the assessment of compliance of proposed waste management arrangements with the above mentioned guidelines and development of waste minimisation and recycling options.

To ensure the implementation of the above mentioned measures and recommendation, ESIA will involve the development of a Waste Management Plan aligned with international standards.

6.11. Accidents and Emergencies

The analysis of potential Project-related accidents and development of management plans for preventing, containing and responding to them meet the requirements of the Russian legislation and are generally in line with the good international industry practices. The preliminary assessment of the scale of potential adverse impacts due to accidents (spontaneous combustion, fire etc.) provided in the OVOS Report (2018) indicates that the nearest residential areas are not likely to be affected by the predicted effects of accidents.

The major focus in ESIA should be placed upon the comprehensive analysis and prevention of aggregate risks associated with all project components including the coal terminal, railroads, and dredging operations.

6.12. Environmental Monitoring Programme

ESIA will involve the preparation of the Environmental Monitoring Programme in line with the requirements of the RF legislation and GIIPs. The Programme will include specific monitoring activities and environmental quality indicators required to monitor impacts on the following environmental components, their condition and critical changes in it:

- Ambient air;
- Noise and vibration;
- Groundwater and surface waters;
- Soil;
- Waste;
- Biodiversity.

The monitoring of the Project impact on the environmental quality of the Project area will be conducted in line with the EU legislation and GIIPs.

7. SOCIAL IMPACT ASSESSMENT

The potential impact of the Lavna CTT Project on the socio-economic situation in the nearest communities, Kola District and Murmansk Region was not addressed in

the design documentation and OVOS Report, and should be assessed in ESIA. It is also required to assess the cumulative socio-economic impact of associated projects and other initiatives undertaken in the Project area.

8. CONCLUSION

The design documentation for the Lavna Coal Terminal Project has been developed and the state environmental review process is underway, with the subsequent state review to assess Project’s compliance with the RF legislation. The onsite preparation works have commenced in parallel with the state review process on the basis of permits that have been obtained earlier.

The review of all available documentation suggests that the Project partly meets the requirements of the BSTDB policies and applicable good international practices. To bring the Project in line with the BSTDB policies, it is required to carry out additional assessments (as part of the Addendum to ESIA) and implement measures identified in the Environmental and Social Action Plan and Stakeholder Engagement Plan (both these documents are attached hereto).