Ivanovo PET Plant

ESIA Scoping Report

April 2016

JSC “Polyester Plant Ivanovo”
Issue and revision record

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## Glossary

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<td>AoI</td>
<td>Area of influence</td>
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<td>E&amp;S</td>
<td>Environmental and social</td>
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<td>Environmental and Social Action Plan</td>
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<td>Environmental and Social Impact Assessment</td>
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<td>ESMP</td>
<td>Environmental and Social Management Plan</td>
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<td>Giavgoexpertiza</td>
<td>General Board of State Expert Review</td>
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<td>H&amp;S</td>
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<td>International Financial Corporation</td>
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<td>Non-Technical Summary document</td>
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<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>Polyethylene terephthalate</td>
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<td>PS</td>
<td>Performance Standard on Environmental and Social Sustainability</td>
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<td>Russian Federal Service for Hydrometeorology and Environmental Monitoring</td>
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<td>Stakeholder Engagement Plan</td>
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<td>SPZ</td>
<td>Sanitary protection zone</td>
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<td>WWTP</td>
<td>Wastewater treatment plant</td>
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1 Introduction

1.1 Overview

JSC “Polyester Plant Ivanovo” (the “Company”) plans to construct a textile grade polyethylene terephthalate production plant (the “PET Plant”) in the Vichuga District of Ivanovo Region in the Russian Federation (the “Project”).

JSC “CTC IVREGIONSYNTHES” has developed design documentation and completed necessary environmental studies (Environmental Impact Assessment or “OVOS”) in line with Russian law. The OVOS Report has been reviewed and approved by the Glavgosexpertiza (General Board of State Expert Review) and the Board of Sanitary and Epidemiological Expert Review.

The Company commissioned Mott MacDonald R (the Consultant) to prepare environmental and social impact assessment (ESIA or Assessment) in compliance with the requirements of the Organization for Economic Cooperation and Development (OECD) and Euler Hermes insurance company, as needed for the loan application purposes.

1.2 Purpose of the Scoping Report

This Scoping Report represents the first step in the ESIA process and aims to identify the key environmental and social issues associated with the Project. This scoping report further describes the methodologies for the ESIA in order for the Project to demonstrate compliance with the requirements of the Lenders.

The ESIA will describe the impacts and risks at all phases of the life cycle of the Project, as well as other related projects to be identified by the Assessment.

Information in this Scoping Report is based on the results of the previous OVOS process dated 2014 as well as preliminary conclusions made by the Consultant after the primary desk-based studies, a site visit undertaken from 18 to 21 April 2016 and consultations with key the Project stakeholders.

For prompt information disclosure to the Project stakeholders, the scoping report will be disclosed on the Company website and will also be made available on request for the local communities including executive and supervising authorities, NGOs and general public. Further information on how the Project documentation will be made available will be described within the Stakeholder Engagement Plan (SEP) that will be prepared and issued at a later stage. Any comments or requests on the progress of Project development and preparation of the ESIA should be sent to JSC “Polyester Plant Ivanovo”:

- Address: Office 310, 1A Gromoboy Str., Ivanovo, Russia
- Telephone: +7 (4932) 93 24 24
- E-mail: company@ivafiber.com
- Web: www.ivafiber.com
- General Director – Nikolayev Sergey Alexeyevich
2 Project Description

2.1 Overview

The basic technology for the PET Plant has been developed by two German companies: Uhde Inventa-Fischer (for polyethylene terephthalate production) and Trützschler (PET fibre processes).

The selected site for the PET Plant is located on land allocated for the development of the Industrial Park not far from the town of Vichuga in Ivanovo Region of the Russian Federation. The main components of the proposed development are:

- PET plant
- PET fibre plant
- Power supply facilities
- Feedstock and products storage facilities
- Office buildings
- Auxiliary and domestic facilities

Apart from the aforementioned buildings and structures, the Project programme will include construction of motor roads, elevated passages, electrical networks, outdoor lighting, water and wastewater networks, and heat and gas supply networks.

PET melt will be converted into fibre at two package processing lines each processing 225 t/day, and one process line that will process 135 t/day. Thus the maximum total outputs of PET fibre will be 585 t/day.

Other units to be constructed by the Project include:

- PET bottles recycling unit to produce 100 tonnes of PET melt per day. The unit will recycle municipal waste and thus support improvement of environmental situation in the region.
- Two pelletisers to convert the primary polyethylene terephthalate into low-viscosity PET chips of textile grade, with the capacity of up to 200 t/day.

2.2 Need for the Project

The main objective of the proposed scheme is to substitute the imported raw materials (cotton and polyester fibre) used in the textile industry with local products.

The Project will not only satisfy the needs of the Russian textile sector for raw materials, but will promote development of the regional infrastructure and associated industries and businesses. At the operation phase the PET Plant will provide new jobs (tentatively around 550) for qualified engineering staff and skilled workers which can be sourced from the neighbouring Vichuga, Rodnikovsky and Kineshemsky Districts and the regional centre – the city of Ivanovo.
The Pet Plant has been considered as a Project of significance in the region and has been recognised and its development confirmed in the following national programmes and development strategies:

- National Chemical and Petrochemical Industry Development Strategy for the period of up to 2030, approved by the RF Ministry of Industry and Trade and the RF Ministry of Energy (Order No.651/172 of 8 April 2014)
- Russian Textile Industry Development Strategy for the period of up to 2020 and the Action Plan, approved by the RF Ministry of Industry and Trade (Order No.853 of 24 September 2009)

2.3 Project location

The PET Plant will be sited in the Vichuga District of Ivanovo Region, approximately 1.7 km to the north of Staraya Golchikha village (land plot cadastral number is 37:02:020115:11).

Figure 2.1: Project location

Source: Yandex

The land allocated for the proposed Project is categorised as “land for industries, communications, energy, transport and other special purpose land”. This means that the land plot may be legally used for construction of an industrial facility. Currently the site represents abandoned agricultural land overgrown with forest. A small river of Skalikha runs across the territory of the Industrial Park, beyond the boundary of the Project site.
The site locates in the Oktyabrskoye Rural Municipality and borders the Sunezhskoye Rural Municipality in the north-east and the city of Vichuga in the west.

There is an overhead power transmission line and a railway line running to the south of the Project site. The boundary of the town of Vichuga is 1 km to the east of the Project site and the boundary of Staraya Golchikha village is at a distance of 1.7 km to the south. The area to the west of the Project site is occupied by forests. Collective gardens are 1 km to the north of the site. The Ivanovo-Kineshma road runs 800 m to the east of the Project boundary.

The applicable national requirement specifies that sites for chemical industries are surrounded by a 1 km Sanitary Protection Zone (“SPZ”) and the Project site has been selected to comply with the SPZ requirement. Thus the minimum distance to neighbouring dwellings is 1,000 m or more.

2.4 Project components

The Project will be implemented on land allocated for the development of an Industrial Park. Besides the PET Plant the Industrial Park will accommodate associated infrastructure and other activities, including fabric manufacturing facilities, office buildings and logistic businesses.

2.4.1 Production of polyethylene terephthalate

PET production will involve esterification of terephthalic acid and ethylene glycol to produce compound ester monomers, followed by polycondensation. The main feedstock materials for polyethylene terephthalate is pure terephthalic acid and ethylene glycol.

The esterification process takes place in ESPREE tower reactor with three integral sections:

- primary etherification unit at the bottom of the reactor comprising a conical bottom with a casing, an external tube heat exchanger, and a monomer circulation line
- secondary etherification (post-etherification) unit comprising three reactor chambers with conical bottoms, heating coils and submerged vacuum steam pipelines
- pre-polycondensation unit consists of a flasher, two falling film evaporators, and a pre-polymer holding tank. The final polycondensation reaction takes place in the DISCAGE reactor in low vacuum conditions. The reactor is designed as a horizontal cylinder with a cage mixer, equipped with perforated disks, rings and baffles

The process uses silica antimony ($\text{Sb}_2\text{O}_3$) as a catalyst, triethyl phosphate as a stabilizing agent, titanium dioxide ($\text{TiO}_2$) as a matting agent, and isophthalic acid as antipilling additive.
2.4.2 Production of PET staple fibre

The Project will produce various types of fibre to meet the market demand, including:
- cotton-type fibre
- wool-type fibre
- hollow fibre, filling fibre
- carpet fibre

The process of PET fibre production includes fibre spinning and finishing.

The fibre spinning line comprises the following units:
- melt feed pipeline with a jacket filled with high-temperature fluid
- spinning beams with 40 shaping stations for 1st and 2nd lines and 32 shaping stations for the 3rd line
- spinning banks with suction blocks / cutters designed to minimise idle time and fibre wastage
- filament transportation system,
- mechanical pilers for placing fibre into "sun wheel" cans
- cans handling systems and cutting devices with programmable length of material in cans
- lubricating systems
- process control systems

The finishing line comprises the following equipment:
- dipping baths for fibre gentle treatment
- drawing baths for gentle treatment of fibre to ensure optimum quality of the finished product
- robust drawing blocks with shaft heating and cooling devices, shaft length is up to 2 metres
- calender rolls with variable steam pressure and flash steam recovery to minimise energy costs
- drawing blocks and calender rolls with double-jacketed shafts to ensure an optimum temperature pattern for heating and cooling
- filament tension control device strain gauges
- crimp stuffer units with the width ranging up to 660 mm, to enable operational process without the need for re-adjustment
- plated belt driers with a rocking trough for optimum distribution of filament

2.5 Project implementation programme

The expected Project implementation period is three years and four months including preparation of the design documentation. The Project preparation period (for developing design documentation, obtaining expert reviews and approvals, preparation of cost estimates,
and land acquisition) has been completed, and the Company is ready to proceed with construction.

The Project phases are estimated as follows:
- Manufacturing and supply of equipment – 23 months
- Construction and installation works – 27 months
- Commissioning – 5 months
- Achieving design capacity – 1 month
3 National Legislation and International Guidelines

3.1 Overview

The Project will be required to meet international requirements in addition to applicable national and regional law to secure international funding. This chapter provides a brief overview of national and international requirements that will be applied to the Project.

3.2 Legal requirements in the Russian Federation

Environmental law of the Russian Federation includes a set of legal acts regulating relationships between the society and nature aiming to maintain good quality of the environment. The key legislative documents regarding environmental protection and public health are:


There are a number of specific environmental and public health legislative documents and regulations which will be considered within the impact assessment process, including the aforementioned and the following documents:

- Federal Law No.96-FZ dated May 4, 1999 “On Atmospheric Air Protection” sets forth a legal framework for air protection;
- Federal Law No.52-FZ dated April 24, 1995 “On Protections of Fauna” regulates the protection and use of wildlife, conservation and restoration of wildlife habitats in securing biological diversity; and
- Federal Law No.33-FZ dated March 14, 1995 “On Protected Areas” sets forth a system of conservation areas and details a pattern of their protection, and biodiversity use and protection.

Land use is regulated by the following legislative documents:

- Federal Law No.137-FZ dated October 25, 2001 “The Land Code of the Russian Federation” sets forth a legal framework for land use and conservation, key provisions of the land legislation and land relationships; and

Additionally, the Project will be required to meet other laws and regulations related to health and safety (H&S) and public engagement.

In line with the Urban Development Code of the Russian Federation (Federal Law No.190-FZ dated 29 December 2004), design documentation is subject to state expert review that confirms compliance with applicable technical and other requirements including:

- Environmental protection;
- Occupational and industrial safety;
- Community safety;
- Protection of cultural and archaeological heritage;
- Fire safety, etc.

Legal requirements to national OVOS

Legal requirements to the national OVOS process are described in the Regulation “On Assessment of Environmental Impacts of Proposed Economic and Other Operations in the Russian Federation” approved by the State Environmental Committee of the Russian Federation, Order No.372 of 16 May 2000. The Regulation shall apply in assessment of environmental and social impacts, and development of environmental protection actions.

The OVOS procedure comprises two mandatory components. The Federal Law No.7-FZ dated January 10, 2002 “On Environmental Protection” specifies that “environmental impact assessment is conducted in relation to proposed economic and other operations which may be associated with direct or indirect environmental impact, regardless of the legal and ownership status of businesses or entities”.

The national OVOS procedure is consistent with the EIA procedure generally adopted by the international practice and comprises as follows:

- Project description
- Environmental baseline description and anticipated impacts
- Assessment of impact significance; and
- Description of proposed mitigation

The OVOS procedure includes consultations with authorities and community engagement. The national OVOS process is in many respects similar to the procedures applied by international financial institutions (“IFIs”), e.g. International Finance Corporation (“IFC”) of the World Bank Group, European Bank for Reconstruction and Development (“EBRD”). Nevertheless few differences in application, methodology and approach still exist.
3.3 Euler Hermes and OECD requirements

Euler Hermes requires that loan applications are supported by ESIA documentation, however it does not have its own categorisation of projects to define the required level of assessment. Euler Hermes recognises assessment reports that will meet the OECD requirements.

The OECD guideline “Recommendation of the council on common approaches for officially supported export credits and environmental and social due diligence (the "common approaches")” specifies that chemical industries, including PET plants should be considered as facilities associated the most significant environmental and social impacts (category A projects). Detail environmental and social studies and impact assessment in line with IFIs requirements shall apply to category A projects.

The Consultant will prepare an ESIA Report in line with IFC Performance Standards on Social and Environmental Sustainability to assess the proposed operations, since this requirement will guide the most accurate assessment of impact significance and will be recognised by Euler Hermes as a comprehensive international guideline for ESIA studies.

3.4 International Finance Corporation

IFC is a member of the World Bank Group and is recognised as an international leader in environmental and social sustainability policy. The corporation applies a comprehensive set of social and environmental Performance Standards (“PS”) in its project review process.

In line with IFC requirements, assessment of project risks and impacts shall consider (in various level of detail) the following:

- Assessment and management of environmental and social risks and impacts;
- Workforce and working conditions;
- Reasonable use of resource and prevention of environmental pollution;
- Community health and safety;
- Land acquisition and involuntary resettlement;
- Biodiversity and sustainable management of wildlife;
- Indigenous peoples; and
- Cultural heritage

Additionally, IFC PSs make a provision for the following documents to be part of the ESIA documentation:

- Non-technical summary ("NTS") of the Project
- Stakeholder Engagement Plan ("SEP"); and
- Community grievance mechanism
4 Approach to Assessment

4.1 Introduction

This chapter presents the proposed approach and briefly summarises the main potential impacts for each environmental and social topic and how they will be assessed within the ESIA. The national OVOS dated 2014 prepared for the Project by the Industrial Ecology Department of the Ivanovo State University for Chemistry and Technology has been reviewed and along with the scoping site visit from 18th to 21st April 2016 and information provided by the Client for the ESIA studies has been used to identify key environmental and social impacts.

The ESIA report will contain the following volumes:
- Volume 1: Non-Technical Summary
- Volume 2: ESIA Main Report
- Volume 3: Stakeholder Engagement Plan
- Volume 4: Environmental and Social Action Plan and Environmental and Social Management Plan (optional)

All documents prepared within the ESIA scope will be published via the Company’s web-site http://www.ivafiber.com/eco and made available to stakeholders on request.

4.2 Spatial scope

The spatial extent of the ESIA is described by the geographical area. The definition of the spatial scope has taken account of the:
- Nature of the existing baseline environment;
- Manner in which impacts are likely to be propagated (e.g. effects on air quality may extend over some distance);
- Area affected (positively and negatively) by impacts; and
- Geographical boundaries of the political and administrative authorities which provide the planning and policy context for the Project.

The effects for each of the disciplines are likely to be confined to different spatial extents.

4.3 Temporal scope

The ESIA will address effects arising from the construction, operation and decommissioning of the Project as follows:
- Construction effects may arise directly from construction activities (e.g. piling) but also from the temporary use of land (e.g. construction sites and lay down areas) or from associated changes in traffic movements (e.g. diversions in and around the site);
- Operational effects may arise from facility operations (e.g. activities of the Project or associated facilities); and
- Effects associated with decommissioning of Project facilities will be considered (e.g. recycling and or disposal of Project infrastructure).
The significance of the effects (both positive and negative) that will arise in each of these phases is based on any changes compared to the baseline conditions (i.e. those conditions which would exist if the Project did not go ahead).

Construction effects will be assessed throughout the duration of the construction period.

The baseline for the Project within the ESIA will be established using existing data that has been collected for the national OVOS by the Industrial Ecology Department of the Ivanovo State University of Chemistry and Technology.

Social baseline and description of potential beneficial and adverse impacts will be collected by the Consultant during meetings and consultations with local and regional authorities and community representatives. Publicly available data will also be collected and used in the assessment.

### 4.4 Scoping site visit

An initial scoping site visit took place between the 18th and 21st April 2016. Two ESIA experts of the Consultant team travelled to the Project site. The Company provided support in arranging a visit to the Project area, consultations with local and regional government and authorities, as well as public organisations. The scoping site visit and consultations helped to identify gaps in data available for ESIA, and respective information requests will be issued by the Consultant to request information from relevant authorities on behalf of the Company.

The next visit for additional studies is planned for mid-June 2016. The programme will include consultations with public organisations, focus groups with local residents directly affected by the Project (residents of the neighbour villages, garden owners/leaders of gardening associations), as well as a biodiversity survey on site and adjacent areas. Further consultations will be arranged with local and regional authorities to collect missing information.

### 4.5 Potential impacts

#### 4.5.1 Air quality

A chemical plant of this kind may potentially contribute to existing air pollution at all phases of the Project. Impacts during construction and decommissioning will be assessed using a qualitative risk based approach to determine effects of dusting and construction emissions. During the operation phase the Project will emit a number of air pollutants including few substances which may adversely impact environment and public health, and will contribute to the existing ground level concentrations of air pollution. A comprehensive approach will be used for assessment of operational impacts associated with air emissions to consider both the national requirement and best international practice. Calculated future pollutant concentrations at nearby sensitive receptors will be compared against both national and
international ambient air quality standards. Proposed emission sources will be, where possible
designed to minimise emissions. All emission sources will comply with appropriate national
and international emission limits.

Baseline pollutant concentrations will be obtained from previous studies and existing ambient
air quality monitoring undertaken by Roshydromet.

4.5.2 Noise and vibration

The proposed Project has the potential to contribute to existing noise levels and vibration
during all phases of the Project. During the construction phase the main sources of noise and
vibration will be from construction machinery and from activities such as piling. The Project
equipment will be the main source of noise during the operation phase. Noise levels will
be calculated at nearby receptors and on the site boundary and be compared to relevant
national and international standards.

4.5.3 Hydrology

The proposed Project has the potential to contribute to hydrological impacts during all phases
of the Project. The predominant potential impact of the Project relates to contamination of the
Skalikha River running across the site of the future Industrial Park by surface runoff during
earthworks. Another potentially significant impact may be associated with emergency
discharge of polluted industrial wastewater transported to the Vichuga Wastewater Treatment
Plant (“WWTP”) with no adequate facilities to prevent release of contaminated effluent in the
Vichuga River. In addition, potential cumulative effects of the Project discharges and existing
effluent discharges by the WWTP will be assessed.

4.5.4 Hydrogeology / land contamination

The PET Plant will be constructed on site with prevailing clay loam to serve as a natural
barrier to infiltration of land contamination in ground water. Thus it is considered unlikely that
the Project will have any significant impact on ground water and soil quality during
construction, operation and decommissioning phases. The ESIA assessment will be based on
existing baseline and information collected for the national OVOS.

4.5.5 Biodiversity

The proposed Project will be implemented in the area partially overgrown with birches and
willows which had been used for cultivation of industrial crops for a long period. The fields are
now neglected and local residents use them as haymaking areas for cattle.

Although the site locates in the immediate vicinity to the forest, potential impact
of construction and operation phases of the Project is assessed to be minor and will be
associated with construction workers visiting the forest and littering of forest skirts by Industrial Park traffic during the operation phase).

4.5.6 Waste

The proposed Project has the potential to contribute to waste generation during all phases of development. An assessment of the types of waste to be generated and their proposed method of disposal will be undertaken as part of the ESIA. Where possible waste generated by the Project will be re-used or recycled. Hazardous waste will be collected and disposed via a licensed waste management contractor. All methods of waste handling used at the site will be assessed and evaluated in accordance with international standards.

4.5.7 Social impact assessment

The key social aspects to be addressed in the ESIA will include inter alia employment; community health, safety and security; and occupational health and safety ("OHS"). These issues will be considered and their related impacts will be outlined in the ESIA along with an assessment of their significance and identification of appropriate management measures. The most significant benefits will most likely be associated with employment generation and opportunities for social infrastructure development in the town of Vichuga and neighbouring Rural Municipalities, growth of local farms, and de-escalation of existing social strain in the region. The key adverse impacts will be associated with occupational and community health and safety ("H&S") during construction and operation.

Information received at the scoping phase and during stakeholder consultations indicates that no indigenous peoples have been identified in the Project Area of Influence ("AoI") which would feature a tenor of life different from that of the dominant ethnic groups. Thus it is unlikely that the requirement to assess impact on indigenous peoples and develop adequate mitigation will be applicable to the Project.

Some community groups have been identified as vulnerable based on findings of the scoping site visit, and their needs will be considered in planning of stakeholder engagement and meaningful consultations. The Consultant will advise on measures to mitigate/prevent potential impacts of the Project on such groups and assist the vulnerable to receive Project benefits.

The land acquisition process for the PET Plant has been completed and no additional land is required for the Project.

To inform the local communities and key stakeholders about the Project and to allow them to read and comment on the findings of the study, Project information will be disclosed throughout the ESIA process. An SEP is being prepared to guide disclosure and consultation activities as outlined within the international requirements.
The Consultant will also prepare a Project NTS document with simple and concise description of the Project, its potential environmental and social impacts and proposed mitigation. The NTS document will be used in disclosing Project information to local communities and other stakeholders.

Consultation for the ESIA will be undertaken in two phases. Initial consultation was undertaken in May 2016, and the second round of consultation will be held after preparation of draft ESIA report in June 2016.

4.5.8 Traffic and transport

The Project has the potential to contribute to traffic levels on P71 Kovrov-Kineshma road. The ESIA will assess the number of vehicle predicted for materials and equipment transportation during the construction phase, and haulage traffic at the operation phase.

4.5.9 Cultural heritage

As the Project site is located within the neglected former agricultural fields, the potential for effects on sites of historical and cultural heritage is extremely low. The risk of potential impact on cultural heritage may be associated with demolition (including illegal) of old houses in the neighbouring villages to construct dwellings for the personnel of the future Industrial Park.

4.5.10 Landscape and visual

The Project will be developed in the neglected crop fields and therefore the potential for landscape and visual impacts exists. The ESIA will assess the Project in the context of the local landscape.

4.5.11 Cumulative effects

Cumulative E&S impacts will be assessed as part of the ESIA process, including cumulative effects of all facilities to be accommodated within the future Industrial Park, depending on the level of detail available to describe the associated project.

4.6 Assessment of Effects

4.6.1 Overview

The assessment of the significance of effects and identification of residual impacts will take into account any incorporated mitigation measure to be adopted by the Project, and is largely dependent on the extent and duration of change, the number of people or size of the resource affected and their sensitivity to the change. The criteria for determining significance
are specific for each environmental and social aspect but generally for each impact the magnitude (quantitatively where possible) and the sensitivity of the receptor is defined. Generic criteria for defining magnitude and sensitivity are summarised below.

4.6.1.1 Magnitude

The assessment of magnitude will be undertaken in two steps. Firstly, the key issues associated with the Project will be categorised as beneficial or adverse. Secondly, the magnitude of potential impacts will be categorised as major, moderate, minor or negligible based on consideration of the parameters such as:

- Duration of the impact: ranging from beyond decommissioning to temporary with no detectable impact
- Spatial extent of the impact: for instance, within the site, boundary to regional, national, and international
- Reversibility: ranging from permanent requiring significant intervention to return to baseline to no change
- Likelihood: ranging from occurring regularly under typical conditions to unlikely to occur; and
- Compliance with legal standards and established professional criteria: ranging from substantially exceeds national standards and limits / international guidance to meets or exceeds minimum standards or international guidance

Table 4.1 outlines the criteria for determining magnitude for this assessment.

<table>
<thead>
<tr>
<th>Magnitude (Beneficial or Adverse)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>Fundamental change to the specific conditions assessed resulting in long term or permanent change, typically widespread in natural or social environment, and requiring significant intervention to return to baseline; exceeds national standards and limits.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Detectable change to the specific natural and social environment conditions assessed resulting in non-fundamental temporary or permanent change.</td>
</tr>
<tr>
<td>Minor</td>
<td>Detectable but minor change to the specific natural and social environment condition assessed.</td>
</tr>
<tr>
<td>Negligible</td>
<td>No perceptible change to the specific natural and social environment condition assessed.</td>
</tr>
</tbody>
</table>

Source: Mott MacDonald

Assessment of impact magnitude and determination of residual impacts will take into account proposed mitigation. Such assessment depends primarily on the extent and duration of changes, numbers of population and magnitude of resource affected by impact, and sensitivity of the receptors to such changes. A set of criteria to be used for determining significance of impacts is selected depending on specific environmental and social aspects of the Project, however this set would normally include the magnitude (preferably quantitative)
and sensitivity of receptors. Typical criteria for determining magnitude of impacts and sensitivity of receptors are summarised below.

4.6.1.2 Sensitivity of recipients

Sensitivity is generally site specific and criteria will be developed from the baseline information gathered. The sensitivity of a receptor will be determined based on review of the population (including proximity/numbers/vulnerability) and presence of features on the site or the surrounding area. Generic criteria for determining sensitivity of receptors are outlined in Table 4.2 below. The assessment will define sensitivity in relation to their topic.

Table 4.2: Criteria for determining sensitivity

<table>
<thead>
<tr>
<th>Magnitude (positive or negative)</th>
<th>Definition (considers duration of the impact, spatial extent, reversibility and ability of comply with legislation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Vulnerable receptor (human or terrestrial) with little or no capacity to absorb proposed changes or minimal opportunities for mitigation (or with very little or no access to alternative similar sites or services).</td>
</tr>
<tr>
<td>Medium</td>
<td>Vulnerable receptor (human or terrestrial) with limited capacity to absorb proposed changes or limited opportunities for mitigation (or with little access to alternative similar sites or services).</td>
</tr>
<tr>
<td>Low</td>
<td>Non-vulnerable receptor (human or terrestrial) with some capacity to absorb proposed changes or moderate opportunities for mitigation (or with some access to alternative similar sites or services).</td>
</tr>
<tr>
<td>Negligible</td>
<td>Non-vulnerable receptor (human or terrestrial) with good capacity to absorb proposed changes or and good opportunities for mitigation (or with good access to alternative similar sites or services).</td>
</tr>
</tbody>
</table>

Source: Mott MacDonald

4.6.1.3 Impact evaluation and determination of significance

Impacts will be identified and significance will be attributed taking into account the interaction between magnitude criteria and sensitivity criteria as presented in the significance matrix in Figure 4.1 below.

Figure 4.1: Impact Significance Matrix

Source: Mott MacDonald
For each aspect, the significance of impacts will be discussed before and after mitigation (i.e. residual impact). Impacts identified as have substantial or major significance based on the above approach are classified as significant impacts.

### 4.6.1.4 Uncertainty

Any uncertainties associated with impact prediction or the sensitivity of receptors due to the absence of data or other limitation will be explicitly stated. Where applicable, the ESIA will make commitments concerning measures that should be put in place with monitoring and/or environmental and social management plans (“ESMPs”) to deal with the uncertainty.

### 4.6.2 Mitigation

The Project should be planned and implemented in compliance with all environmental, health and safety (“EHS”) regulations of the national, regional and local authorities. To minimise or eliminate potentially significant impacts of the Project, mitigation, prevention and compensation measures will be developed and recommended in line with international best practice.

If required mitigation measures will be applied to reduce, where possible, the significance of impacts to acceptable levels. These mitigation measures could include but not be limited to;

- Changes in technology choice;
- Incorporation of additional abatement; and
- Creation of replacement habitats.

### 4.7 Conclusions

This Scoping Report has not identified any critical environmental or social issues which cannot be overcome either through additional studies or appropriate mitigation and management to the satisfaction of international standards.
Appendices

Appendix A. Meetings and consultations
# Appendix A. Meetings and consultations

## Table A.1: Scoping meetings and consultation programme

<table>
<thead>
<tr>
<th>Event</th>
<th>Persons met</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>18 April 2016</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Vichuga District Administration | Vladimir V. Murashkin, Head of the Administration  
Irina L. Organova, Deputy Head for Social Co-ordination | Presentation of the Consultant’s team and assignment. Discussion of overall status of the Vichuga District. Interaction between the town of Vichuga and Vichuga District in relation to the Project. Support to the Consultant's team in collecting data for ESIA studies |
| Administration of Vichuga | Michail E. Kuprianov, Mayor of Vichuga | Presentation of the Consultant’s team and assignment. Discussion of overall status of Vichuga. Existing social infrastructure in the town. Capacities of local social services to cope with workers influx during construction. Reduction of population. Key industries in Vichuga. Support to the Consultant’s team in arranging a focus group study and consultations with local communities in the Project AoI |
| Ivanovo Regional Authority of the Federal Service for Supervision over Consumers’ Rights Protection and Public Welfare | Vladimir E. Kogut, Deputy Director | Presentation of the Consultant’s team and assignment. Discussion of potential health risks of the Project |
| Ivanovo Regional Authority of the Federal Service for Supervision of Natural Resource Management | Maxim S. Levin, Head of authority  
Alexey P. Tikhonov, Deputy Head | Presentation of the Consultant’s team and assignment. Discussion of potential environmental risks of the Project. |
| **19 April, 2016** | | |
| Ivanovo Regional Department for Social Welfare | Marina A. Skibenko, First Deputy | Presentation of the Consultant’s team and assignment. Social status of the Ivanovo Region and the town of Vichuga. Interest in the Project. Available data and information request for ESIA studies |
| Ivanovo Regional Committee for Labour, Employment and Labour Migration | Tatiana B. Sergeeva, Head of the Committee  
| Ivanovo Regional Department for Education | Olga G. Antonova, Head of the Department  
Elena N. Sazonova, Deputy Head  
<table>
<thead>
<tr>
<th>Event</th>
<th>Persons met</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Svetlana V. Kluzina, Head</td>
<td></td>
</tr>
<tr>
<td>21 April, 2016</td>
<td>Oktyabrskoye Rural Municipality</td>
<td>Presentation of the Consultant’s team and assignment. Social issues and infrastructure in the rural municipality and Staraya Golchikha village. Summer gardens in the neighbourhood. Existing concerns. Public opinion of the Project. Focus group event with the Staraya Golchikha community. Interest in the Project. Available data and information request for ESIA studies</td>
</tr>
<tr>
<td></td>
<td>Vladimir V. Mozulev, Head of the Rural Municipality</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Larisa V. Novozhilova, Head of the Rural Council</td>
<td></td>
</tr>
</tbody>
</table>