



Samta Mines & Minerals Limited

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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

Implementation of a project for recycling metal residues and producing copper metal and aluminum alloys at AFZ

Report

December



Bureau d'Ingénieurs Conseils **CLEAN TECH**
1, rue Ohoud & Angle Avenue Michlifén Agdal
Rabat - Maroc
Tel: +212 (0) 5 37 68 18 91 / 26 62
Fax: +212 (0) 5 37 67 18 94
www.cleantechconseil.com
www.cleantech.ma

Comments on EIE STE SAMTA METALS AND ALLOYS**Committee meeting on 07-12-2023**

- Correct the site area: 30,235 m² or 32,235 m²: → OK
- Specify the nature of additives in the aluminum process ; → It is pure aluminum, see page 57.
- Eliminate the presence of a natural gas storage tank of 15,000 m³; → OK
- Correct the month on the cover page of the report to "December version"; → OK
- Review the project description regarding sanitation and solid waste management, especially concerning hazardous waste; → See pages 59 to 63.
- Justify the height of the chimneys in accordance with current regulations: → See page 111 and in the appendix on page 139.

Commission Meeting on 19-10-2023

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- Provide contracts with companies for the management of hazardous waste → see pages 166 to 176.
- Provide a site plan and a sanitation plan specifying the location of various project components (boiler, oil separator, hazardous waste storage, natural gas storage, etc.); → See appendix site plan and additional note - no storage for natural gas.
- Correct on the fire safety plan, WILAYA RSK; → See provided safety notice.
- Provide AFZ's approval for connection to the liquid sanitation network; → This approval is already obtained since SAMTA METALS & ALLOYS has signed the CPS of AFZ, which stipulates compliance with discharge thresholds - See appendix - Land titles.
- Provide process diagrams; → See appendix
- Commit to complying with atmospheric emission standards (Moroccan standards); → page 2 of the PSSE.
- Commit to complying with the AFZ specifications; → Samta Metals & Alloys has signed the specifications of the AFZ as part of the completed land acquisition procedure.
- Remove the LPG storage tank from the safety notice; → See safety notice provided in the appendix.
- Remove Order No. 1263-91 of 01/04/1993 approving the general regulations on LPG;
- Strengthen the project description by:
 - Presenting metallurgical processes; → See appendix
 - Evaluating process wastewater and its fate; → already provided, see page 55
 - Listing solid waste according to Decree No. 2-07-253; → already provided, see page 63
- Present an emergency plan for the unit; → See appendix.
- Implement monitoring of discharge in accordance with regulations and in consultation with the sanitation network manager; → page 2 of the PSSE

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ABBREVIATIONS LIST

Abbreviation	Indication
CCH	Specifications of the technical architectural and urban planning requirements of the Industrial Zone
CNE	National Council for the Environment
CT	Tertiary Path
CBSC	Superior Council for Water and Climate
BOD5	Biochemical Oxygen Demand (in 5 days)
COD	Chemical Oxygen Demand
OF	Environment Department
EIA	Environmental Impact Study
US	Waste
HE	Population Equivalent
EP	Rainy waters
LNE	National Environment Laboratory
MY	Suspended matter
MATEE	Ministry of Territorial Planning, Water and the Environment.
ONEE	National Office for Drinking Water and Electricity
AFZ	Atlantic Free Zone
PCD	development plan
TAAM	Average Annual Growth Rate

Technical sheet

PROJECT PURPOSE	Production of copper metal and aluminum alloys
OWNER	Samta Metals & Alloys
MO COORDINATES	<p>► Name of person in charge: Bachir FASSI FEHRI</p> <p>► Title: Chief Executive Officer</p> <p>► Tel: +212 (0) 6 61 819 824 fax /</p> <p>Address: 1.113 bis, Atlantic Free Zone - Commune Ameer Seflia RN4 - Kenitra</p>
PROJECT CONSISTENCY	The construction of industrial units for the recycling of metallurgical waste for the production of copper metal and aluminum alloys.
PROJECT SITUATION	<p>The project will be installed in the Kenitra Industrial Zone (AFZ) in the province of Kenitra.</p> <p>The Lambert coordinates of the center of the project site are: X=408033.38; Y= 411736.32</p>
PROJECT DESCRIPTION	<p>The SAMTA Metals and Alloys Company will build in AFZ two industrial units for the recycling of metal residues for the production of copper metal (cathode and rod) and aluminum alloys.</p> <p>The raw materials used: residues, rejects and metal waste (ferrous and non-ferrous)</p> <p>The project will be located on a plot of 30 235 m²</p> <p>When it comes into service, it will generate around a hundred direct jobs.</p>
PROJECT INVESTMENT COST	500 MDH
CONSTRUCTION DURATION	12 months
OPERATING PERIOD	50 years from July 2024

1. INTRODUCTION

The manufacturing sector is a fundamental pillar of the economies of many countries around the world. It encompasses a wide range of production and processing activities, from commodity manufacturing to high-tech industries such as automotive, aerospace and shipbuilding. Within this sector, the metallurgical processing industry occupies a prime position, due to its strategic importance for the economies of many countries.

The production of metal, copper and aluminum alloys is one of the main activities of the metallurgical transformation industry. It represents a major economic challenge for producing countries, as it creates added value and generates jobs in key sectors such as construction, automotive and aeronautics. Metallurgical processing industries are also major consumers of energy and raw materials, making them major players in the overall industrial value chain.

However, like any industrial activity, the production of metal, copper and aluminum alloys can have negative impacts on the environment and human health. For this reason, an environmental and social impact assessment is required to identify these impacts and propose appropriate mitigation measures to minimize them.

The Samta Mines & Minerals Group is interested in implementing a project for recycling metal residues and producing copper metal and aluminum alloys in AFZ, Morocco, while adhering to legal and regulatory requirements.

This Environmental Impact Assessment (EIA) has been entrusted by Samta Mines & Minerals to CLEAN TECH. Its purpose is to identify and assess the positive and negative impacts that may be generated by this project and to determine the recommended mitigation measures and the required environmental monitoring and surveillance program for the project.

This study has been conducted in accordance with:

- The Moroccan regulations concerning environmental protection and the current EIE procedure.
- The specifications for architectural and urban technical requirements of AFZ

1.1 Methodological approach

The project for the production of copper metal and aluminum alloys must undergo an Environmental and Social Impact Study (ESIA) following the guidelines of Law 49.17 promulgated in August 2020, concerning environmental assessment. This law addresses:

- The Strategic Environmental Assessment (SEA);
- The Environmental Impact Assessment (EIA);
- Environmental Impact Notice (EIN);
- Environmental Audit (EA);

The ESIA thoroughly analyzes all the modifications that may affect any component of the ecosystem within the project's influence area.

The impacts generated by an installation or development can be categorized into three groups:

- The first mainly concerns impacts directly endangering human health and the quality of the biosphere, by affecting vital environments such as water, air and soil. We can also put noise and vibrations in this category, since they are conveyed by the air or the ground and their effects are recognized to be more or less harmful to human health;
- The second impact relates to land use, as a support and reflection of the activities of man and the biosphere. Indeed, any new project encroaches on the pre-existing space and modifies the field of socio-economic activities that take place there. These occupy a large part of the territory and cover agriculture, forestry, recreation and built sites;
- The third impact concerns to damage to the natural and historical heritage (natural environments, archaeological sites, landscapes), which requires preservation or reconstruction, or even enhancement.

The realization of the ESIA of a project obeys a systemic approach which includes six main components:

- Legal, regulatory and institutional framework;
- Project description and justification
- Study area boundary;

- Characterization of the initial environmental state;
- Identification and assessment of impacts and mitigation measures;
- Monitoring and follow-up plan.

1.2 Main stages of the study

The study is based on the guidelines of law **49.17** concerning environmental assessment by focusing on:

- Collecting data and basic information on the project's technical characteristics, site specifics, and relevant legal provisions (laws, draft laws, discharge standards, etc.) regarding the ESIA related to the project.
- Characterizing the different components of the natural environment in the vicinity of the project site.
- Assessing potential nuisances and impacts on the surrounding natural environment and neighboring socio-economic activities.
- Proposing concrete measures to mitigate negative impacts and developing a monitoring and follow-up program for the project

The structure of the report is as follows:

1.2.1. Legal and regulatory framework

This chapter details the legislative and regulatory texts and applicable standards related to the project's implementation, particularly the provisions of laws concerning environmental assessments, water, and waste.

1.2.2. Project description and justification

This component is based on the project 's technical study. It includes a general description of the project and its justification, specifying nearby establishments.

1.2.3. Study area delimitation

The study area, for which the impacts of the project are assessed, was defined based on the analysis of the foreseeable effects on natural resources (water, air, soil, fauna, flora, etc.) and neighboring populations.

1.2.4. Description of the environmental state

In this chapter, the environment surrounding the site has been described, emphasizing its sensitive characteristics. Particular attention has been given to:

- Land use and its proximity to sensitive areas (nearby settlements, agriculture, fauna, flora, etc.).
- Protection of the region's water resources.

- Biophysical framework: geological, climatic, and hydrological conditions, etc.
- Socio-economic context: agriculture, industries, commerce, tourism, and other activities

1.2.5. Identification and evaluation of impacts

Based on the results of the analysis of project data and the surrounding environment, a detailed identification and evaluation of potential impacts of the project on the environment were conducted, particularly for sensitive areas and activities. The determined impacts were classified according to their significance and intensity.

1.2.6. Mitigation measures

The evaluation of potential effects of the project on sensitive elements of the surrounding environment led to the definition of mitigation measures aimed at reducing direct and indirect negative impacts related to project activities. The description of these measures is sufficiently explicit to demonstrate and justify the chosen options.

1.2.7. Monitoring and follow-up plan

The environmental monitoring plan describes the necessary means proposed to ensure compliance with legal and environmental requirements by the project.

It makes it possible to ensure the smooth running of the work, the proper functioning of the equipment and installations put in place and to monitor any disturbance of the environment caused by the carrying out of the project.

The environmental monitoring program describes the measures taken to verify in the field, the assessment of certain impacts and the effectiveness of mitigation or compensation measures provided for in this ESIA to remedy them.

2. LEGISLATIVE AND REGULATORY FRAMEWORK

This section concerns the description of the legal obligations of the project promoter. This is the national legislative framework governing emissions into the natural environment and within which the management and treatment of solid, liquid and gaseous discharges from industrial establishments in general fall.

2.1 Institutional frame

The administrations most concerned with environmental aspects essentially come under the following ministerial institutions:

- Minister of Energy Transition and Sustainable Development
- Ministry of Industry, Trade and Green and Digital Economy;
- Ministry of Transport and Logistics
- Ministry of Equipment and Water
- Ministry of Interior
- Ministry of Health and Social Welfare
- High Commission for Water, Forests and the Fight Against Desertification;
- Sebou Hydraulic Basin Agency (ABHS)

2.2 National environmental strategy

The National Sustainable Development Strategy (SNDD) adopted on June 25, 2017 and covering the period from 2017 to 2030, aims to accelerate Morocco's transition to a green and inclusive economy by 2030. Its major challenges are:

- Consolidation of sustainable development governance;
- The success of the transition to a green economy;
- Improving the management and development of natural resources and the conservation of biodiversity;
- Accelerating the implementation of the national policy to combat climate change;
- The allocation of special vigilance to sensitive areas;
- The promotion of human development and the reduction of social and territorial inequalities;
- Promoting a culture of sustainable development.

2.3 National legislation on environmental protection

The Moroccan legislative framework is characterized by a significant number of laws, with some dating back to 1914. These laws are primarily based on the protection of private property, state heritage, public health, and the maintenance of the quality of borrowed goods (to be returned in their original condition). However, they are scattered and have limited scope, rendering them inadequate for the current context.

Acknowledging this situation, the Moroccan government has promulgated several laws that are currently in effect, incorporating provisions for the protection and enhancement of the environment. Among these laws, the following are noteworthy:

- Dahir n° 1-14-09 of 4 jomada I 1435 (March 6, 2014) promulgating framework law n° 99-12 on the national charter for the environment and sustainable development;
- Law **49.17** relating to environmental assessment, promulgated by Dahir n°1-20-78 of 18 hijra 1441 (8 August 2020);
- Law No. **12-03** relating to environmental impact studies, promulgated by Dahir No. 1-03-60 of 10 Rabii I 1424 (May 12, 2003) and its implementing decrees:
- Decree No. 2-04-564 of 5 kaada 1429 (November 4, 2008) setting the terms of organization and conduct of the public inquiry relating to projects subject to environmental impact studies;
- Decree No. 2-04-563 relating to the powers and operation of the national committee and regional committees for environmental impact studies;
- Law No. 13-03 relating to the fight against air pollution, promulgated by Dahir No. 1-03-61 of 10 Rabii I 1424 (May 12, 2003) and its implementing decrees:
- Decree No. 2-09-286 of December 8, 2009 (BO No. 5806 of January 21, 2010) setting air quality standards and air monitoring procedures;
- Decree No. 2-09-631 (BO No. 5858 of July 22, 2010) setting the limit values for clearance, emissions or discharge of pollution into the air from stationary sources and the methods of their control;
- Law No. 28-00 on waste management and disposal, dated November 22, 2006 and its implementing decrees:
- Decree No. 2.07.253 relating to the classification of waste;
- Decree No. 2-14-85 of 28 Rabii I 1436 (January 20, 2015) relating to the management of hazardous waste;
- Law No. 23-12 amending Law No. 28-00 relating to waste management and disposal, promulgated by Dahir No. 1-12-25 of Ramadan 13, 1423 (August 2, 2012);
- Law 36-15 on water and related implementing decrees including:
- Decree No. 2-04-553 published on 13 hijra 1425 (January 24, 2005) relating to spills, flows, discharges, direct or indirect deposits in surface or underground waters;
- Joint Order No. 1607-06 of 29 Jomada II 1427 (July 25, 2006) setting specific limit values for domestic discharge;
- Law No. 12-90 on town planning and its implementing decree;
- Organic Law 113-14 on municipalities;

- Law No. 22-80 relating to the conservation of historical monuments and sites, inscriptions, works of art and antiquity;
- Law No. 65-99 relating to the labor code and its implementing texts;
- Dahir of 1914 on classified establishments and its implementing texts;
- Dahir n° 1-69-170 (10 jourmada I 1389) on the defense and restoration of soils.

2.4.1. Dahir n° 1-14-09 of 4 Jourmada I 1435 (March 6, 2014) promulgating framework law n° 99-12 on the national charter for the environment and sustainable development.

This framework law sets the fundamental objectives of State action in terms of environmental protection and sustainable development. It aims to:

- Strengthen the protection and preservation of resources and natural environments, biodiversity and cultural heritage, to prevent and fight against pollution and nuisances;
- Integrate sustainable development into sectoral public policies and adopt a national sustainable development strategy;
- Harmonize the national legal framework with international conventions and standards relating to environmental protection and sustainable development;
- Strengthen measures to mitigate and adapt to climate change and combat desertification;
- Deciding on institutional, economic, financial and cultural reforms in terms of environmental governance;
- Define the commitments of the state, local authorities, public establishments and state companies, private enterprise, civil society associations and citizens in terms of environmental protection and sustainable development;
- Establish an environmental liability regime and an environmental monitoring system.

2.4.2. Environmental Assessment Act 49.17

The Moroccan government has also strengthened the legal arsenal relating to the protection of the environment by promulgating Law No. 49.17 concerning environmental assessment in August 2020. This law deals with:

- ✕ -Strategic Environmental Assessment (SEA);
- ✕ -The Environmental Impact Assessment (EIA);
- ✕ -The Environmental Impact Notice (NIE);
- ✕ -Environmental audit (EA);

Law number 49.17 brings a set of reforms, in particular the simplification of the environmental impact study procedure for small projects with low environmental impacts.

With regard to major projects, the law establishes the obligation to carry out environmental assessment studies by approved consulting firms.

With regard to industrial units and activities existing prior to the publication of this law and which have not been the subject of an environmental assessment, the law submits them to an environmental audit in order to ensure their compliance with the legal texts. applicable environmental standards.

2.4.3. Law 12-03 relating to environmental impact studies

This law was published in official bulletin n°5118 dated 06/19/2003. It defines (article 1 of the first chapter) the environmental impact study as being a preliminary work allowing to evaluate the direct and indirect effects which can affect the environment in the short, medium and long-term following the realization of of a project (economic, development or infrastructure) and to determine measures to remove, mitigate or compensate for its negative impacts and amplify the positive ones.

The purpose of the environmental impact study (article 5, chapter II) is:

- To evaluate in a methodical and preliminary way, the possible repercussions, the direct and indirect, temporary and permanent effects of the project on the environment and in particular on the man, the fauna, the flora, the ground, the water, the air, climate, natural environments and biological balances, on the protection of historical assets and monuments, where appropriate on the convenience of the neighborhood, hygiene, public health and safety while taking into consideration the interactions between these factors;
- Eliminate, mitigate and compensate for the negative impacts of the project;
- To highlight and amplify the positive impacts of the project on the environment;
- To inform the population concerned about the negative environmental impacts of the project.

This law determines the general conditions under which these provisions apply. It defines the procedure for managing impact studies, the rights and obligations of the petitioner, of the various ministerial departments concerned, and draws up the list of projects subject to it.

This law institutionalizes a national committee and regional committees for environmental impact studies and defines their composition and mission.

It delimits the field of application of the law enforceable against public and private projects which, because of their size or their nature, are likely to have an impact on the environment. It defines the objectives and content of an impact study and conditions the granting of any authorization for the realization of the said projects to obtaining a decision of environmental acceptability. This law also provides for a compliance check and sanctions in the event of violation of the law or of the texts adopted for its application.

Decree No. 2-04-564 of 5 kaada 1429 (4 November 2008)

The purpose of this decree is to define the methods of organization and conduct of the public inquiry provided for in Article 9 of Law No. 12-03 relating to environmental impact studies and to which the projects listed in the list annexed to the said law are subject to:

Its article 2 specifies that the request for the opening of the public inquiry is filed by the petitioner with the permanent secretariat of the regional committee for environmental impact studies, which also provides the secretariat for the public inquiry commissions for environmental impact studies. impact that the opening of the public inquiry is ordered by order of the governor of the prefecture or province concerned.

Decree No. 2-04-563 of 5 kaada 1429 (November 4, 2008) relating to the powers and functioning of the national committee and regional committees for environmental impact studies

Article one: This decree establishes the powers and operating procedures of the national committee for environmental impact studies and the regional committees for environmental impact studies, hereinafter referred to as the "national committee" or "regional committees", as the case may be, as provided for in article 8 of law n° 12-03 relating to environmental impact studies, referred to above.

Article 2: The National Committee for Environmental Impact Studies is responsible for:

- To examine the environmental impact studies and to examine the related files concerning the projects listed in article 3 of this decree, which are entrusted to it;
- To give its opinion on the environmental acceptability of the said projects;
- To participate in the development of guidelines prepared by the government authority responsible for the environment relating to environmental impact studies;
- To study the impact studies that are the subject of a request for re-examination provided for in article 24 below;
- To support and advise the regional committees of environmental impact studies in the exercise of their attributions.

Article 3: Is within the competence of the national committee, the examination of the impact studies on the environment of the projects of activities, works, installations and works referred to in article 2 of the law n° 12-03 mentioned above and falling into the following categories:

- a) Projects whose implementation concerns more than one region of the Kingdom, regardless of the amount of the investment;
- b) Cross-border projects, regardless of the amount of investment.

2.4.4. Law 36-15 on Water

Dahir No. 1-16-113 of August 10, 2016 promulgating Law No. 36-15 on water was published in Official Bulletin No. 6494 of August 25, 2016.

This law aims to strengthen the institutional framework, the mechanisms for preserving water resources and improving the conditions for protection against extreme phenomena linked to climate change.

The fundamental principles of this law are the general ownership of water, the right of access to water for all citizens, the right to a healthy environment, the management of water in accordance with the practices of good governance, taking into consideration the concerted participation of the various actors and the integrated, sustainable and decentralized management of water resources with the consolidation of territorial solidarity, the protection of the natural environment and the adoption of the gender approach.

This law also brings other novelties, mainly the creation of advisory councils at the level of the hydraulic basins, which will be responsible for studying and expressing their opinions on the action plan for the integrated management of water resources. The law also includes provisions for the establishment of a legal framework for the desalination of seawater and the development for urban areas of master plans for liquid sanitation taking into account seawater and the need to reuse treated wastewater.

2.4.5. Air Pollution Control law

Law **No. 13-03** relating to the fight against air pollution lays down the principle of limiting and controlling atmospheric emissions of substances likely to harm the health of populations, fauna, flora, soil, cultural heritage and all components of the environment. The law also stipulates the obligation to take air quality into account in land use planning and town planning documents.

Article 3 specifies that the administration takes, in coordination with the various bodies, the measures required to control pollution and air quality.

In addition, article 4 indicates that it is prohibited to release, emit or allow the release, or the release into the air of pollutants such as odors beyond the quantity or concentration authorized by standards set by regulation.

Article 6 requires the owner of an installation to take the necessary precautions and measures to prevent the infiltration or emission of air pollutants in the workplace, to be kept below the permitted limits, which he these are pollutants due to the nature of the activities carried out or resulting from defects in equipment and materials. The owner of the installation must also ensure the necessary protection for workers in accordance with occupational health and safety conditions.

Any person or community who has suffered damage related to atmospheric emissions from a facility has the possibility of taking legal action to obtain compensation. A system of financial penalties has also been introduced for violators of the principle of regulating atmospheric emissions.

Decree No. 2-09-631 (BO No. 5858 of July 22, 2010) setting the limit values for polluting emissions from stationary sources and the procedures for their control.

The main purpose of this Decree is to set the limit values for emissions of certain air polluting substances from stationary sources of pollution and defines the procedures for controlling these emissions.

Regarding the emission limit values, and pursuant to art. 4/1 of Law No. 13-03, no release from fixed installations may exceed the general and sectoral emission limit values set respectively in arts . 4 and 5 of the same Decree. The operators of these installations must take all the necessary measures to comply with the said limit values. It should be noted here that the emission limit values, as set by this Decree, are general emission standards not to be exceeded. These limit

values, expressed as a function of the mass flow rate of the release, concern the following polluting substances:

- **Dust:**

- For a mass flow greater than or equal to 0.5 kg/h, emissions in the form of dust must not exceed a total of 50 mg/m³;

For the various substances contained in the dust, the limit values provided for in the paragraphs below are applied.

- **Organic substances in the form of gas, vapor or particles.**

The concentration of emissions of these substances, the list of which is set out in table 3 of the appendix to the decree, must not exceed:

- 20 mg/m³ for a mass flow greater than or equal to 0.1 kg/h - class 1 substances -
- 100 mg/m³ for a mass flow greater than or equal to 2 kg/substances of class 2-
- 150 mg/m³ for a mass flow greater than or equal to 3 kg/h - class 3 substances -

For organic substances of classes 2 and 3 in the form of particles, the dust limit values are applied. For carbon monoxide and carbon dioxide, the limit values are set, if necessary, by joint decrees as provided for in art. 5 of the Decree.

The Decree specifies that if the gaseous effluents contain substances belonging to the same class, the limit value applies to all of these substances. And if these effluents contain substances belonging to class 1 and 2, and if the mass flow rate of all the substances is greater than or equal to 3 kg/h, the limit value must not exceed 150 mg/m³. However, for emissions of substances likely to have carcinogenic effects, the emission limit values for class 1 substances are applicable.

- **Inorganic substances mainly in the form of dust:(As per BAT80-84)**

The concentration of emissions of these substances, the list of which is set out in table 1 of the appendix to the decree, must not exceed:

- 0.2 mg/m³ for a mass flow greater than or equal to 1g/h - Class 1 substances-
- 1 mg/m³ for a mass flow greater than or equal to 5 g/h -Class 2 substances-
- 5 mg/m³ for a mass flow greater than or equal to 25 g/h - Substances of class 3-

These limit values apply to the total mass of a substance emitted, including the part in the form of gas or vapor contained in the gaseous effluents. If the latter contain several substances of the same class, the limit value applies to all of these substances.

- **Carcinogenic pollutants:**

The concentration of emissions of these substances, the list of which is set out in table 4 of the appendix to the decree, must not exceed the following limits:

- 0.1 mg/ in3 for a mass flow greater than or equal to 0.50 - Class I substances-
- 1 mg/m3 for a mass flow greater than or equal to 5g/h Substances of class 2-
- 5 mg/m3 for a mass flow greater than or equal to 25g/h Substances of class 3-

If the gaseous effluents contain several substances belonging to the same class, the limit value within the meaning of class 2 applies to all of these substances.

- Preventive approach

The Decree recommends according to art.6 that when it comes to substances for which arts.4 and 5 of this Decree do not provide for emission limit values, preventive limit values concerning emissions of these substances are set by joint order of the minister responsible for the environment and the minister concerned. In addition, these values of a preventive nature can be made more restrictive, according to the same formalities of their elaboration, if it turns out that the emissions for which they are established generate negative impacts deemed excessive on human health. and on the environment in general.

- Flexibility

The Decree invests the local authorities with the competence to determine more restrictive limit values when necessary. According to art. 8, the governor may, in consultation with the sectoral provincial services concerned, set by decree sectoral limit values that are more restrictive than those provided for in art. 5 in the following two cases:

- If it turns out that the accumulation of emissions from several neighboring facilities generates negative effects deemed excessive on human health and the environment. In this case, these restrictive values are imposed on the installation(s) with the highest emissions, after identification of the sources of the emissions and their respective share;
- If it turns out that compliance with the values set for a given sector in a given area does not make it possible to mitigate the negative effects of emissions on human health and on the environment in general.
- Finally, the Decree stipulates in its art.15 that in the event of non-compliance with the limit values it has provided for, and with the exception of the cases of serious pollution mentioned in art. 14 of Law No. 13-03, the supervisory authority gives formal notice to the offender to comply with the aforementioned limit values in accordance with the provisions of Article 15 of the said Law. In all cases, the period granted to the offender mentioned in art. 15 shall not exceed six (6) months. This period must be mentioned in the report sent to the competent court.

Decree No. 2-09-286 of December 8, 2009 (BO No. 5806 of January 21, 2010) setting air quality standards and air monitoring procedures

- Air quality standards, alert and public information thresholds and emergency measures:

Article 3: Pursuant to Article 24 paragraph 4 of the aforementioned Law No. 13-03, air quality standards are limit values which must not be exceeded and which set the concentration level of polluting substances in the air for a fixed period.

These standards are drawn up by the government authority responsible for the environment in consultation with the ministerial departments concerned and the public establishments concerned. They are revised according to the same forms of their establishment every ten (10) years and each time the necessities require it.

Article 4: The air polluting substances for which the quality standards are fixed see Table 1 are: sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), suspended particles (MPS), lead in dust (Pb), cadmium in dust (Cd) and ozone (O₃).

The measurement of air pollution indicator parameters is carried out using sampling and analysis methods in accordance with current regulations on standardization.

Article 5: The polluting substances whose limit values are mentioned in the table annexed to this decree are subject to compulsory surveillance in the ambient air. These substances are: carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter (PMS) and ozone (O₃).

However, other polluting substances, other than those mentioned in the previous paragraph, can be monitored in the event of exceeding the values provided for in Table 2.

In this case, the air quality standards relating to these substances are set by joint order of the Minister responsible for the environment and the Minister responsible for health.

- Air quality monitoring networks:

Article 9: An air quality monitoring network is set up in each regional capital agglomeration. This network can be extended or installed in other towns or zones where the level of concentration of one or more polluting substances in the air exceeds or risks exceeding the air quality standards in force.

Article 10: The governmental authority in charge of the environment ensures, in consultation with the governmental authorities, the local authorities and the local communities concerned and in partnership with the public or private organizations interested in the protection of the air, installation of the surveillance networks mentioned in article 9 above.

Article 11: In each region where an air quality monitoring network is installed, a permanent air quality monitoring and surveillance committee is set up. Its mission is to:

- Designate the places and locations for setting up fixed or mobile stations and ensure the proper functioning of these stations;
- Proceed with the collection of data relating to air quality in accordance with the procedures set by the national committee;
- Inform the population on a permanent basis about air quality and on the basis of the air quality index;
- Propose to the national air committee provided for in article 13 below the actions and measures to be taken aimed at improving air quality;
- Propose to local authorities programs to improve air quality at the regional level;
- Assist the governor or the wali concerned for the application of the emergency measures provided for in article 7 above;

- Develop an annual report on air quality in the region.

2.4.6. Law No. 23-12 amending Law No. 28-00 relating to waste management and disposal

Single item

“Article 42: the import of hazardous waste is prohibited”

However, the import of hazardous waste generated by the activities of export free zones created in accordance with Law No. 19-94 may be authorized by “the administration when the applicant:

“- undertakes to carry out or have carried out the treatment” of the said waste with a view to their elimination or their recovery in one of the installations referred to in Article 29.

Has the skills and human and material resources enabling it to manage the import operation according to environmentally sound methods in accordance with the conditions set by regulation.

A single authorization is issued per import operation and per type of hazardous waste.

The above-mentioned import authorization is valid for two months from the date of its issue. In the event of non-completion of the import operation within the said period, the authorization becomes void.

The transit of hazardous waste through the national territory is subject to the authorization of the administration under the conditions and according to the procedures set by regulation.

Decree No. 2.07.253 relating to the classification of waste.

Pursuant to articles 29 and 83 of the aforementioned law, waste is inventoried and classified, according to its nature and origin, in a catalog called “Moroccan Catalog of Waste”.

There are four classes in particular:

- Domestic waste (household or similar waste)
- Special and/or hazardous industrial waste
- Ordinary industrial waste
- Medical and hospital waste

Decree No. 2-14-85 of 28 Rabii I 1436 (January 20, 2015) relating to the management of hazardous waste

FIRST ARTICLE. The purpose of this decree is to establish:

- organizational measures for the management of hazardous waste;
- the procedures for granting, to specialized facilities, authorizations for the treatment of hazardous waste with a view to their elimination or recovery, provided for in Article 29 of Law No. 28-00 referred to above;
- the procedures for granting the authorization to collect and transport hazardous waste referred to in Article 30 of the aforementioned Law No. 28-00, as well as the administrative formalities accompanying the collection and transport operations of this waste;

- the conditions and technical requirements relating to the collection, transport and storage of hazardous waste with a view to their elimination or recovery.

ART. 3. - The provisions of this decree apply to:

- hazardous waste as defined in article 2 of decree no. 2-07-253 referred to above;
- generators, holders, collector-transporters and recipients of hazardous waste;
- facilities for the storage and treatment of hazardous waste with a view to their elimination or recovery, including class 3 controlled landfills as regulated by Decree No. 2-09-284 referred to above;
- to hazardous medical and pharmaceutical waste classified in categories I and 2 provided for in article 3 of decree n° 2-09-139 of 25 Joumada I 1430 (May 21, 2009) relating to the management of medical and pharmaceutical waste, for this concerning the creation of the collection and transport authorization file as well as the authorization to process this waste.

ART. 4. - In accordance with the provisions of Articles 29 and 30 of the aforementioned Law No. 28-00, no one may collect, transport or process hazardous waste with a view to their elimination or recovery if they do not have, as the case may be the authorization for the collection and transport of hazardous waste or the authorization for a specialized installation for the treatment of hazardous waste, issued by the government authority responsible for the environment or the person designated by it for this purpose, in the conditions and according to the procedures provided for by this decree.

Decree No. 2-17-587 of 2 Rabii II 1440 (December 10, 2018) setting the conditions and procedures for the import, export and transit of waste.

The purpose of this decree is to set the conditions and procedures for granting:

- authorizations to import hazardous waste generated by the activities of export free zones;
- authorizations to import non-hazardous waste;
- authorizations for the transit of hazardous waste;
- authorizations for the export of waste.

ART.2. - Authorizations for the import, export and transit of waste mentioned in Articles 42, 43 and 44 of the aforementioned Law No. 28-00 are issued by the government authority responsible for sustainable development or the person delegated by it for this purpose, after consulting the government authorities concerned, depending on the nature, destination and end use of the waste. Such notice must be given within a period not exceeding thirty (30) days from the date of receipt of its request by the said governmental authorities. After this period and in the absence of a response, the requested opinion is deemed to have been given.

ART.3. - The request for authorization to import hazardous waste generated by the activities of the export free zones, provided for in article 42 of the aforementioned law n° 28-00, is filed, against receipt, by the importer or its agent with the service designated for this purpose by the government authority responsible for sustainable development. This receipt contains most of the information contained in the application and bears a registration number indicating its date of filing.

2.4.7. Legislation on noise and odor nuisances

For the exercise of production activities, services, start-up of machinery and equipment, use of alarms and loudspeakers, article 47 of law 11-03 relating to the development of the environment imposes the suppression or the reduction of the noises and sound vibrations likely to cause an annoyance for the neighborhood, to harm the health of the man or to harm the environment in general. These provisions set the permitted sound limit values, the cases and conditions where any vibration or noise is prohibited, as well as the measurement systems and means of control. Similarly, article 48 prohibits the emission of odors which, by their concentration or their nature, are inconvenient and exceed the standards set by regulation.

The decree, at the draft stage, specifying the discharge thresholds has not yet been promulgated.

2.4.8. Legislation on soil protection

The legislator has established a specific legal regime for the defense and restoration of soils. The legal statutes thus established confer on the administration extensive powers for the preservation of the plant cover and its improvement.

Law No. 11-03, for its part, requires prior authorization (Article 17) of any use and development of land for agricultural, industrial, mining, tourist, commercial or urban purposes, as well as archaeological research or research work. exploitation of subsoil resources likely to harm the environment. It enacts specific protection measures in order to fight against desertification, floods, the disappearance of forests, erosion and pollution of the soil and its resources. Said measures may be declared to be of public utility and be imposed on any operator or beneficiary.

Dahir n°1-69-170 of Joumada I 10, 1389 (July 25, 1969) on the defense and restoration of soils, stipulates that:

Art. 6 - In the case where erosion threatens agglomerations, public works or public utility works or agricultural regions, or when development measures are necessary in the whole of an elementary or main watershed, a zone called "perimeter for the defense and restoration of soils of national interest" can be created and delimited by decree issued on the proposal of the Minister of Agriculture and Agrarian Reform after consulting the Minister of the Interior and the Minister of Finance .

Within a soil defense and restoration perimeter, the State may impose the measures and works necessary for the fight against erosion. This work is carried out under the conditions set by this title.

Art. 7 - With a view to the creation of perimeters for the defense and restoration of soils of national interest, the owners and operators are bound to let the agents of the water and forest services freely carry out all the studies, research and experiments necessary for the establishment of the development project.

Art. 8 - An order of the Minister of Agriculture and Agrarian Reform specifies the nature of the works to be carried out automatically by the State, the development measures and the maintenance works which are incumbent on the owners and operators as well as the modalities according to which the route of the herds will be exercised.

2.4.9. Legislation on Energy and Climate Change mitigation

Law No. 42-16 approving the Paris Agreement on climate change

The Paris Climate Agreement aims to improve the implementation of the United Nations Framework Convention on Climate Change, adopted on May 9, 1992 in New York. It also aims to contain the increase in the average temperature of the planet well below 2°C compared to pre-industrial levels and to continue the action taken to limit it to 1.5°C. The Agreement also states that the response to climate change is a common responsibility, but differentiated according to each country's capacities and national context. It establishes a system for monitoring the application of national commitments, which grants flexibility to developing countries in pursuing the efforts made.

Law No. 47-09 on energy efficiency

In a context of almost total energy dependence of the country vis-à-vis foreign countries for its energy needs and significant fluctuations in its price, it has become necessary to apply an ambitious policy of energy efficiency in the framework of the new national strategy in this area. This policy aims to clarify relations between the administration and operators by establishing an institutionalized governance system for energy efficiency, an adequate legislative and regulatory framework and appropriate norms and standards.

Law No. 47-09 of May 9, 2012 relating to energy efficiency aims to improve it in the use of energy sources. It is also a question of avoiding waste, reducing the burden the cost of energy on the national economy and contribute to sustainable development. Its implementation is essentially based on the principles of energy performance, energy efficiency requirements, energy impact studies, mandatory energy audit and technical control.

2.4.10. Organic Law 113-14 on municipalities / Law No. 112-14 relating to prefectures and provinces / Law No. 111-14 on regions:

This text of law translates a new territorial architecture, which places the region at the center of the country's institutional structure, further harmonizes the current Municipal Charter with the provisions of the Constitution, consolidates the place of the provinces and prefectures by separating them from the territorial administration under the State, giving them powers in the areas of development and efficiency.

The role of the region is enshrined in organic law 111-14 relating to the regions, while that of the provinces is specified by law 112-14 relating to prefectures and provinces.

2.4.11. Legislation governing the use of steam equipment on land

DAHIR of July 22, 1953 (9 kaada 1372) regulating the use of steam equipment on land:

It defines the requirements and procedures to be followed for the use, installation and maintenance of steam generators and containers. Boilers and other equipment must undergo regular safety tests. Fees are charged for these tests. The user is responsible for maintaining and cleaning the equipment. Full inspections must be carried out regularly to check the condition of the equipment.

It also sets out a number of measures to be taken to ensure user safety and prevent accidents involving steam-powered appliances:

- ✓ Safe construction and layout: Boilers, heaters, superheaters and vessels must be constructed and arranged in such a way as to ensure that they operate in the safest possible conditions;
- ✓ Protective devices: Equipment must be fitted with protective devices to ensure correct operation and prevent accidents;
- ✓ Regular maintenance: Users are required to keep their equipment in a good state of repair and service, and to carry out any necessary cleaning, repairs and replacements in a timely manner;
- ✓ Regular inspections: Steam-powered equipment and accessories must be subjected to a complete inspection as often as necessary, with a maximum interval of one year between two successive complete inspections. If the appliance is not in use, it must undergo a new complete inspection before being put back into service if the previous one was more than one year old;
- ✓ Regular inspections: Steam units and their accessories must undergo a complete inspection as often as necessary, with a maximum interval of one year between two successive complete inspections. If the appliance is not in use, it must undergo a new complete inspection before being put back into service if the previous one was more than one year old;
- ✓ Inspection by approved bodies: Visits must be carried out by surveyors belonging to an organization approved by the Director of Industrial Production and Mining. They must draw up a detailed report of each visit, mentioning the observations made and the defects found;
- ✓ Control and supervision: Mining engineers and the civil servants or agents under their orders are responsible for supervising steam pressure vessels and ensuring compliance with current regulations;
- ✓ Accident investigation: In the event of an accident or explosion, the competent authorities

may carry out investigations to determine the causes of the accident and take the necessary measures to avoid future incidents.

2.4.12. Legislation governing the use of gas appliances

DAHIR OF JANUARY 12, 1955 REGULATING GAS PRESSURE APPLIANCES

This regulation defines the different categories of gas pressure equipment and sets out the requirements and procedures to be followed for their construction, use, testing and inspection. The regulations aim to ensure safety when handling and using compressed, liquefied or dissolved gases, by setting pressure limits and requiring regular testing.

It also sets out a number of measures to be taken to ensure user safety and prevent accidents involving gas pressure equipment:

- ✓ To ensure safety during the supply and loading of gas pressure appliances, the client is responsible for taking all necessary measures. According to article 9 of the document, the client must ensure that the pressure developed in the appliance does not exceed a limit known as the "maximum working pressure". This limit is set by a decree issued by the Director of Industrial Production and Mining;
- ✓ The client must therefore ensure that the pressure remains below this limit to avoid any risk of overpressure. He must also take into account the specific rules and procedures relating to the supply and loading of equipment, which may vary according to the type of equipment and gas used;
- ✓ It is essential that the project manager is trained and competent to handle and load appliances safely. He or she must also be aware of the potential risks associated with gas pressure, and take all necessary measures to prevent accidents.

Decree of the Director of Industrial Production and Mines of January 14, 1955, establishing certain modalities for the implementation of the decree of January 12, 1955, regulating gas pressure vessels, as amended by Decree No. 436-73 of Rebia I 10, 1393 (April 14, 1973), and modified by Decree No. 484-75 of Rebia I 24, 1395 (April 7, 1975), and Decree No. 181-80 of Safar 18, 1400 (January 7, 1980), supplemented by Decree No. 1184-85 of Rebia I 26, 1406 (December 9, 1985), and modified by Decree No. 941-07 of Rabii II 23 (May 11, 2007).

It sets out the procedures for applying the regulations on gas pressure equipment. It concerns equipment used for the production, storage and processing of compressed, liquefied or dissolved gases. It establishes the identity and service marks that must be affixed to equipment, as well as the requirements for testing and renewal of tests.

Law No. 12-90 relating to town planning and its implementing decree

Article 4 defines the objectives of the Urban Development Master Plan "SDAU", including in particular the determination of:

- Sanitation principles;
- Main wastewater discharge points;
- Places to be used as a deposit for household waste.

Article 47 states that:

- The building permit is refused if the land concerned is not connected to the sanitation and drinking water distribution networks;
- Exemptions may be granted if the methods of sanitation and water supply present the guarantees required for hygiene and wholesomeness, after consulting the competent services in the matter.

Article 59 stipulates that “The general construction regulations set the methods of sanitation and drinking water supply”.

Article 73 stipulates that "The violation of the standards enacted by the town planning and general or municipal building regulations concerning in particular devices relating to hygiene and public sanitation, is punishable by a fine of 5,000 to 50,000 dirhams".

Law 66-12 relating to the control and repression of offenses in matters of town planning and construction

It provides for fines ranging from 2,000 to 20,000 DH for modifications of any kind made to the facade of a building without prior authorization. Sanctions can reach up to 100,000DH for owners operating constructions different from the authorized plans.

General Construction Regulations (RGC) and Thermal Construction Regulations in Morocco (RTCM)

Regulations called "general construction regulations" set:

- The form and conditions for issuing authorizations and all other documents required in application of this law and the legislation relating to subdivisions, groups of dwellings and subdivisions as well as the texts adopted for their application; - the safety rules that the constructions must respect and the conditions to be satisfied in the interest of hygiene, circulation, aesthetics and public convenience;
- Standards of stability and solidity; * area, volume or dimensions and ventilation of the premises; safety devices; * road rights that residents living near public roads can benefit from; * prohibited construction materials and processes * measures intended to prevent fire; * sanitation methods drinking water supply methods; * maintenance obligations for landed properties.

The Thermal Construction Regulations in Morocco (RTCM) set the performance levels for the components of the building envelope according to two approaches: performance and prescriptive. These performance levels depend on the type of building concerned but also on the climatic zoning of the site. The RTCM also defines the minimum energy performance of heating,

ventilation and air conditioning – HVAC systems, thus promoting efficient and high quality equipment.

2.4.13. Labor legislation

Law No. 65-99 relating to the Labor Code

Article 1: The provisions of this law apply to persons bound by an employment contract regardless of its terms of execution, the nature of the remuneration and the method of its payment that it provides and the nature of the business in which it operates, in particular industrial, commercial, craft businesses and agricultural and forestry operations and their dependencies. They also apply to enterprises and establishments of an industrial, commercial or agricultural nature coming under the State and local authorities, to cooperatives, civil societies, unions, associations and groups of any kind.

The provisions of this law also apply to employers exercising a liberal profession, to the service sector and, in general, to persons bound by an employment contract whose activity does not fall within any of those mentioned above.

Article 2: The provisions of this law also apply:

1° to persons who, in a company, are charged by the head of this company or with his approval, to make themselves available to customers, to provide them with various services;

2° to persons entrusted by a single company with making sales of any kind and receiving all orders, when these persons exercise their profession in premises provided by this company in compliance with the conditions and prices imposed by the latter;

3° employees working from home.

Article 3: The following categories of employees remain governed by the provisions of the articles of association which are applicable to them and which cannot in any case include less advantageous guarantees than those provided for in the labor code:

- Employees of companies and public establishments under the State and local authorities;
- Seamen;
- Employees of mining companies;
- Professional journalists;
- Employees of the film industry;
- Janitors of apartment buildings.

The categories mentioned above are subject to the provisions of this law for everything that is not provided for in the statutes that apply to them.

The provisions of this law are also applicable to employees employed by the companies provided for in this article, who are not subject to their statutes.

Are also subject to the provisions of this law, employees of the public sector who are not governed by any legislation.

Article 4: The employment and working conditions of household employees who are linked to the householder by a working relationship are set by a special law. A special law determines the relations between employers and employees and the working conditions in the purely traditional sectors.

Article 6: Is considered as an employee any person who has undertaken to exercise his professional activity under the direction of one or more employers in return for remuneration, whatever its nature and its mode of payment.

Is considered as an employer, any natural or legal person, private or public, who hires the services of one or more natural persons.

Law 06-03 on occupational accidents

Law No. 06-03 amending and supplementing Dahir No. 1-60-223 of Ramadan 12, 1382 (February 6, 1963) amending the form of the Dahir of Hija 25, 1345 (June 25, 1927) relating to compensation for accidents in the work.

Section 1

Article 83 of Dahir No. 1-60-223 of Ramadan 12, 1382 (February 6, 1963) modifying the form of the Dahir of Hija 25 , 1345 (June 25, 1927) as amended and supplemented by Law No. 18- 01 promulgated by Dahir No. 1-02-179 of 12 Jomada I 1423 (July 23, 2002) relating to compensation for work-related accidents is amended as follows:

Article 83 The pension allocated to the victim suffering from a permanent incapacity for work is equal to the annual remuneration, as determined by the provisions of section III of chapter III of title IV of this Dahir, multiplied by the rates of incapacity calculated as follows:

Half of the permanent incapacity for work rate, when this rate is less than or equal to 30%
 15% plus the part that exceeds 30% increased by half for permanent incapacity for work between 30% and 50%;
 45% plus the part that exceeds 50% for permanent incapacity for work greater than 50%.

Section 2

The first paragraph of article 330 of the aforementioned dahir n° 1-60-223 is amended and supplemented as employers subject to the provisions of the dahir laying down law n° 1-72-184 of 15 jomada II 1392 (July 27, 1972) relating to the social security system must take out an insurance contract guaranteeing the indemnities relating to accidents at work provided for by this Dahir.

Law No. 18-12 on workers compensation, promulgated by Dahir No.1-14-190 on december 24,2014 and published in the Official Bulletin No.6328 on January 22,2015.

This new law introduced major changes to the compensation process for victims or their dependents, with the aim of accelerating it and simplifying the procedures for reporting accidents at work.

This law introduced for the first time in Morocco the compulsory conciliation procedure between the insurance company and the victim, the revision of certain indemnities and the adaptation of civil procedure.

Thus, as part of the conciliation procedure, an offer must be presented by the insurer by registered letter with acknowledgment of receipt within 30 days of the filing of the certificate of recovery or death or their receipt. The victim or his heirs are, in turn, required to inform the insurer of their acceptance or refusal within 30 days of receipt of the letter from the insurer. Failure to respond is considered an implied refusal. Said agreement whose indemnities are greater than or equal to those provided for by Law No. 18-12 is deemed final and not subject to appeal.

Furthermore, one of the main changes introduced by Law 18-12 concerns the procedures for reporting an accident at work. Article 14 of the law emphasizes that the victim of an accident at work or his dependents are required to inform the employer or one of his representatives on the day of the accident or within 48 hours maximum except in the case of force majeure.

With regard to the calculation of the compensation, article 105 of the law emphasizes that it is done on the basis of the real annual salary or the SMIG.

Law related to Regulatory framework related to population resettlement in Morocco

Atlantic Free zone is owned by MEDZ , a public limited company under the kingdom of Morocco government for the development of industrial zone Samta Metals& Alloys SA has purchased the required land parcel from MEDZ as per regulatory procedures and registered the land .It is noted that there is no resettlement and rehabilitation during the procurement of land from the MEDZ as this area is free from resettlement and rehabilitation

Conventions of the International Labor Organization ratified by Morocco

The International Labor Organization (ILO) has drawn up international conventions and recommendations that define the minimum standards to be respected in the areas within its jurisdiction: freedom of association, right to organize and collective bargaining abolition of forced labor, equal opportunity and treatment.

The ILO is unique in its tripartite structure: employers and workers participate in the work of its governing bodies on an equal footing with governments.

Morocco has ratified 49 ILO Conventions, including 7 fundamental and 3 priority.

The 7 fundamental conventions are as follows:

Right to Organize and Collective Bargaining Convention (1949) (No. 98)

Forced Labor Convention (1930) (No. 29)

Abolition of Forced Labor Convention (1957) (No. 105)

Minimum Age Convention (No. 138) (1973)

Worst Forms of Child Labor Convention (1999) (No. 182)

Equal Remuneration Convention (1951) (No. 100)

Discrimination (Employment and Occupation) Convention (1958) (No. 111)

The ILO Governing Body has also designated three other conventions as priority instruments, encouraging member states to ratify them because of their importance for the functioning of the international labor standards system:

Labor Inspection Convention (1947) (No. 81)
 Labor Inspection (Agriculture) Convention (1969) (No. 129)
 Employment Policy Convention (1964) (No. 122)
 Moroccan Labour Law of 2003, amended 2011;
 EBRD Environmental and social policy frame work and BAT

2.4.14. Transportation Laws

Law (30-05) on transport of dangerous goods by roads

Law 30-05, promulgated by Dahir 1.11.37 of Joumada II 29, 1432 (June 2, 2011), updates the legislative framework in force to comply with international norms and standards, in particular the European Agreement on Transport International Dangerous Goods by Road (ADR), done in Geneva on September 30, 1957, as published by Dahir 1-96-3 of 18 Rabii II 1424 (June 9, 2003). It aims to manage all the activities of the transport of dangerous goods by defining the specific rules applicable to this activity, such as the conditions of classification, packaging, loading, unloading and filling of these goods as well as their dispatch, in particular signage, labeling, placarding, marking and documents to accompany shipments.

The provisions of this law, which also determines the conditions of use of vehicles, tanks, containers and other machinery, apply to all transport carried out on Moroccan territory on an occasional or regular basis of dangerous goods by road and to any person carrying out this type of transport.

They also concern manufacturers, shippers, handlers, consignees of dangerous goods and users of packaging, tanks, vehicles and containers used for the transport of dangerous goods by road. On the other hand, the text stipulates a special technical inspection for vehicles and all dangerous goods, just as it insists on the obligation of specialized training for drivers.

Are excluded from the scope of this law, in particular the transport by road of dangerous goods carried out under the sole responsibility of the national defense administration, the transport by road of dangerous goods carried out by the emergency response services or under their responsibility and the emergency transport of dangerous goods by road intended to save human life or protect the environment.

With regard to sanctions and penalties, the law provides for penalties of up to two years' imprisonment and fines of up to 100,000 dirhams in the event of an infraction.

Transport Law 16-99

It describes the qualitative standards for the exercise of the profession of road freight carrier.

Law 52-05 on the Highway Code as amended and supplemented by Law No. 116-14

This law describes the obligations of the different categories of the driving license and the conditions for obtaining it...

Among its main novelties is the abolition of the retention of the driving license following a bodily accident unless the perpetrator was, at the time of the accident, in a state of drunkenness or under the influence of narcotic substances, or has committed the hit-and-run. This law also provides for the addition of new offenses to the point deduction table.

2.4 World Bank Guidelines

In 1987, the World Bank set up the bases of the priority areas of intervention in terms of the environment:

1. The obligation to systematically incorporate environmental concerns into each of the projects for which it finances;
2. The development within it of a so-called environment function

These two priorities relate to these areas of intervention:

- Soil degradation (deforestation, pesticide management);
- The disappearance of certain habitats (loss of biological diversity);
- The depletion of urban and industrial resources;
- Global environmental problems (transboundary pollution).

The integration of these environmental considerations is manifested by the integration of the environment into the field of lending activities. Thus, the World Bank takes environmental dimensions into account throughout the cycle of a project: identification, preparation, evaluation, negotiation, implementation, monitoring and follow-up. In this context, EIAs are required at the level of feasibility studies for any project, as well as recommendations for optimization, protection and mitigation.

EIA became a standard procedure of the World Bank in 1989, when the " Operational Directive (00) 4.00: Environmental Assessment", amended in 1991 (00 4.01). This directive, relating to environmental assessment, was converted in 1999 into two forms: Operational Policies (OP 4.01) and Bank Procedures (BP 4.01).

In 1991, all the information relating to the World Bank's environmental assessment was recorded in a volume entitled " Environmental Assessment Source book", which consists of three reference volumes designed to facilitate the application of the procedure. This manual has been periodically revised since 1993 to take account of new developments in the field.

Screening consists of determining the category of the project, in order to decide on the type of environmental assessment that must be carried out. Directive 004.01 distinguishes three categories of projects:

Category A: A full environmental impact assessment is required for these projects, as they may cause significant environmental impacts;

Category B: A smaller impact study is requested, because the impacts of the project are less significant than those of category A.

Category C: No environmental impact study is required.

The project that is the subject of this study falls within the scope of category B.

Based on the screening, the terms of reference (guideline) for the impact study are prepared.

Thus, the report of a complete environmental impact study must include the following elements:

- An executive summary;

- The context, legal and regulatory;
- The description of the project;
- Description of the receiving environment;
- Environmental impact assessment;
- The analysis of alternatives;
- The mitigation measures plan;
- Environmental management and training;
- The environmental monitoring plan;
- Appendices: List of study authors, bibliography and report of public consultations.

Public consultation must take place during the preliminary examination of the project, during and after the completion of the impact study, as well as during the implementation of the project. Public consultation of the draft impact study report is one of the most important steps in the process.

It should also be noted that the World Bank has established guidelines for noise emission limits in industrial, residential and tourist areas (See Table 2 p 32).

2.5 Specific texts related to AFZ

Specifications of the industrial platform of Kenitra (AFZ)

The Atlantic Free Zone (AFZ) is an industrial free zone located in Kenitra, Morocco. Its purpose is to stimulate the economic development of the region and to attract foreign investment.

The AFZ offers significant tax and customs advantages for companies established in the area. Companies benefit from an exemption from VAT and customs duties on imports of raw materials and capital goods, as well as an exemption from corporation tax for the first five years of activity.

Knowing that the Samta Mines & Minerals Group project will be installed at the AFZ, its specifications are subject to technical architectural and urban planning requirements. The provisions constitute the common law of the constructions and equipment of the zone. They are mandatory for all investors or tenants of lots in the P2I of AFZ and must be included in all sales or lease contracts.

The prerogatives of AFZ and the rules governing its relations with investors established in the P2I are defined in internal regulations.

In particular, Article 16 (Stocks of dangerous or unhealthy liquids) of the said specifications stipulates that:

The investor must provide the necessary devices to avoid any risk of infiltration and contamination of the soil by polluting materials;

Industrial effluents must be pre-treated before being discharged into the P2I network so as not to harm the sewer network or the proper functioning of the treatment plant. They must in any case fulfill the conditions provided for by the health regulations and the clauses of the

specifications;

In the case of discharges likely to present significant risks of pollution, the investor will be asked to provide separate networks for domestic water and industrial wastewater;

The spillage of any solid, liquid (such as fuel, acids, etc.) or gaseous matter, likely to be the direct or indirect cause of accidents for the operating and maintenance personnel of the evacuation or treatment works, degradation of the structures, or interference in their operation, is strictly prohibited;

Each manufacturer must set up its own pre-treatment system for its discharges in order to reduce them to the admissible thresholds for discharge into the public network.

Decree No. 2-09-442 of Moharrem 4, 1431 (December 21, 2009) establishing the Kenitra export free zone and EBRD Environmental and social policy framework and BAT

Section 1

It created a free export zone in the province of Kenitra, called the free export zone of Kenitra.

Section 2

The Kenitra export free zone is built on collective land C53 in Ouled Bourahma with an overall area of 344 ha 20 to 29 ca, bounded to the north by the railway linking Kenitra to Sidi Yahya El Gharb, to the east by agricultural land, to the west by an industrial company and to the south by national road No. 4 linking Kenitra to Sidi Yahya El Gharb.

Section 3

The activities of companies that can set up in the free zone of Kenitra are as follows:

- Agro-industry;
- Textile and leather industries;
- The metallurgical, mechanical, electrical and electronic industries including the automotive industry;
- The chemical and paracheimical industries ;
- Services related to the activities referred to above.

2.6 Selected limits for the project

2.6.1. Atmospheric emissions

The treatment of fumes or other gaseous emanations is compulsory. Atmospheric emissions will be ensured by using, if necessary, all advanced physical, chemical or other purification techniques.

The limit values for clearance, emission or discharge of pollutants into the air are those defined in decree no. 2-09-631.

2.6.2. Liquid discharges

According to AFZ specifications, industrial wastewater must imperatively comply with the following limits before being discharged into its sewage network:

Be neutralized at a pH between 5.5 and 8.5 exceptionally, when neutralization is done using

lime, it may be between 5.5 and 9.5.

Be brought to a temperature less than or equal to 30°C.

Does not contain hydroxylated cyclic compounds or halogenated derivatives.

Be cleared of floating, depositable materials that may directly or indirectly, after mixing with other effluents, hinder the proper functioning of sanitation facilities or the development of gases that are harmful or inconvenient for work. sewer workers.

Do not contain substances capable of causing the destruction of bacterial life in wastewater treatment plants or the destruction of aquatic life in all its forms downstream of the discharge points of public collectors, in rivers, streams water, lakes or canals.

The future plant must present a structure for taking samples of the effluent in order to verify its characteristics and measure its flow. To this end, a manhole will be executed at its limit to allow control samples to be taken there.

Table 1 Liquid discharge limits set by the P2I PAC

Setting	Limit
pH _	Between 5.5 and 8.5 Between 5.5 and 9.5 if using lime
Temperature	<30°C
Cyclic compounds Halogen derivatives	None
MY	<600mg/l
BOD5	<500mg/l
Nitrogen	<150 mg/l expressed as total nitrogen <200 mg/l expressed in Ammonium
Substance harmful to bacterial life in the WWTP or to aquatic life	None
Equitox	Compliant with AFNOR T.90.001 standard

2.6.3. Noise

The noise emission limits recommended by the World Bank were retained for the project in the absence of Moroccan standards. (Table below):

Table 2: Limits adopted for noise emissions

Receiver	Maximum permitted noise level (Hourly measurements in dB(A))	
	Day (07h00-22h00)	Night (10:00 p.m.-07:00 a.m.)
Residential, institutional, school educational	55	45
industrial, commercial	70	70

If the existing background noise already exceeds the limits recommended by the World Bank, the increase caused by the project should not exceed 3 dB (A).

In addition, the specifications require that the noise level produced during the day does not exceed **50** dB(A) (measured in line with the facade of the offices closest to the site). It should be noted that this value is more restrictive than that recommended by the World Bank, which is 70 dB.

2.7 International environmental conventions

Environmental protection is not a purely national matter. It most often goes beyond the scope of action of individual States.

Thus, the environment, more than other areas, presents itself as a privileged field of international cooperation. This is all the more true as pollution problems do not respect state borders. This interdependence means that national legislations can prove to be limited if they are not supplemented and supported by international or regional legal instruments.

However, adherence to a convention is not an end in itself. It is only the first act, which initiates the process leading to the introduction of an international standard in the national legal arsenal. In addition, its implementation on the ground often requires the establishment of institutional and administrative measures, budgetary resources, technical standards, monitoring and control bodies, etc.

For its part, Morocco displays a firm political will for cooperation with a view to protecting and managing the environment as well as possible and actively participates in the work of codifying international environmental law. This desire is manifested in this area by the signing and ratification of several international conventions.

Indeed, Morocco has been involved for more than twenty years in the international effort to safeguard nature, the environment and sustainable development and adheres to various international conventions including, in particular:

- Conventions aimed at protecting the marine environment
- Conventions concerning the protection of the terrestrial environment
- Conventions focused on protecting the planetary climate

2.8 Conclusion

In conclusion, the Moroccan environmental legal framework is demanding. The laws and regulations in force aim to protect the environment and public health by strictly regulating the emissions of gases, liquids and solid discharges from industrial activities. Compliance with environmental standards and emissions limits has become a prerequisite for obtaining the necessary authorizations and permits for industrial projects. The environmental and social impact assessment is an essential tool for assessing the potential environmental and social effects of industrial projects and proposing appropriate mitigation measures. The implementation of these measures contributes to minimizing the negative impacts of the project on the environment and

to improving its environmental performance. In summary, adhering to environmental laws and regulations is a major prerequisite for realizing industrial projects in Morocco, which must be in line with sustainable development principles.

3.1 Site location

The P2I site in Kenitra is bordered to the south by National Road No. 4, connecting Kenitra to Sidi Yahya du Gharb, while its northern part is adjacent to the railway track.

Figure 1 below shows the Google image of the geographical location of the P2I in Kenitra.



Figure 1 *Geographical location of the Kenitra P2I (Google Earth image)*

3.2 Accessibility to the site

According to the development plan of the Kenitra industrial zone, the site is accessible from the west, along National Road No. 4 connecting Kenitra to Sidi Yahya du Gharb.

The following figure shows the geographical location of the Kenitra Industrial Zone and the project site on the topographic map.

Atlantic Free zone is owned by MEDZ , a public limited company under the kingdom of Morocco government for the development of industrial zone Samta Metals& Alloys SA has purchased the required land parcel from MEDZ as per regulatory procedures and registered the land .It is noted that there is no resettlement and rehabilitation during the procurement of land from the MEDZ as this area is free from resettlement and rehabilitation



3.4 Project land base

According to the numbering provided by the Atlantic Free Zone (AFZ) industrial platform, the project will be located on plots ranging from No. 7 to No. 120, with a total area of 30,235 m².

The approximate Lambert coordinates of the center of the project site are:

Registration number	X	Y
B 970	408033.38	411736.32
B 331	408328.07	411784.41
B 334	408354.27	411711.61
B 338	408293.05	411701.65
B 337	408299.14	411664.20
B985	408051.62	411624.02

3.5 Project scope

The Samta Mines & Minerals intends to invest in a project for recycling and producing copper metal and aluminum alloys. The project aims to manufacture copper cathodes and aluminum ingots using metal residues and waste as raw materials.

The quantities of raw materials and finished products expected are presented in the table below:

	Raw materials(tons)	Finished products(tons)
Copper	19 200	15 039 (copper bars)
Aluminum	22 000	21 720 (aluminum alloys)

3.6 Plant Composition:

The aluminum alloy production workshop includes several components;

- Temporary storage area for raw materials;
- Crushing and sorting area;
- Aluminum slag processing area;
- Melting and casting area;
- Temporary storage area for aluminum ingots;
- Storage area for hazardous waste;
- Control room and electrical distribution area;
- Machine repair room;
- Material warehouse;

The copper cathode production workshop comprises several components;

- Melting area;
- Pyrometallurgical refining area;
- Electrolytic refining area;
- Electrolysis purification area
-

3.7 Description of the manufacturing processes:

The copper metal and aluminum alloy production lines consist of several stages which will be detailed below:

3.7.1. Description of the copper production process:

Samta Metals & Alloys plans to establish a copper recycling and smelting project, with an annual output of 15,000 tons of recycled copper cathode rods/cables. The project will utilize various recycled copper materials, such as waste, alloys, and cables, to produce copper cathodes, as well as by-products like crude nickel sulfate and copper anode slimes. The smelting process includes steps of arc furnace melting and electrolytic refining, and the project also incorporates pyrometallurgical, hydrometallurgical, and dust collection systems to ensure environmental protection. The annual production capacity includes the fusion of copper waste, refining, production of anode copper, and production of copper cathode.

The reclaimed copper project has an annual capacity to smelt 7,200 tons of copper waste per arc furnace.

The material balance for the copper die is shown in the table below:

Section	Input		Output	
	Component	Quantity (t)	Component	Quantity (t)
Scarp pre-treatment	Mixed Scraps containing copper metal	19 200	Sorted and crushed residues	15 264
			Impurities (Iron-plastic, black copper)	3 936
Pyro smelting, refining, anode casting, electrorefining, copper rod	Sorted and crushed residues	15 264	Copper bar	15 039
			Slag of BF	11.49
			Dust of BF	19.16
			Anode Slime	34.72
			Dust of tilting	21.3
			Loss	137.98
Section	Input		Output	
	Component	Quantity m3/year	Component	Quantity m3/year
Flue gas treatment	Flue gas blast furnace	16 318	Flue gas	17 938
	Flue gas tilting furnace	27 561 217	Flue gas	36 057 393

The flowsheet of the process is presented in Annex 1 of this report. All the outputs of the copper process are highlighted in red on the flowsheet in the appendix of this report.

1. Blast furnace smelting:

The copper waste smelting process utilizes a blast furnace. The characteristics of this process include a low amount of slag, maintaining a reducing atmosphere for zinc volatilization, high temperatures to promote combustion, and the need for an efficient system for residual heat recovery and dust collection. The primary objective of blast furnace smelting is to maximize the transformation of copper, tin, and nickel metals into black copper while vaporizing zinc into dust.

2. Treatment technology of smelting dust

This technology aims to treat the dust generated during the recycling copper smelting process. The high-temperature dust is collected and cooled using a residual heat recovery exchanger. It is then subjected to filtration through a battery of bag filters, followed by wet alkaline washing to remove particles and undesirable substances. The gas treatment system is designed to comply with the emission thresholds of the current environmental regulations. Residues from the smelting process, such as slag, will be sold as by-product.

3. Pyrometallurgical refining process of crude copper

The process of pyrometallurgical refining of crude copper involves melting the materials, their oxidation and reduction, and the casting of copper anodes. The objective is to maximize the recovery of copper metal, volatilize zinc and lead, and remove impurities. The process utilizes a tilting melting furnace and chemical reactions to achieve the required quality levels for the electrolytic refining stage.

4. Electrolytic refining process

The purpose of the electrolytic refining process is to remove the impurities present in the raw copper obtained by pyrometallurgy. It uses copper electrode plates as the anode and thin sheets of pure copper as the cathode, with a solution of sulfuric acid and copper sulfate as the electrolyte. Electrolysis dissolves unwanted metals from the anode and precipitates pure copper on the cathode. The copper deposited on the cathode is called cathode copper or electrolytic copper, the purity of which is greater than 99.95%. The process involves chemical reactions and requires regular electrolyte scrubbing and collection of anode sludge.

5. Manufacturing process of copper bars using upward drawing method

The copper bar manufacturing process uses the upward extrusion method with a melting furnace, an insulation furnace, a upward extrusion machine and a wire winding machine. The copper is melted and then poured into the insulation furnace where it solidifies into bars. The extrusion speed is controlled and the bars are then wound into coils for sale

The process of manufacturing copper bars uses the upward extrusion method with a melting furnace, an insulation furnace, an upward extrusion machine, and a wire winding machine. Copper is melted and then poured into the insulation furnace where it solidifies into bars. The extrusion speed is controlled, and the bars are subsequently wound into coils for sale.

6. Manufacturing process of starting plate

Pure copper starting electrode plates are used in the electrolysis process. They are made by leveling, cutting, stamping, shaping, riveting and arranging the copper plates. The raw material comes from the cathode copper smelting and casting process.

7. Electrolyte purification cycle process:

Electrolyte purification is carried out to remove impurities accumulated during the copper electrolysis. A two-stage process is used to first recover copper and then remove impurities such as arsenic and antimony. The solution is then crystallized to produce crude nickel sulfate. Gas purification and pH control measures are also implemented.

The concentration purge is recycled for nickel sulfate production.

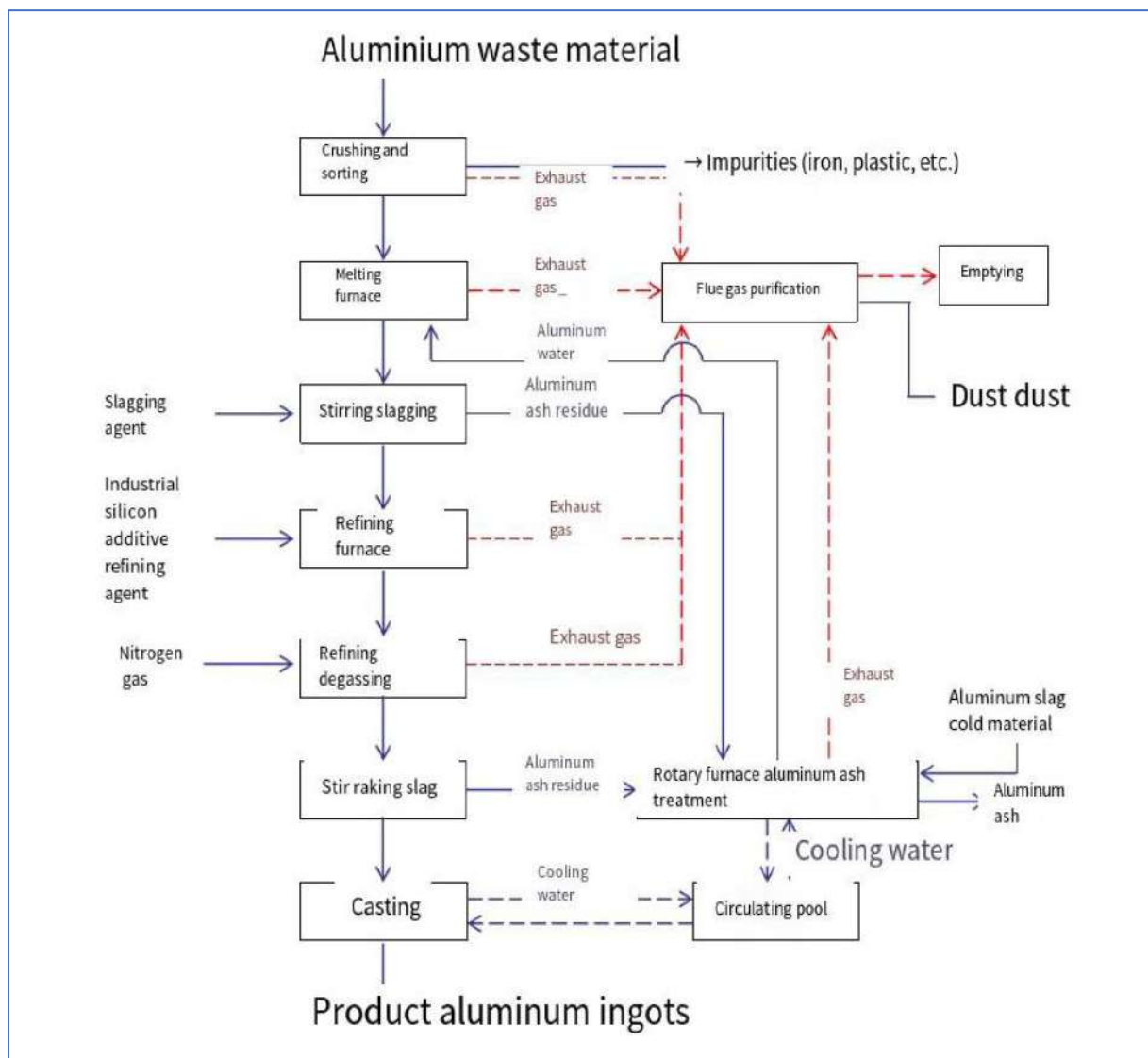
The quantity of nickel sulfate produced is 3190 tons per year, which is intended for the market for sale.

⇒ The steam boiler/water purifier: The project is equipped with a gas steam generator that produces 2 t/h at a pressure of 0.7 MPa and a saturation temperature of 170 °C. Softened water is used for steam production, as the system includes a boiler with water softened by ion exchange on resins. The water requirement for softening is 3 m³/hour, of which 2 m³/hour is used to feed the boiler, and the rest is stored for consumption. The generated steam is used to heat the electrolyte in the electrolysis workshop.

3.7.2. Description of the aluminum production process:

This process concerns the recycling of aluminum scrap from a furnace. Quality requirements stipulate that the waste must be clean, free from organic impurities and attachments, and must

not contain heavy metals such as lead, mercury, chromium, cadmium and arsenic. Aluminum scrap containing these heavy metals must be returned for treatment to minimize pollution. Qualified aluminum scrap is stored and then subjected to crushing processes and magnetic and eddy current sorting to separate non-metallic elements and impurities. The main material obtained is non-ferrous aluminum, which is then subjected to X-ray sorting to remove the remaining heavy metals and airflow separation to remove the films. The pure aluminum material thus obtained is transferred to the corresponding storage areas. According to specifications, suitable filter materials are weighed in each storage area. After melting the slag, the molten aluminum is transferred to an insulation furnace. A sample is taken for preliminary chemical analysis of the alloy, and auxiliary materials such as silicon, magnesium and copper are added to adjust the composition. The bottom of the insulation furnace is equipped with an electromagnetic stirring device to maintain the purity and homogeneity of the molten alloy.



Organigram of the recycled aluminum production process

The production of aluminum alloys from metal residues is done through several steps:

1. Grinding and sorting
2. melting furnace
3. Slagging by agitation
4. Insulation oven
5. Refining/degassing
6. restless slag
7. Foundry

- The raw materials are analyzed and sorted after spectral verification. They will be crushed and magnetically separated to obtain clean raw materials.
- The production process includes the melting and isolation furnace, where liquid aluminum is processed and the alloy composition is adjusted. Aluminum ashes produced during melting are treated to improve aluminum recovery. Residual gases are directed to the dust removal system for treatment.
- Molten aluminum is transferred to a refining furnace where alloying elements and refining agents are added to improve its composition.
- Samples are taken for quick chemical analysis to adjust the composition of the molten aluminum.
- Recovered aluminum slag is treated in a rotary furnace to recover aluminum. Other waste is processed and temporarily stored.
- The ingot casting machine is used to shape the liquid aluminum into ingots.

1. Crushing line:

Aluminum materials are sorted before being melted through a crushing and sorting process. The materials to be sorted are first crushed, and then iron and zinc are removed by the magnetic separation line to obtain clean products. The sorted materials are then divided into three size classes: less than 10mm, 10-80mm, and more than 80mm. Components larger than 80mm return to the crusher for size reduction. Materials less than 10mm are further divided into two parts: 0-3mm and 3-10mm. The fines (0-3mm) are separated using the electrostatic route to extract excavated ashes and aluminum powder. Materials from 3 to 10mm and 10 to 80mm are sorted respectively by the secondary magnetic separation and the eddy current machine. The sorted materials are mainly non-ferrous aluminum-based metals of 10 to 80mm, which are then sent to the X-ray sorting process to remove heavy metals and aluminum/stainless steel nails. The materials are then sent to an air separator to remove filmed materials, to obtain pure aluminum for melting

- ⇒ The detection limits of the spectrometers in this project are: Cr 0.1%, Pb 0.2%, Hg 0.1%, Cd 0.1%.
- ⇒ The processing capacity of this line of 8 tons/hour.

The hydraulic power plant includes an electric oil pump of type L-HM46, a 600-liter oil tank, hydraulic valves, a valve block, and a filter. It provides hydraulic power and controls for each hydraulic cylinder, with a system pressure of 20 MPa.

2. Furnace group: combustion and smoke exhaust system

This installation includes a lower regenerative burner, a natural gas supply, a combustion support, a smoke extraction device, ignition cooling, a temperature measurement system, and pneumatic equipment. It ensures efficient combustion, precise control, and optimized production management.

3. In-line degassing diagram:

This part concerns refining equipment for the in-line treatment of molten aluminum. The single-rotor in-line degassing device of box type is used to remove hydrogen and fine slag from the molten metal. The degassing box is sealed to prevent slag presence on the surface of the liquid aluminum.

4. Ingot casting machine

The process involves pouring liquid aluminum alloy into an ingot casting machine distributor. The distributor evenly distributes the alloy in an ingot casting mold and cools them by spraying water until they solidify. a pneumatic device then allows the cooled ingot to be detached from the mould.

5. Aluminum slag treatment system

- ⇒ The equipment for aluminum slag treatment includes an HZL-8T rotary converter and an LHT-1900-17M cooling machine. The rotary converter is used for mass slag treatment, enabling efficient recovery of metallic aluminum. The process involves using a rotary forklift to feed the converter, where the mixture is agitated to control the temperature and separate metallic aluminum from the ash. There is a slag cooling device after treatment.
- ⇒ The process includes treating the ash in a rotary converter, followed by cooling in a water-sprayed pit. The ash is then crushed and separated into metallic aluminum particles. The fines are reintroduced into the converter, while the coarser particles can be re-ground or processed separately. A magnetic separator may be used to remove iron if necessary. This ensures efficient aluminum recovery and proper cooling of the slag.

6. Description of the dust removal system:

The combustion fumes from the melting furnace, exhaust gases from the regenerative burner fan, and ash roasting equipment are collected by dust capture hoods. Under the negative pressure of the main fan, the dust removal pipelines are combined into a main duct and directed to the gravity settling chamber for pre-treatment, then to the bag filter for efficient dust removal. In the discharge chimney, the gases pass through the alkali spraying tower for neutralization treatment of sulfides, chlorides, and fluorides. The quality of the purified gas obtained with this treatment considers extreme conditions such as the simultaneous operation of multiple furnaces and equipment.

- ⇒ The purified gas is discharged through the chimney at a height 30/30 meters above the ground.
- ⇒ The alkali spraying tower is used because the melting furnace will produce sulfur chloride and harmful acidic gases that can only be captured by the bag filters, allowing acidic gases to pass through. To ensure emissions of combustion gases comply with standards, an alkali spraying tower must be installed downstream of the bag filter.

Flue gas purification units:

The exhaust gases at the manufacturing stations (crusherr, melting furnace, refining furnace, rotary furnace) are directed to the flue gas purification unit, where the emissions contain certain pollutants.

- Nitrogen oxides (NO_x);
- Chlorides;
- Fluorides;
- Dust particles

Types of aluminum alloys produced

The plant will produce silica aluminum alloys (20,000 tons per year) of the following types: A356, 4032, 4043, 4047 and 4543 types. Each alloy has a specific chemical composition for particular applications such as car wheels, forged parts, coatings and architectural extrusions.

Material balance:

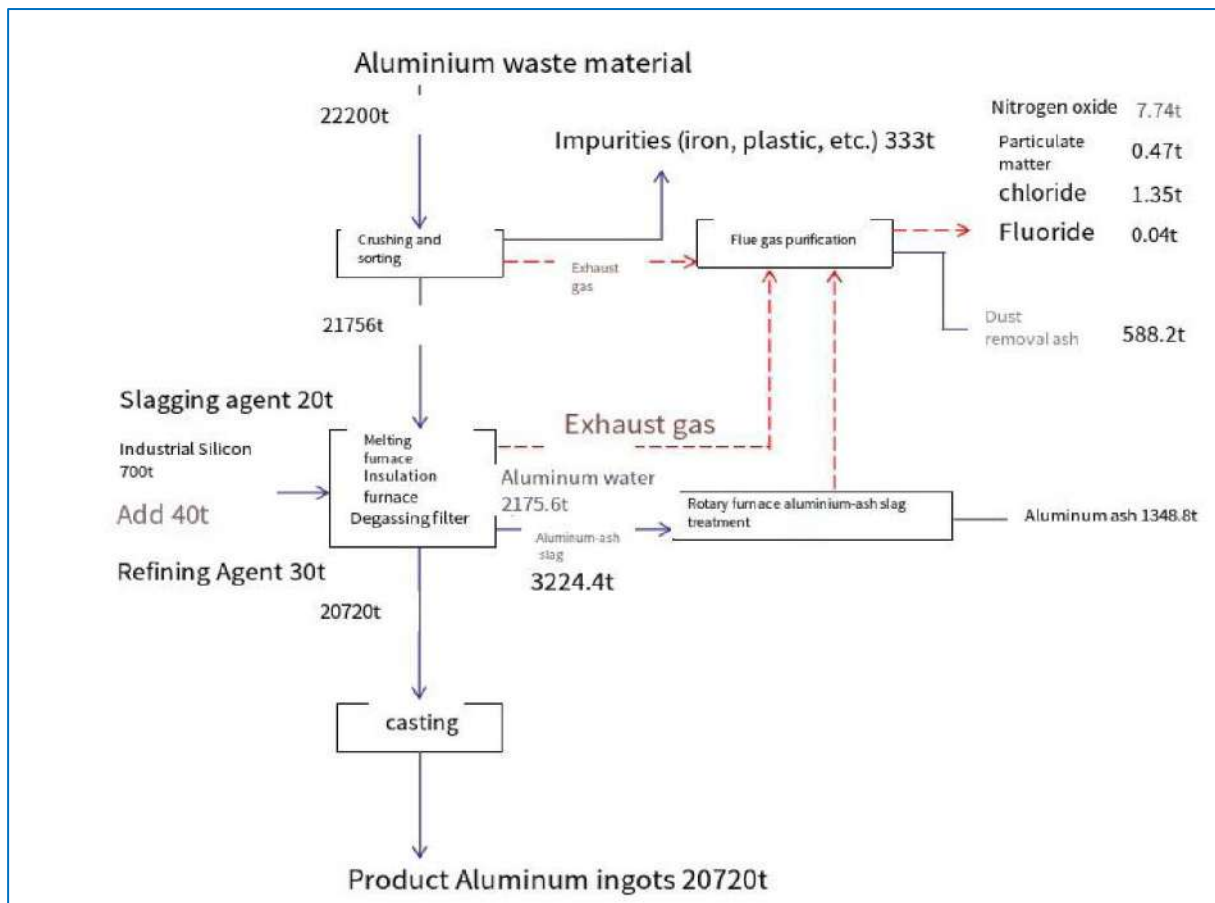


Figure 6: Material balance diagram for the aluminum project

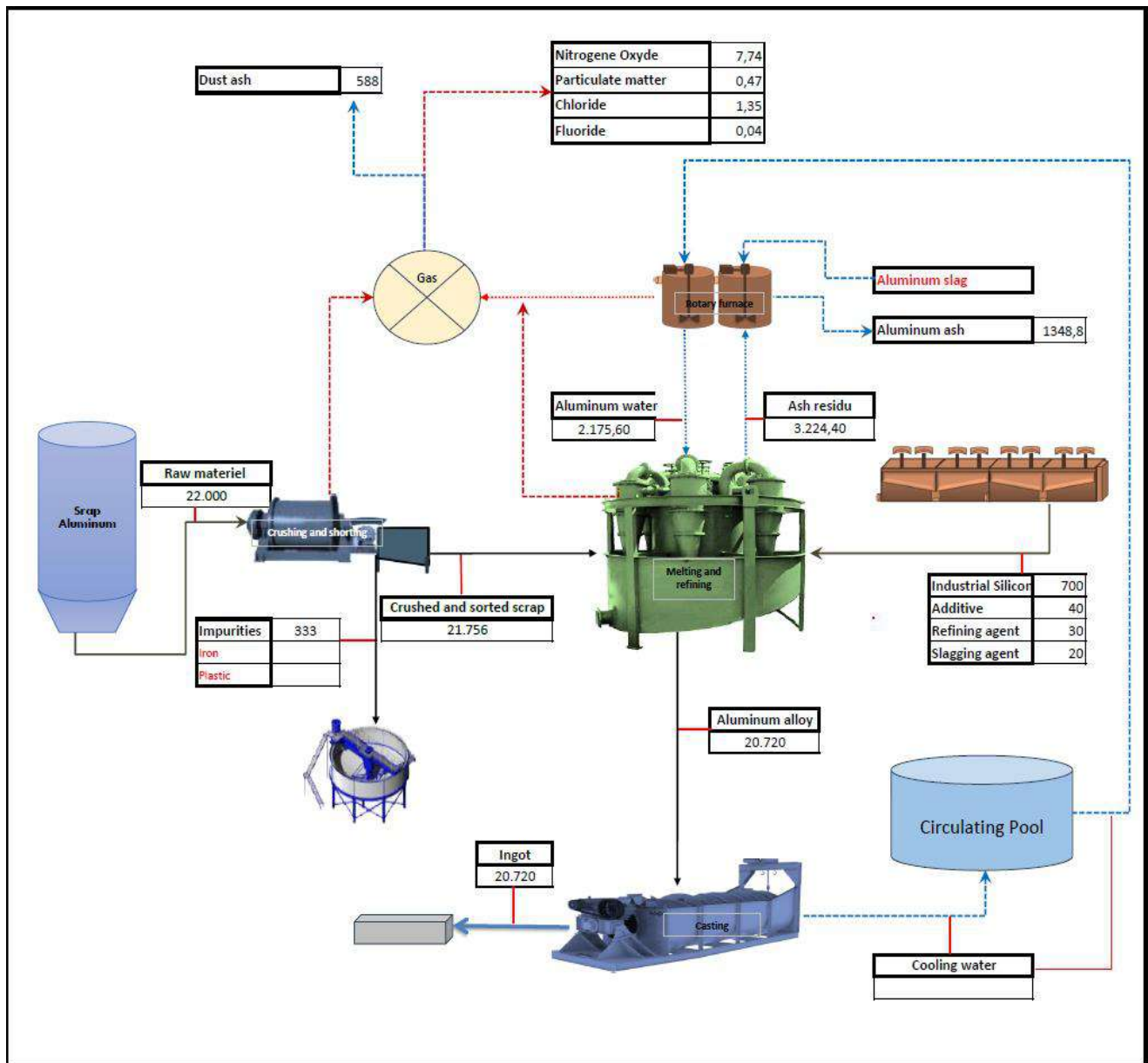


Figure 7: process diagram of the aluminum project

3.8 Sources of raw materials

The following table shows the various sources of recycled residues:

Aluminium	Copper
Di Castal (Industrial zone AFZ of Kénitra-)	CofiCab (Industrial zone -AFZ of Kénitra)
Canpack (Nouaceur industrial park)	
Wholesale operators for the collection and recovery of scrap metal	

3.9 Project requirements:

The project's requirements in terms of energy, water, steam and natural gas are shown in the table below:

	Project requirements				
	Area (m ²)	Electrical power (KVA)	Water (m ³ /jr)	Steam (MT/jr)	Naturel gas (Nm ³ /h)
Copper production		2 200		15	200
Aluminum production		1 800			300
Total	30 235	4 000	470	15	500

Table3: Project water and energy requirements

An estimated 30 m³/day for domestic use, including floor and equipment cleaning.

3.10. Utilities requirement for the Project:

Utility	Source Agency	Annual Requirement
Make up water	ONEE via MedZ infrastructure	141,000 m ³
Electrical energy	ONEE (from renewable energy suppliers)	22,000,000 kW
Natural gas	SDX / Afrigas / Vivo (to be finalized)	2,040 tonne
Nitrogen	Samta	25,000 m ³
Compressed air	Samta	7,776,000 m ³

3.11. Other Consumables requirement:

Al Processing		Cu Processing	
Consumable	Annual Quantity	Consumable	Annual Quantity
Industrial silicon	700 tonne	Coke	1,804 tonne
Magnesium metal	40 tonne	Flux	1,260 tonne
Slagging agent	20 tonne	Refractory Materials	30 tonne
Refining agent	30 tonne	Sulphuric acid	17.25 tonne

Al Processing		Cu Processing	
Consumable	Annual Quantity	Consumable	Annual Quantity
Sodium hydroxide	25 tonne	Gelatin	2.25 tonne
Hydraulic oil	115 litres	Thiourea	0.75 tonne
		Casein	0.24 tonne
		Charcoal	40 tonne
		Hydrochloric acid	750 litres
		Natural Flake Graphite	7.5 tonne

3.10 Project requirements:

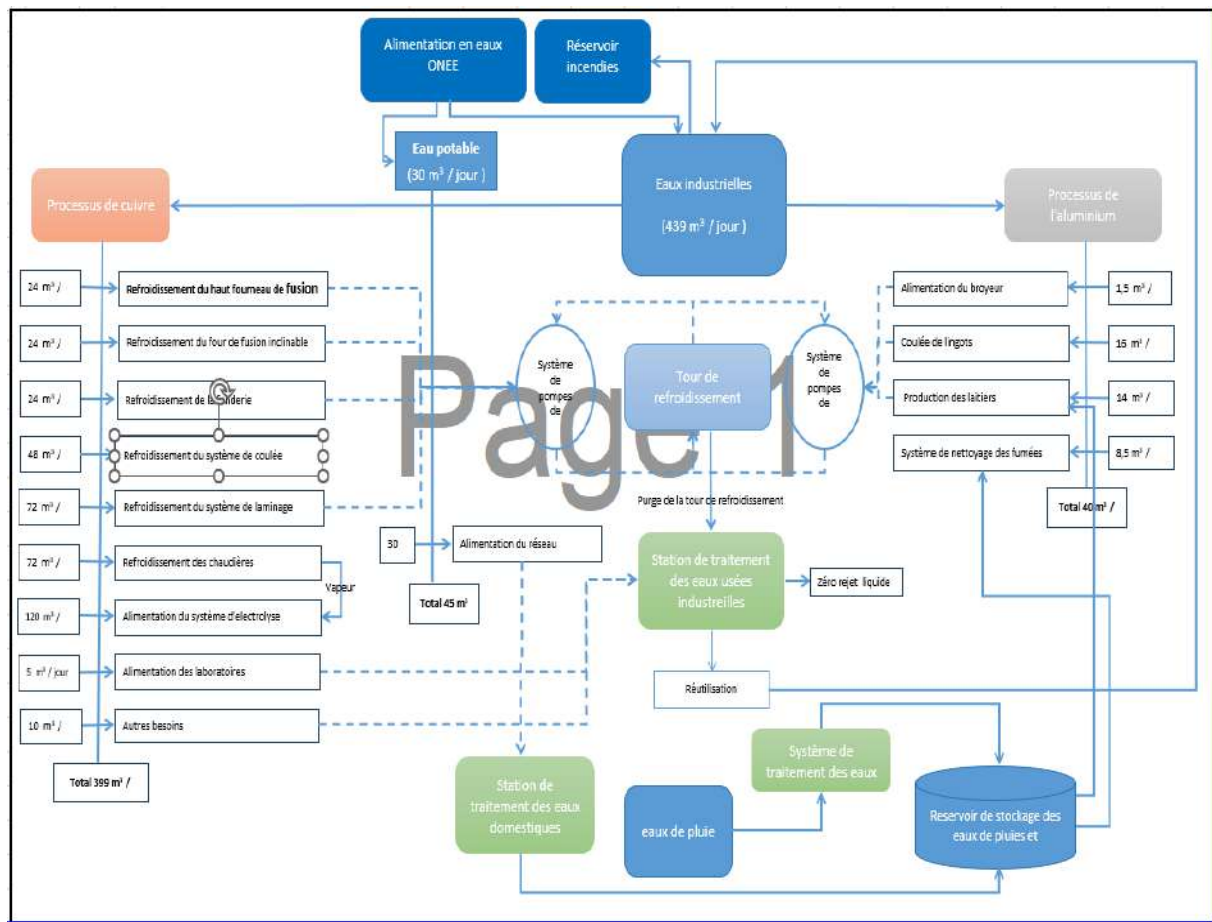
The construction of industrial units for the production of copper cathodes and aluminum alloys will require an overall investment of 500 MDH.

3.11 Wastewater management:

The overall effluent flow discharged by the plant is estimated at 24 m³/d. This consists solely of domestic wastewater, since the industrial processes adopted are of the zero-discharge type: the in-house wastewater treatment plant enables total recycling of treated effluent back into the process.

Domestic wastewater will be directed to the wastewater treatment plant (STEP) of the AFZ for purification before being discharged into the natural environment, which is the Oued Sebou.

⇒ **Zero discharge circuit:**



Domestic wastewater will undergo physico-chemical treatment at the treatment plant, and subsequently, it will be recycled into the system, as illustrated in the diagram above.

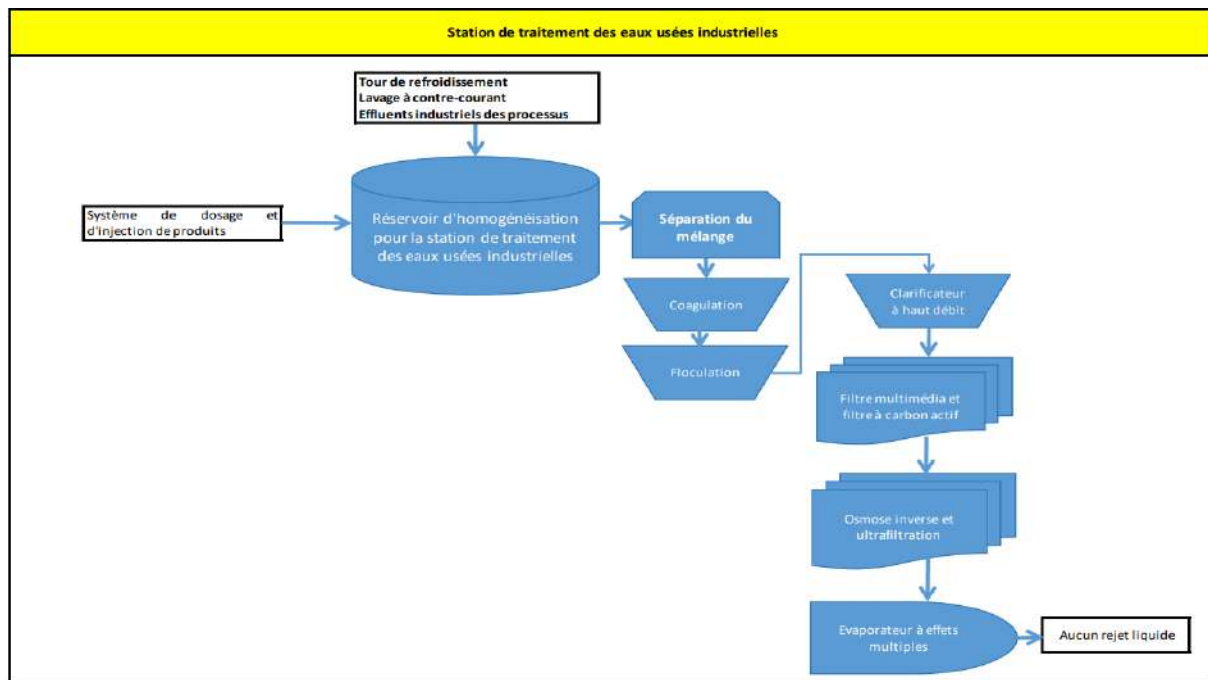
Industrial Wastewater:

In order to minimize water consumption and achieve zero liquid discharge, process effluents, including purges from cooling towers and filter washing, as well as domestic wastewater, will undergo an advanced treatment for thorough purification, enabling their recycling and reuse as a supplement to industrial water supplied by the ONEE network. The effluents first pass through a homogenization basin before undergoing a physico-chemical treatment (coagulation-flocculation clarification), supplemented by filtration, ultrafiltration, and finally reverse osmosis to eliminate salts.

The process begins with coagulation followed by flocculation, then high-flow solid-contact clarification. The clarified effluent will be directed to a multimedia filter and then an activated carbon filter. It will then undergo ultrafiltration followed by reverse osmosis. The obtained permeate will be reused and recycled. The rejects from reverse osmosis will undergo further treatment by a multiple-effect evaporator, aiming to ultimately eliminate all liquid effluent. Overall, the installation achieves zero liquid discharge.

This evaporator is an automated system based on mechanical vapor compression with a vibrating bowl centrifuge. The high-purity distillate serves as makeup water in the process. Evaporation treats the reject from the reverse osmosis unit and meets the water evaporation needs. The effluent is collected in tanks and preheated before being directed to the centrifuge.

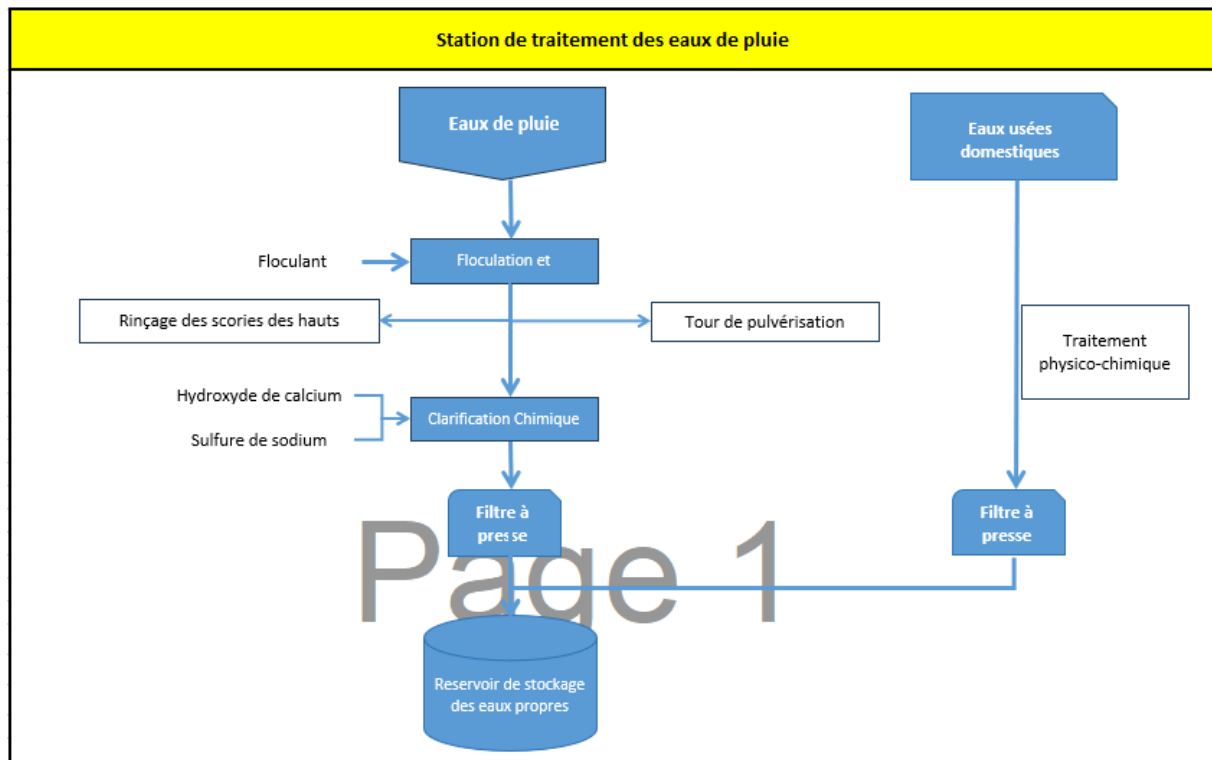
The condensed vapor, after compression, is pumped out of the system and recovered as distillate through a heat exchanger



Rainwater:

The initial rainwater treatment process in the treatment station includes sedimentation combined with physico-chemical clarification. A flocculant is introduced into the initial rainwater collection tank to facilitate the precipitation of colloids. After sedimentation, the rainwater can be reused for rinsing blast furnace slag and spraying alkali in the flue gas washing tower. The excess can then undergo an additional step of treatment through physico-chemical clarification. Once the required quality is achieved, the treated liquid is reintroduced into the cooling water or production process circulation system.

The treatment method involves extracting the clarified liquid from the initial rainwater collection tank to the reaction basin, adding coagulants. After the coagulation reaction, solid-liquid separation is carried out by a filter press, and the separated water is stored in a collection tank. The solid residues will be evacuated and disposed of by an approved specialized company.



3.12 Solid waste management:

The industrial park manager has established an orderly and rational system for managing domestic waste produced.

Companies will be responsible for collecting and selectively sorting the different types of waste generated to facilitate the separation of components with environmental risks.

Hazardous industrial waste, including zinc-containing dust, will be treated by an approved specialized company for their storage and disposal outside of AFZ.

The objective of these measures is to ensure effective waste management and minimize the environmental impacts associated with their production within the industrial park

The following table presents the list of hazardous wastes generated by the project and classified according to decree 2-07-253:

Code	Type of waste		Hazardous waste HW
13.01	Used oil	Will be evacuated and disposed of by the certified company "ECO RECYCLAGE."	HW
19.10.03	Metal Dust		HW
10.02	Blast furnace slag		HW
11.01.09	Sludges and filter cakes containing hazardous substances		HW
13.03.19	Melting furnace dust (containing hazardous substances)		HW
	Cotton waste		non-hazardous waste
	Personal Protective Equipment (PPE) waste		

The hazardous waste storage area is indicated on the site plan (Area A10).

4. Project justification:

Samta Morocco, the group's subsidiary in Morocco, intends to launch a metal recycling plant (mainly aluminum & copper) which has been the object of a Memorandum of Understanding signed with the Ministry of Industry in September 2022. This plant is the object of a future investment convention between Samta Group & the industry ministry of Morocco.

In this context, Samta Morocco has been supported by Deloitte to assess the viability of the project (market assessment, competitive landscape, raw material providers, etc.), and define the corporate structure, towards completion of the signing of the investment charter with the Ministry of Industry.

The metal recycling project comprises the final production of 15,000TPA (ton per annum) of copper cathode, copper rod (8-19mm diameter), and 20,000 TPA (ton per annum), Aluminum ingots, Aluminum Silica Alloys of various series (A356, 4032, 4043, 4047, 4543) to cater the local automotive, aeronautical and energy industries. The above-planned capacity will be doubled after 3 years onwards from the date of initial production with limited capital investment. The justification to set up this business underlies the following facts:

- To do value addition within the country itself and become self-reliant on the production of metals and catering to the requirement of domestic automotive, aeronautical, and other industries.
- To develop an eco-system to attract downstream industries for metal processing.
- To facilitate the circular economy by recycling metal scrap

- To add Additional revenue to the exchequer of Local Government
- For Skill development of locals in metallurgical industries
- For the creation of jobs in recycling and manufacturing industries
- conservation of natural resources, energy, and water while lowering greenhouse gas emissions compared to mining/smelting /refining
- To preserve wildlife and the ecosystem by reducing mining activities.
- To aid in the reduction of the Carbon Footprint of Individuals, Businesses, and Communities

5. Project schedule

The detailed schedule is as follows:

Project	Progress (Months)											
	1	2	3	4	5	6	7	8	9	10	11	12
Engineering Design												
Civil engineering												
Equipment Manufacturing												
Equipment Transportation												
Equipment Installation												
Equipment commissioning												

5.1. Project Permitting Status:

Ref	Licence, Permits or authorization	Stage (Construction/Operation)	Maximum Time Required	Responsibility	Status (Granted/Process)	Remarks As on 28th Nov 2023	Update As on 25th Jan 24
1	Construction authorization for Plant & Civil structures	construction	30 days	Samta	In Progress	Expected date for granting by 15th January 2024	1. The work is in progress 2.The authorization will be taken after finalization of Construction contractor 3.Expected date by March 24
2	Authorization for EC	construction	15 days	Samta	In Progress	Expected date for granting by 15th December 2023	Granted. The copy is submitted to ERM
3	Authorization for Underground storage of Natural Gas	construction	30 days	Supplier and Samta	In Progress	Expected date for granting by 31st Jan 2024	1. The contractor (VIVO)is finalized 2.The authorization will be taken after signing the Contract with the contractor 3.Expected date by March 24 or prior to start of construction

4	Authorization for operation DG set	construction & Operation	30 days	Samta	In Progress	Expected date for granting by 15th January 2024	This authorization schedule is in line with Item no-1 (construction permit authorization). As it will be obtained along with construction contractor
5	Authorization for Water Supply	construction & Operation	30 days	Samta	In Progress	Expected date for granting by 31st Jan 2024	Request Letter is submitted to ONEE. The authorization will be granted prior to start of construction or by latest end of feb-24
6	Authorization for Power Supply from ONEE Grid	construction & Operation	30 days	Supplier and Samta	In progress	Expected date for granting by 31st Jan 2024	Request Letter is submitted to ONEE. The authorization will be granted prior to start of construction or by latest end of feb-24
7	Granting for subsidy of Investment Agreement with the AMDIE	construction & Operation	15 days	Samta	In progress	Expected date for granting by end of December 2023	The contract for subsidy with AMDIE is submitted . The signing will be done by Feb'24. A copy of the same is attached (eng.& french)

6. Study area:

The study area represents the geographical extent of the anticipated impact for each component of the environment that may be affected by the project. It delineates all areas that are likely to be influenced by the project.

Based on the environmental assessment of the facilities and activities planned in the project, as well as field observations (topography, wind patterns, distance from the site to residential areas and other human establishments), the study area is estimated according to the nature and characteristics of the project to encompass the geographical extent of its foreseeable impacts.

The overall study area for this project, concerning air quality, comprises two zones: the close perimeter and the distant perimeter.

The close perimeter corresponds to an approximately **300-meter-wide** strip around the boundaries of the project site. This zone includes areas that may be affected by construction activities or the operation of the project site (technical installations, workshops, storage areas, etc.). In this close perimeter, the main environmental elements considered are:

- Water resources
- Air quality
- Noise
- Soil
- Forested areas

The distant perimeter corresponds to the zone of potential impacts of the project on a larger scale. In the context of this environmental impact assessment, the distant perimeter or zone of

relative socio-economic impacts mainly includes Amer Seflia commune and the Kenitra province in general. In this defined zone, the elements considered are:

- Water resources
- Traffic on the road network
- Socio-economic implications

6.1. Air Quality

Since the future industrial units for the production of copper metal and aluminum alloys will be installed within the Integrated Industrial Park (IIP) of Kenitra, it has been estimated that the potential impact area for air quality is within a 300-meter-wide strip from the project site boundaries, considering the preventive measures adopted in the project design.

6.2. Water Quality

Domestic wastewater will be directed to the wastewater treatment plant (STEP) of AFZ for purification before discharge into the natural environment. The study area includes not only the project site but also the network of IIP-AFZ, its treatment plant, and its outlet to Oued Sebou, which serves as the receiving natural environment for its treated effluent. SAMTA has also done the ground water quality assessment analysis

6.3. Soil and Subsoil

The study area affected by the potential impacts of the project remains localized within its site since it will be established on a sealed and impermeable platform.

For the drainage of rainwater, an oil separator is planned to separate fats and oils from the water. The oil separator will be installed just before the last inspection chamber on-site. The rainwater will be connected to the AFZ rainwater network. (See location on the sanitation network plan, and technical data sheet attached to this report).

6.4. Fauna and flora

The impact on fauna and flora will be considered negligible or very low, as the project will be located within the industrial zone AFZ, which represents a completely artificial environment.

6.5. Noise

Within the AFZ industrial zone, the noise generated by the project will have little impact on neighboring units beyond the property boundaries since Santa Metals & Alloys will adhere to AFZ's specifications, requiring compliance with a noise emission limit of 50 decibels, measured at the nearest office façade.

6.6. Socio-economic Aspect

On the socio-economic aspect, the recycling project of metal residues will certainly have positive impacts at the local and regional levels. This will particularly reflect in social and economic aspects at the scale of Kenitra province and especially in Amer Seflia commune in terms of direct and indirect job creation. Thus, Kenitra province constitutes the study area in

this regard as the project will integrate into the value chain of the automobile sector within AFZ.

The map below shows the study area of the project and its surrounding environment:

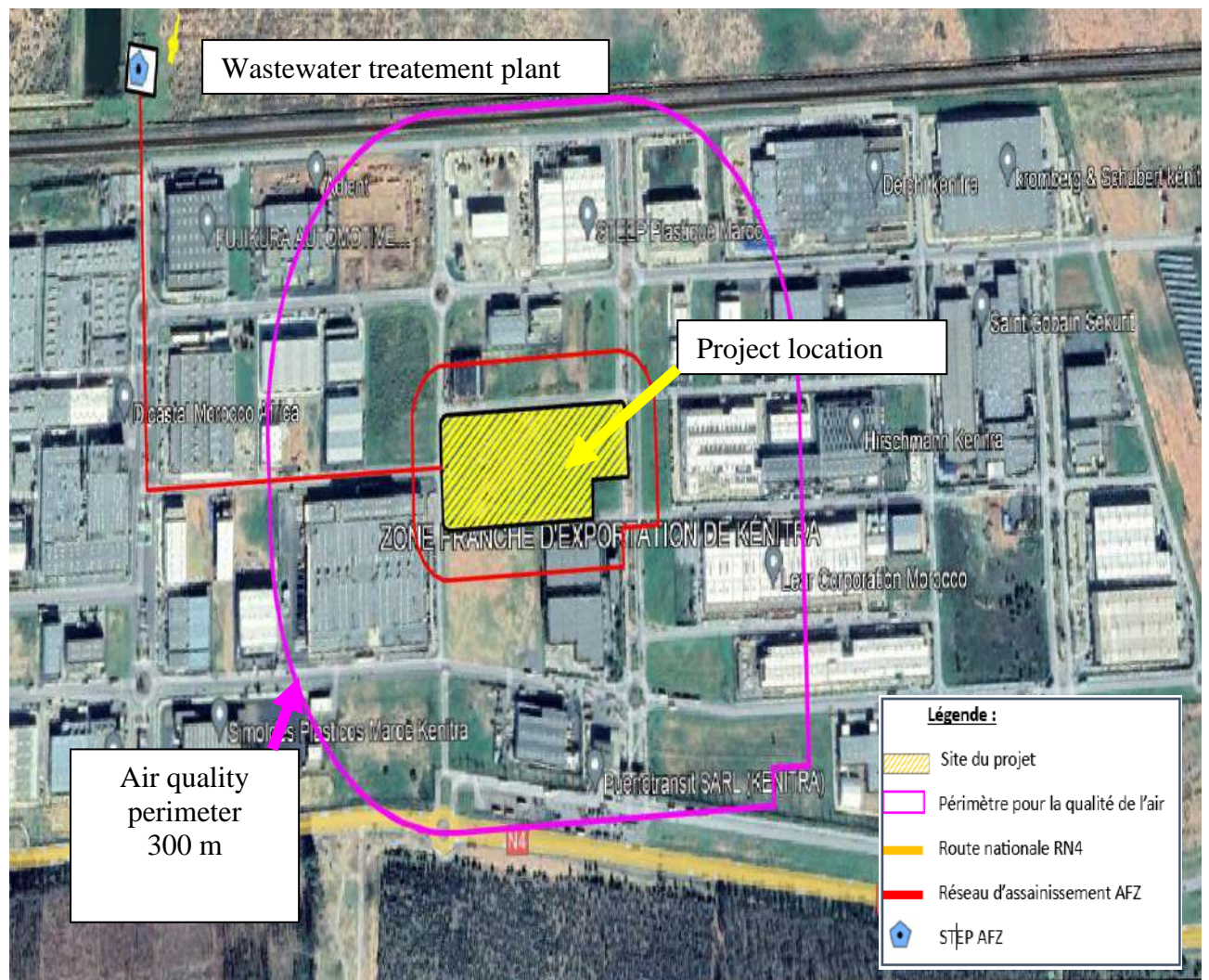


Figure7: Study area of the project

7. DESCRIPTION AND CHARACTERIZATION OF THE ENVIRONMENTAL STATE

The following sections describe the physical, biological, and socio-economic aspects characterizing the baseline environmental state of the project site and its nearby and distant surroundings. The description of the environment allows us to understand and visualize how the various environmental components interact with each other and highlight their significance within the study area.

7.1. PHYSICAL ENVIRONMENT

The study area is located in the Northwest region of Morocco and is generally part of the Maâmora domain, which extends to the north over the Gharb plain. Hydrographically, it corresponds to the lower part of the Sebou River basin.

The study area is situated in a region with a privileged geographical location and considerable water and soil resources, which have facilitated remarkable agricultural and agro-industrial development.

Climatology:

According to the Emberger bioclimatic classification, the climate of the project area is Mediterranean, with mild and humid winters and hot and dry summers. The study area is strongly influenced by the oceanic climate.

Rainfall

The average annual rainfall recorded over a long period from 1980 to 2016 at the Kénitra meteorological station is about 557 mm/year. The table below summarizes the average monthly precipitation for the Kénitra meteorological station during the period from 1980 to 2016. The table below summarizes the average monthly precipitation for the city of Kénitra:

Table4: cumulative average monthly precipitation in mm

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
Precipitation (mm)	88	71	51	47	22	4	0	1	21	51	106	96	557

Source: Kénitra Meteorological station (1980-2016)

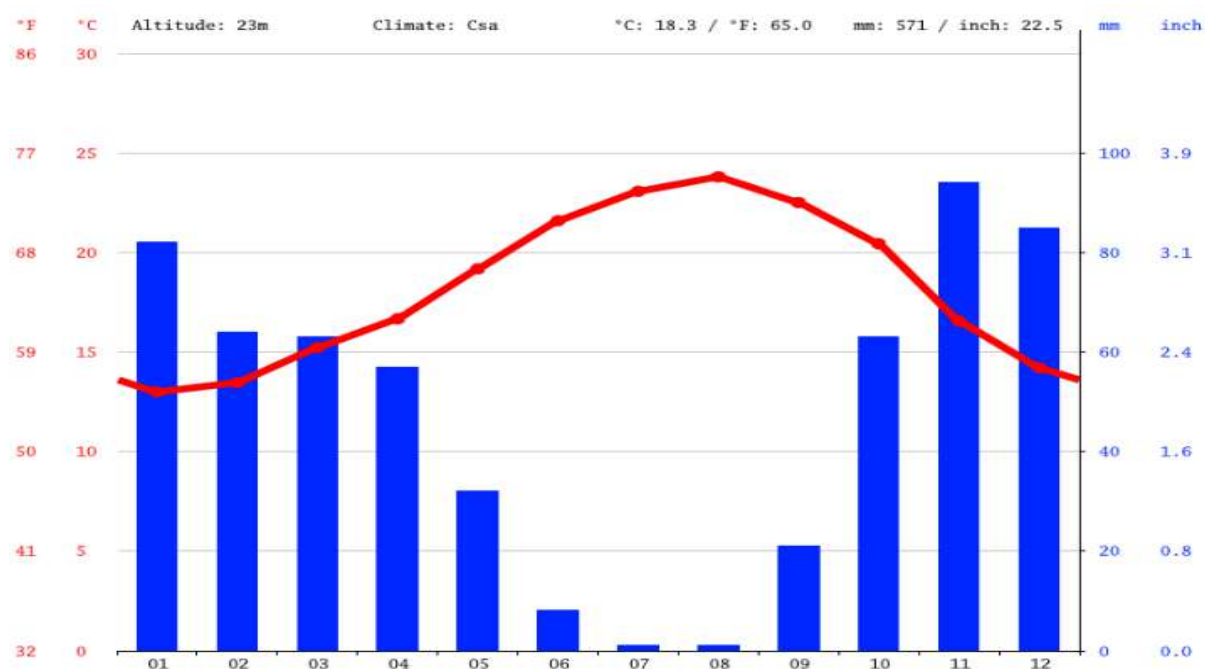


Figure8: Precipitation diagram

Temperature:

The average temperatures range between 12.1°C and 24°C. The temperature variations are less pronounced in the coastal zone compared to the interior of the plain. There is a clear increasing temperature gradient from the West to the East. The months of July and August are the hottest.

Table 5: Average maximum, minimum, and monthly temperatures (°C) for Kénitra city

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum	16.1	16.8	17.8	20.1	22.7	24.2	26.9	28.5	26.8	23.1	21	19
Minimum	8.1	8.5	9.6	11.8	12.5	15	17	19	17	16	14	11
Average (°C)	12.1	12.65	13.7	15.95	17.6	19.6	21.95	24	21.9	19.55	17.5	15

Source: Rabat-Salé Airport, period (2015-2022)

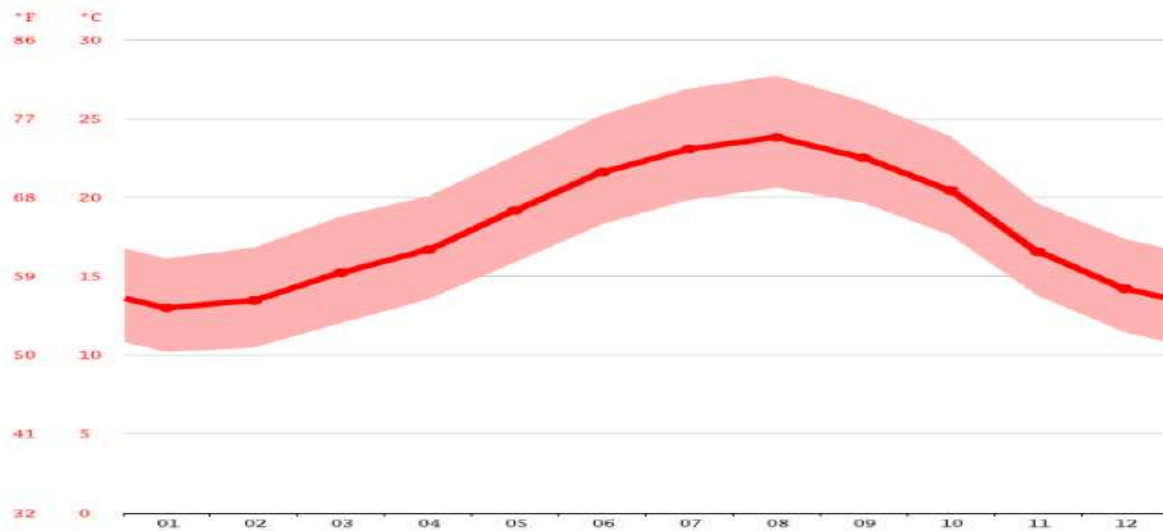


Figure 9: Temperature diagram

Wind regime:

The prevailing climate in the entire Gharb basin is of the Mediterranean type with oceanic influence. This influence is characterized by rainy winds coming from the West sector. The dominant winds come from the West and North sectors. The figure below shows the wind rose of the Kénitra station.

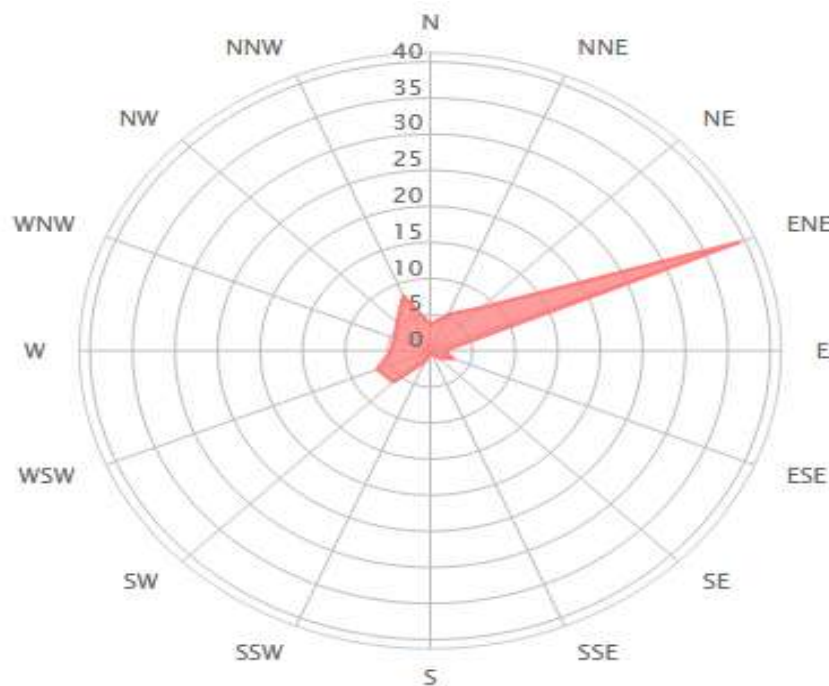


Figure 10: Wind rose of the Kénitra station (2005-2016)

Source : <https://fr.windfinder.com>

Geology :

The project area is located at the northern limit of the Maâmora glaciis, which lies between the ancient, tabular Meseta massif to the south and the subsident Gharb plain to the north. From south to north, the primary terranes (schists and quartzites) are gradually covered by Miocene marl beds, which in turn support Plio-Villafranchian and Quaternary formations (sandstones, pebbles, sands and clays). The latter formations contain a water table which, due to the layout of the Maâmora, drains into the Gharb water table.

The Gharb Plain area

The Gharb plain corresponds to a collapse trough located between two major structural units: the primary Mesetian domain to the south and the Rifaine chain to the north and east. This plain has been marked by continuous subsidence since the Miocene.

The general substratum of the Gharb plain consists of a thick series of Tortonian marls. This series forms the impermeable floor of the Gharb aquifer levels. The depth of this floor ranges from 100 m at the edges of the plain to over 300 m in the center. During the Pliocene and Quaternary eras, this bedrock was covered by highly heterogeneous outwash and deposits resulting from the erosion of the marl formations of the Rifain domain, the schist formations of the central plateau and the limestone and dolomite formations of the Middle Atlas.

At the end of the Pliocene, the sea in the Gharb region was no more than a gulf, which continued to shrink. The first Quaternary marine transgressions involved only a narrow strip (20 km at most) parallel to the present-day coastline. Subsequent transgressions were less significant. These transgressions left behind sediments of marine origin: sandy limestones, sandstones and sands, which occupy the coastal zone of the Gharb plain (Mnasra) and the south-western edges of the plain (from Kenitra to Sidi Yahia). These formations can reach up to 200 m in thickness, and constitute an important infiltration zone and aquifer reservoir.

To the east of this coastal zone, sediments of continental origin alternately coarse (pebbles and cobbles) and fine (silts and clays) accumulated in the rest of the Gharb plain during the same Quaternary period, depending on climatic cycles. The distribution of these deposits is highly heterogeneous both laterally and vertically.

The surface cover of the Gharb plain itself is formed entirely by Gharbian deposits, which have two compositions: the older Gharbian forms the intermediate and low-lying areas of the Gharb plain. Recent Gharbian deposits form the alluvial levees that border the main rivers (Sebou and Beht).

Domaine de la Maâmora

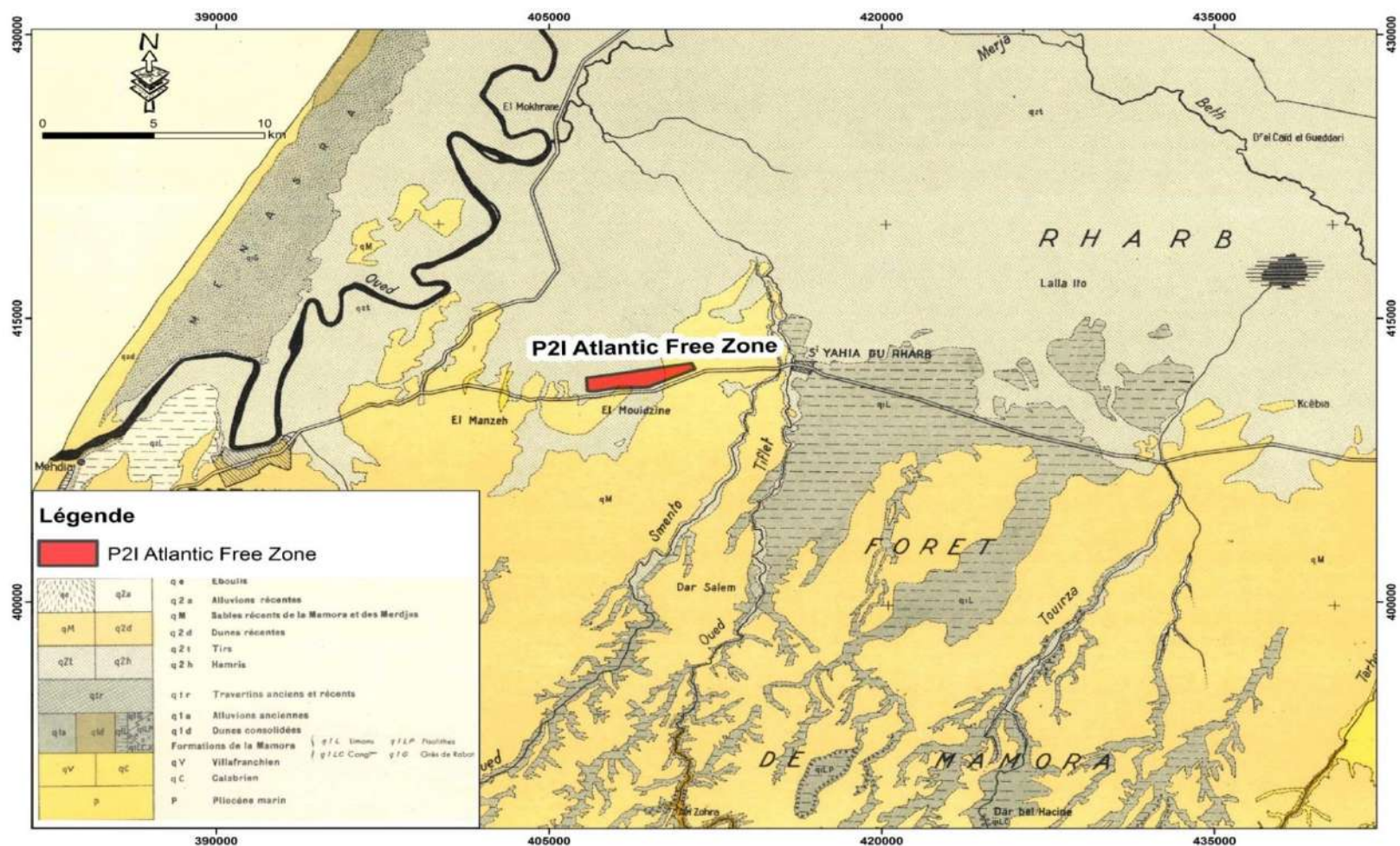
Like the Gharb plain, the Maâmora domain is located in the south-rifine corridor, underlain by Miocene marls. It lies between the ancient Meseta massif to the south and the Gharb plain to the north, to which it is gradually joined. It differs from this plain in its post-Miocene geological history, which was marked by two main phases:

Early Quaternary: During the regression that followed the Moghrebian transgression, a series of dunes were deposited, characterized in the western part by a red clay-sand cover, and in the eastern part by a stony cover with clay-sand cement. Local folding occurred in the last phase of the ancient Quaternary;

Recent Quaternary: This is characterized by a succession of transgressive marine and continental deposits, generally with very discontinuous outcrops. This phase is at the origin of today's coastal morphology.

The surface cover is characterized by a red formation of fine clayey sands of variable thickness.

Figure 11: Geology of the study area Extract from the geological map of Gharb at 1/200,000 scale



Geotechnical overview:

The geotechnical investigations carried out on the Kenitra AFZ industrial zone have generally confirmed the homogeneity of the formations in large, distinct horizons according to depth.

The terrain is presented in the following configuration (figure 5):

A surface cover of silty sand, 0.50 to 1.90 m thick;

The subsoil is essentially made up of slightly yellowish clayey sand, with greyish and/or tuffaceous clay inclusions, from a depth varying between 1.30 and 1.90 m.

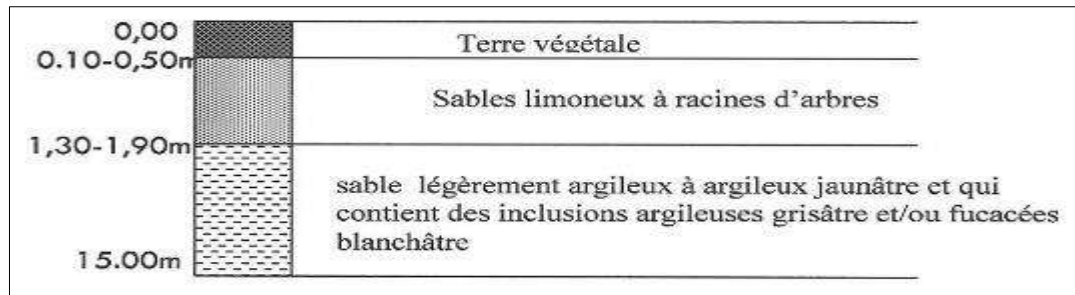


Figure 12: Description of soil-ground formations

Source: Geotechnical study of the Kenitra industrial zone

Pedological overview:

From a pedological point of view, the Maâmora area is characterized by the predominance of sandy soils (beige or red). The soil is formed by a highly permeable sandy horizon of variable thickness, up to 11 m thick. This sandy horizon overlies a much less permeable clayey-sandy layer. The clay fraction is characterized by the predominance of kaolinite, with low cation exchange capacity (low anion retention capacity).

The soils of the Maâmora are generally acidic, entirely devoid of limestone and very poor in organic matter and assimilable elements (potassium, phosphorus and nitrogen).

On the Gharb plain, four types of soil can be distinguished:

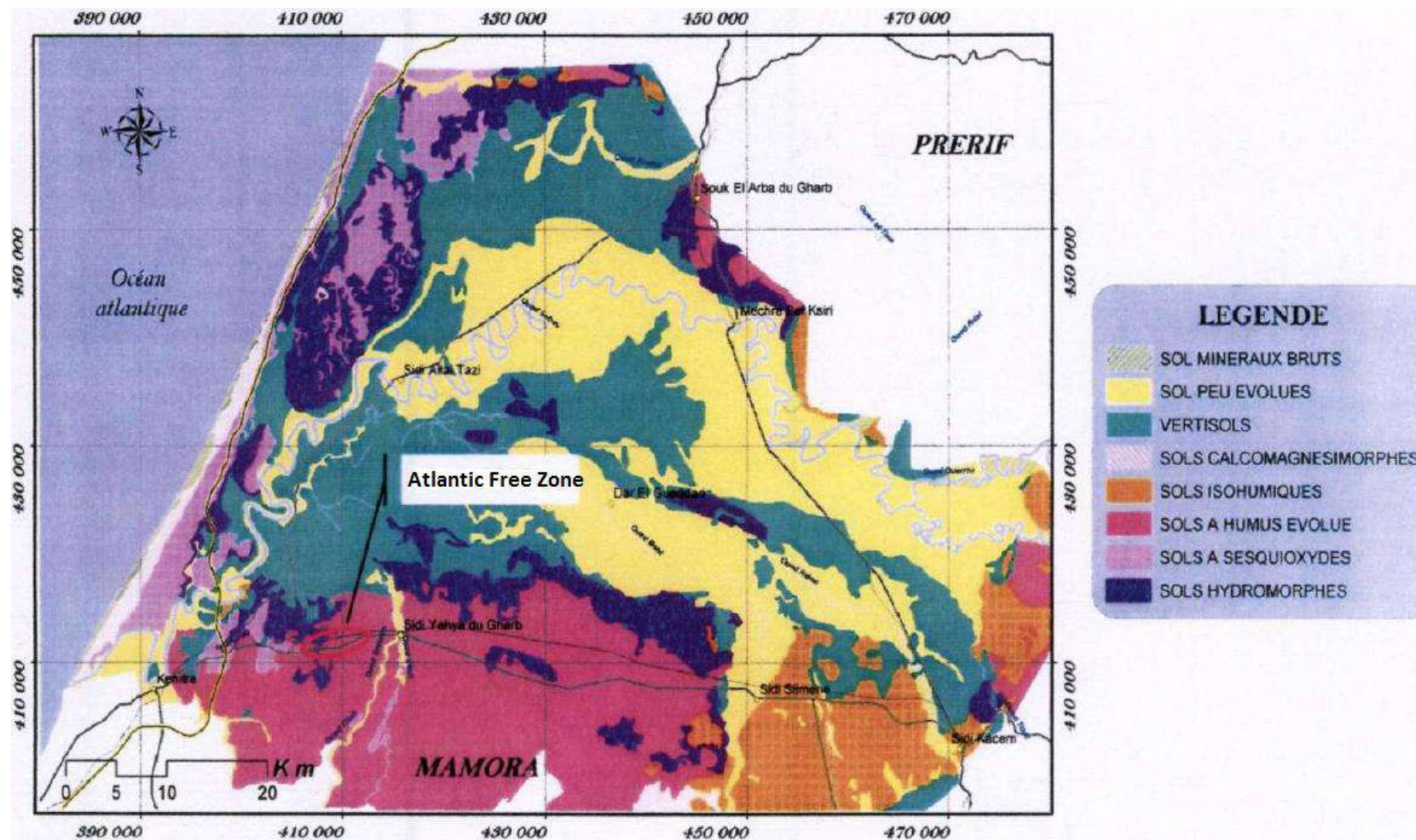
The merjas, vast depressions often flooded with very hydromorphic soils. These low-lying areas often pose drainage and sometimes salinity problems, but are suitable for rice and fodder crops.

The plain itself, with soils of varying degrees of clay, mainly shot. These less advanced soils are ideal for cereal growing and market gardening.

The coastal zone, where the soils become sandier, enabling crops to be grown under cover (bananas, strawberries, etc.) and groundnuts to be grown.

Alluvial levee zones, with less clayey soils, mainly dehs. Located mainly along the main wadis, they are fairly easily drained and lend themselves to a wide range of crops (sugar cane, beet, cereals, sunflower, etc.).

The map below shows the nature of the soils on the Gharb plain.



Sol map of the Gharb plain

Hydrology

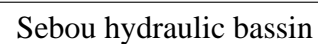
In hydrological terms, the study area lies within the lower watershed of the Oued Sebou.

The Sebou hydraulic basin contains almost a third of the country's surface water and can be subdivided into five hydrological units:

The Upper and Middle Sebou, originating in the Middle Atlas and draining 6,000 and 5,400 km² respectively;

- The Inaouène, originating in the Taza region, at the contact between the Middle Atlas and pre-Atlasian domains, draining an area of 5,200 km²;
- The Ouergha, the Sebou's main tributary, drains an area of 7,300 km² ;
- The Beht, with a surface area of around 9,000 km², receives the Oued R'dom before joining the Sebou in the Gharb plain;
- The lower Sebou, which covers an area of around 6,000 km², and is an unstable channel that is insufficient to support flood flows.

The following figure 7 below shows the location of the study area within the Sebou hydraulic basin.



Within the Gharb plain, there is no individualized natural hydrographic network. It is crossed by the Sebou wadi and receives its main tributaries, including the Beht wadi on the left bank and the Ouergha on the right bank. These watercourses generate annual inflows representing around 25% of the national hydraulic potential.

The Maâmora area is drained by several more or less permanent wadis, tributaries of the Sebou, including :

Oued Fouarat, which feeds the Merja Fouarat to the north of Kénitra. This wadi drains the western part of the Maâmora;

Oued Smento, which rises near Sidi Allal El Bahraoui and flows into Oued Tiflet;

Oued Tiflet is perennial. It originates in the primary Tiflet massif and flows into the Oued Beht on the Gharb plain after receiving water from the Oued Smento;

Oued Touizra, which rises in the center of the Maâmora and flows into the southern edge of the Gharb plain, where it feeds numerous small Merjas.

The Sebou basin is also characterized by the presence of Dayas (temporary pools caused by the accumulation of rainwater in clay-bottomed depressions). Some ponds (Merjas) are outcrops of groundwater in permeable formations.

Hydrogeology

Groundwater is an important resource in the study area. They represent reserves accumulated over a long period and a wealth that is replenished from year to year, thanks to recharge by infiltration of rainwater.

Groundwater (boreholes and spring catchments) is the main source of drinking water and industrial water supply for the main towns in the Kénitra region.

On the Gharb plain, the water table is made up of a multi-layer system. Broadly speaking, two superimposed aquifers can be distinguished in the clay zone of the plain:

A superficial water table with low potential and poor quality,

A deep aquifer in charge, fairly productive and of good quality.

This aquifer complex has several assets:

Depressional structure for groundwater drainage and storage;

High potency;

Good hydrodynamic characteristics, resulting in high reserves and productivity,

Favourable recharge conditions with a favourable climatic context.

The general substratum of these aquifers is the roof of the thick Upper Miocene blue marl series.

The aquifers beneath this general substratum are of virtually no hydrogeological interest.

In the Maâmora area, a single aquifer can be identified, which naturally flows into the Gharb aquifer and has the same substratum.

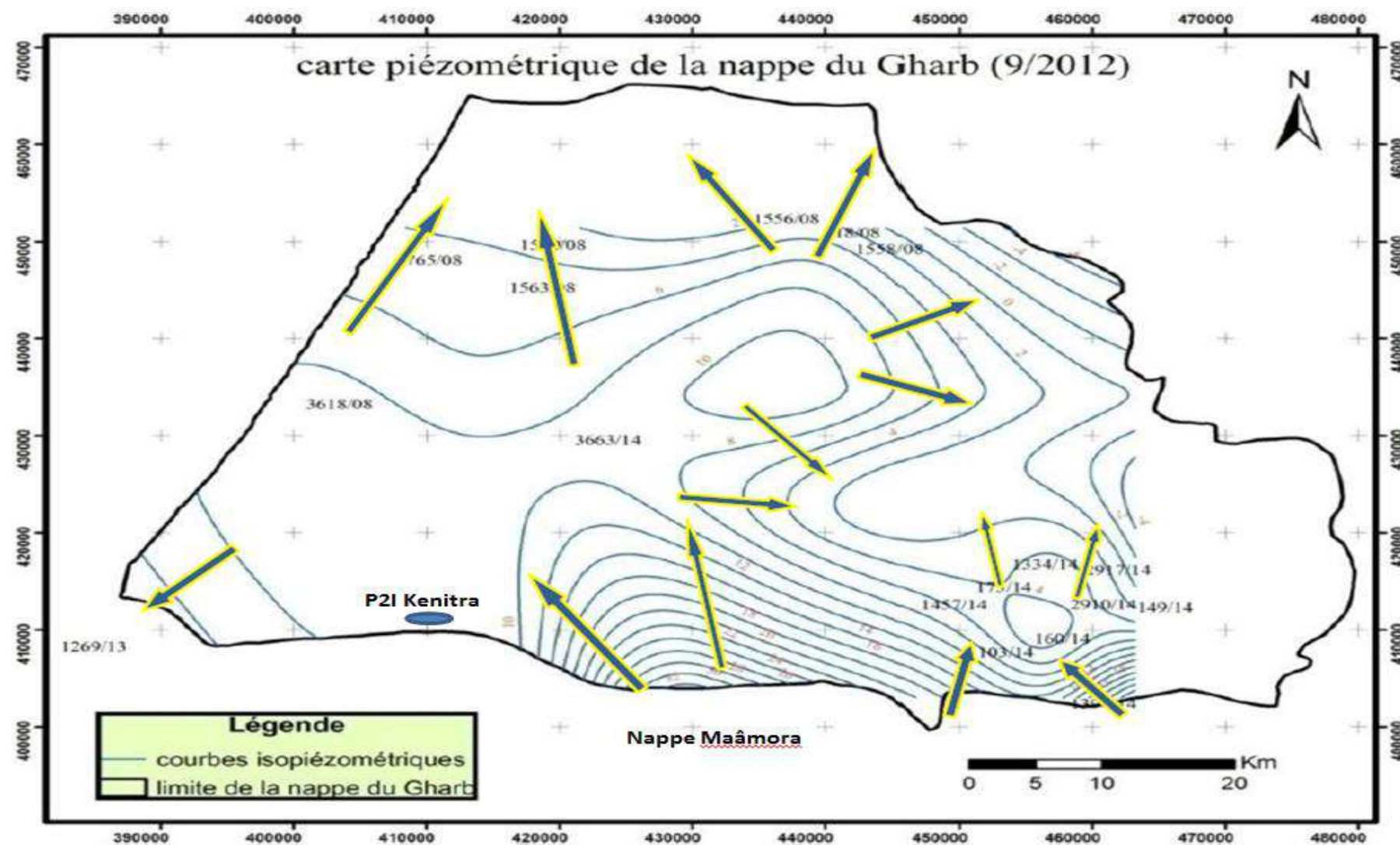
Gharb aquifer system

The upper aquifer consists of Quaternary silt-clay formations. This aquifer is generally of limited hydrogeological interest, but can become highly productive locally due to the intercalation of more permeable sandy lenses.

The deep-water table rests directly on the general substratum of the aquifer system (Mio-Pliocene marls). These are Plio-Quaternary soils with good hydrodynamic characteristics. This deep aquifer is captive over a large part of the Gharb basin and free along the western (El Manasra area) and eastern outcrops.

The depth of the water table is generally between 4 and 8 m. It is very shallow, less than 2 m, in the coastal zone, except at the crest of the dune ridge. Inland, it is between 2 and 5 meters.

The figure below shows the piezometric map of the Gharb aquifer.



Piezometric map of the Gharb aquifer

The analysis of the piezometric map shows that at the contact of the Maâmora aquifer, the flow occurs from south to north with a significant hydraulic gradient. Its direction gradually shifts from east to west with a much weaker hydraulic gradient.

- ✓ The recharge of the aquifer is mainly through:
- ✓ Infiltration of precipitation water.
- ✓ Return flow from irrigation practices
- ✓ Discharge from the Maâmora aquifer.
- ✓ Contributions from wadis (seasonal rivers)

The discharge occurs through flow towards the ocean and through withdrawals for domestic water supply (AEP - Alimentation en Eau Potable) and agricultural irrigation.

The table below provides an estimation of the elements of the hydraulic balance of the Gharb aquifer.

Table 6: Hydraulic balance of the Gharb aquifer.

Input (Mm ³ /year)		Output (Mm ³ /yeau)	
Infiltration of rainwater	80	Flow towards the sea	13
Infiltration through Wadi beds	60	Urban water supply withdrawals	14
Discharge from the Maamora aquifer	38	Rural water supply withdrawals	2
Return flow from irrigation	46	Agricultural withdrawals	232
Total	224	total	261
Balance ((Mm ³ /year)	-37		

Source ABHS

According to the table above, it can be observed that the hydraulic balance of the Gharb aquifer is negative, with a deficit of about 37 Mm³/year.

The Maâmora aquifer: The Maâmora aquifer is bordered by the Atlantic Ocean to the west, the Beht wadi to the east, the Gharb plain to the north, and the Meseta massif to the south. This aquifer flows through Plio-Quaternary limestone, sand, and clayey sand formations, resting on an impermeable substrate of Miocene marls.

The depth of the aquifer is generally between 20 and 40 meters but can reach 100 meters in some areas. The overall direction of groundwater flow in this aquifer is initially from southeast to northwest towards the ocean, and then it follows a south-north direction towards the Gharb aquifer

The following figure shows the piezometric map of the Maâmora aquifer;

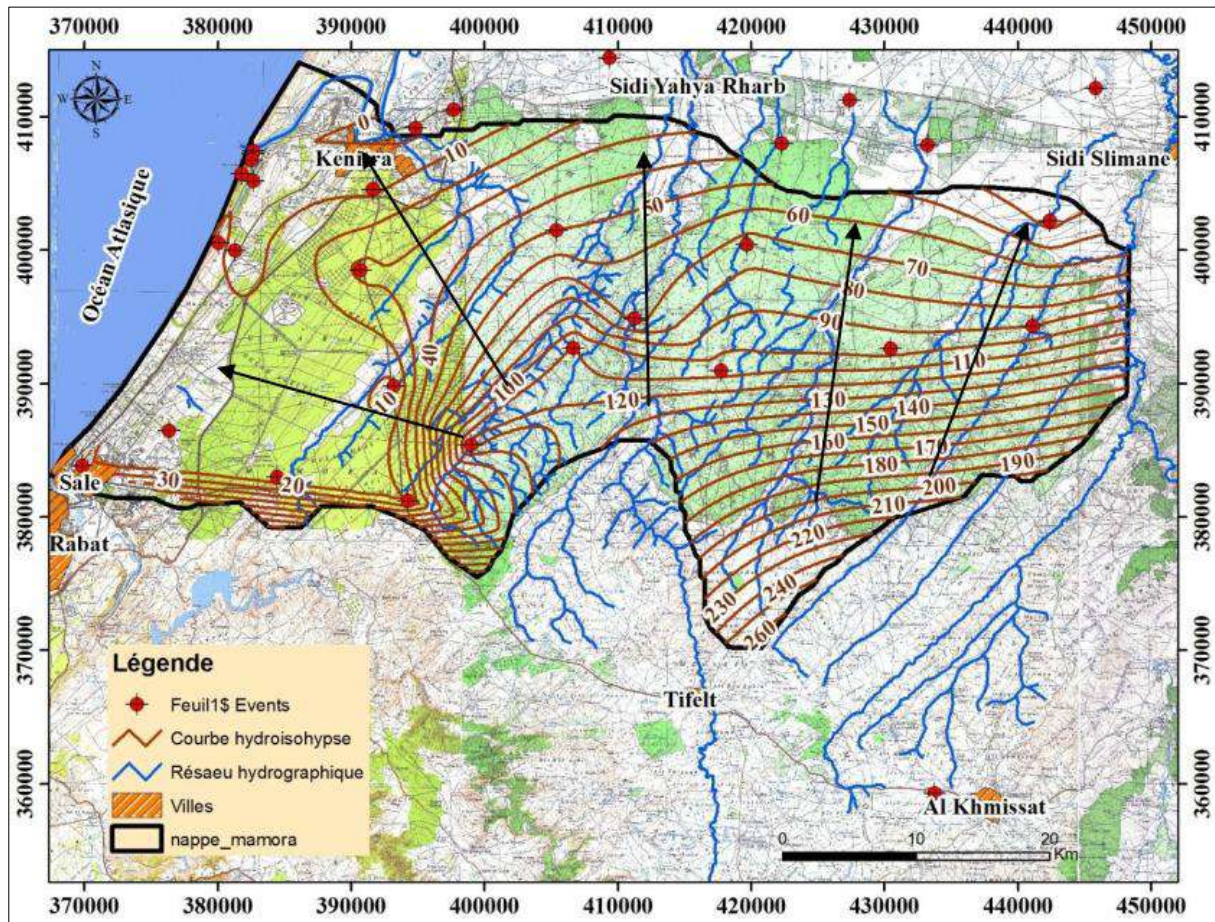


Figure 16: Piezometric map of the Maâmora aquifer, 2012

Source ABHS

The aquifer is exclusively recharged by the infiltration of rainwater, while its discharges consist of:

- Flow towards the ocean
- Flow towards the Gharb aquife
- Drainage through wadis (seasonal rivers)
- Withdrawals for domestic water supply (AEP), industrial, and agricultural purposes.

Overall, the water quality of the Maâmora aquifer is good.

The table below provides an estimation of the elements of the hydraulic balance of the Maâmora aquifer:

Input (Mm ³ /year)		Output (Mm ³ /yeau)	
Infiltration of rainwater	150	Discharge towards the sea	10
		Flow towards the Gharb aquifer	38
		Drainage through the Beht Wadi	7
Return flow from irrigation	10	Withdrawals for domestic water supply	42
		Industrial Withdrawals	25
		Agricultural Withdrawals	50
Total		Total	172
Balance	-12		

Table 7: Hydraulic balance of the Maâmora aquifer

Source: ABHS

According to the table above, it can be observed that the hydraulic balance of the Maâmora aquifer is negative, with a deficit of approximately 12 Mm³/yea.

Noise Level: (as per BAT 18)

The project will be located in an industrial zone situated within a rural area with low population density, currently characterized by a low noise level.

However, in general, the background noise level in the area is expected to increase due to the construction projects of new industrial units planned in the AFZ platform. This noise level will be even more significant as there will be increased vehicular traffic from construction vehicles, personnel transportation, and goods transportation due to all the future industrial and urban activities.

The project will implement the embankment to screen the source of noise wherever required. And adopt the best technology as norms and standards BAT-18 / Noise control.

7.2.BIOLOGICAL ENVIRONMENT:

The environmental impact assessment of the P2I Atlantic Free Zone (AFZ) and the vulnerability analysis of the forest cover in Maâmora constitute the main sources of information for this section.

The project area is located at the northern limit of the Maâmora plateau. This area holds significant biological and ecological importance.

However, the project will be established within the industrial zone of the Atlantic Free Zone (AFZ), which lacks any significant vegetative cover of interest.

The following photos illustrate the initial state of the project site:





Picture: Views of the project site area

7.2.1. Maâmora Forest

The Maâmora forest is considered the largest cork oak forest on a plain worldwide. This forest heritage spans a rectangle of approximately 70 km in length and 40 km in width, stretching between Rabat in the southwest and Kenitra in the northwest.

Covering an area of 133,000 hectares, with 60,000 hectares of pure cork oak, it is regarded as the largest cork oak forest on a plain globally. The forest holds significant economic and social functions, plays a crucial role in preserving genetic resources, protecting the environment, and serves as a premier recreational space for the four major cities of Rabat, Salé, Kenitra, and Khémisset.

This forest encompasses a variety of multiple-use ecological systems, such as cork production, wood and fodder harvesting, hunting activities, recreational activities, and the gathering of secondary products like honey and mushrooms. It is also extensively used as a grazing area and provides numerous employment opportunities, making it one of the main sources of income for the rural population in the region.

Due to its floristic composition, the forest plays a crucial role in regional and national biodiversity. It is classified as a Site of Biological and Ecological Interest on land, in addition to the wetland and coastal SIBE (Sites d'Intérêt Biologique et Ecologique) it encompasses (Sidi Boughaba, Fouarate).

The presence of its tree, shrub, and herbaceous layers plays an essential role in combating wind erosion by stabilizing the sands that constitute the major portion of the forest soils and surrounding sandy areas.

Located in the sub-humid to semi-arid bioclimatic zone, the Maâmora forest is situated at the edge of the natural distribution area of cork oak. This geographical location on the margins of the species' range makes the forest particularly vulnerable. Several factors threaten to disrupt this fragile ecosystem, including chronic drought, overgrazing, tree pruning, acorn collection, illegal wood harvesting, lack of cork oak regeneration, inadequate management of forest users, and successive parasitic attacks during long and frequent dry spells that weaken the trees. Some vegetative recovery has been observed after recent precipitation, but many trees are considered permanently dead.

7.2.2. Artificial Eucalyptus Forest

An artificial eucalyptus forest has been established opposite the AFZ industrial zone in Kenitra, running along the national road RN4 for a length of 4 km. This forest serves as an enhanced visual screen, improving the overall aesthetic appeal of the area. It also plays a vital role in enhancing air quality and protecting the environment.



the artificial eucalyptus forest located in front of AFZ

7.2.3. Flora

The natural forest vegetation of the Maâmora forest is mainly represented by cork oak (*Quercus suber*). Sporadically, the Maâmora pear tree, an endemic species of this cork oak forest, can also be found. The dense undergrowth is composed of *Teline linifolia* (Cytise à feuilles de lin) in the western part of the forest and *Halimium halimifolium* (grand Halimium) on the eastern side, east of the Oued Touriza. These shrubs can form dense thickets that partially or completely eliminate other species. In the clearings of these thickets and even more so in the open spaces, you can find *Cistus salviifolius* (Ciste à feuilles de sauge), *Lavandula stoechas* (Lavande

stoechade), *Pyrus mamorensis* (poirier de la Mamora), *Cytisus arboreus* (Cytise arborescent), *Ulex boivini* (Ajonc de Boivin), *Daphne gnidium* (Garou), etc.

Scrophularia canina (Scrophulaire des chiens) and *Halimium libanotis* (Halimium à feuilles de romarin) are generally present in more open areas, along with *Asparagus aphyllus* (Asperge striée) and *Stauracanthus spectabilis* (Ajonc). Additionally, *Thymelaea lythroides* (Passerine) is found in the larger clearings, often alongside *Chamamelum mixtum* (Marguerite de la Maamora). As for *Chamaerops humilis* (dwarf palm tree), while it exists in the undergrowth, it is relatively more common in the clearings and outside the forest. Its abundance generally indicates a clayier soil, at least to a certain depth. Truffles and other mushrooms are also noteworthy inhabitants of the forest.

The introduced artificial tree species in the Maâmora forest are represented by eucalyptus, conifers, and acacia.

Eucalyptus: They were planted primarily to supply the Sidi Yahya paper pulp factory and also produce timber for various purposes, including packaging, formwork, poles, and stakes. The main species of eucalyptus planted are *Eucalyptus camaldulensis*, *Eucalyptus gomphocephala*, and *Eucalyptus grandis*.

Conifers: The coniferous tree species used for reforestation primarily include Maritime pine from the Landes region, Aleppo pine, Canary Island pine, and stone pine.

Acacia: *Acacia mollissima* is the predominant acacia species planted for wood bark production and soil enrichment with nitrogen.

7.2.4. Fauna

The "dayas" and "merjas" are at the heart of the cork oak forest of Maâmora, representing the habitat of a dense microcosm composed of aquatic forms of beetles and heteropterans, predatory leeches (annelids), crustaceans, and mollusks (such as planorbids and freshwater snails, including certain bivalves). It is an irreplaceable environment for the reproduction and development of early stages of some invertebrates, particularly Odonates (dragonflies and damselflies), as well as a natural nursery for amphibians (such as *Pleurodeles waltl*, Moroccan fire salamander, and *bufonidae*) and reptiles (*Emydidae* turtles).

The entomofauna includes numerous genera and species of beetles, especially those associated with riparian and aquatic environments in temporary water bodies. These include larvae of Odonates, various aquatic bugs (Hemiptera), water striders (Gerridae), and water scavenger beetles (*Hydrocanthares* and *Dysticides*). Additionally, there are numerous Diptera (flies), Hymenoptera (bees, wasps, ants), Hemiptera (true bugs), Orthoptera (grasshoppers, crickets, locusts, and praying mantises with their eerie poses). For arthropods, the arachnids (eight-legged creatures) are also well-represented, with over 200 species of spiders reportedly found in the Maâmora, including the Moroccan scorpion (*Buthus maroccanus*), which is not uncommon. As for myriapods (millipedes and centipedes), they are also abundant in the area.

The herpetofauna includes several species of reptiles and amphibians.

Regarding recreational hunting and fishing activities, the presence of small and large game animals is reported, including wild boars, hares, rabbits, pheasants, quails, turtle doves, woodcocks, snipes, teal ducks, partridges, ducks, and pigeons. These activities are conducted through hunting and fishing leases (anguilles and elvers).

7.2.5. Protected Areas:

Merja Bouka:

Classified as a continental wetland of priority 3 by the Protected Areas Master Plan (1995), Merja Bouka is located 4.5 km from the Atlantic Free Zone industrial area. Historically, it was a permanent wetland until at least 1980, but it is now temporary, being inundated for 6 to 8 months per year.

It was completely dry in June 1994. Currently, the vegetation has been mostly destroyed, and only a few species of rushes remain, preserved in good condition in some areas.

The Mouth of Oued Sebou:

The mouth of the Oued Sebou (Sebou River) presents a high ecological potential as it is a transitional zone between two environments. However, the critical state of water quality in the river significantly affects the aquatic ecosystems. This area is classified as a priority 3 coastal SIBE (Site d'Intérêt Biologique et Ecologique) by Morocco's Protected Areas Master Plan.

The SIBE of Maâmora:

This SIBE covers an area of 5000 hectares, particularly focusing on the Dayas (temporary water bodies) and areas with cork oak populations. It represents a moderately to fairly degraded cork oak forest, with decline and lack of regeneration, while the Dayas are still well-preserved, with exceptional floral and faunal biodiversity for Morocco. The fauna exhibits a wide phenological variety and a relatively unique interspecific diversity for Morocco, with a significant level of endemism.

The Sidi Boughaba Lake

The Sidi Boughaba Reserve is located in the coastal zone, 13 km from Kenitra and less than a kilometer from the sea. It is bordered to the north by the mouth of the Sebou River and to the south by the Sidi Boughaba marabout (holy place), from which it takes its name. Since 1980, this wetland has been classified as a Ramsar site of international importance.

The reserve serves as an internationally significant wetland for migratory birds. Besides its conservation role, it offers an educational program and has a national environmental education center managed by the Society for the Protection of Animals and Nature (SPANNA).

The biological richness of the Sidi Boughaba Reserve has led to its classification as one of the most important sites to be preserved worldwide. The unique fauna and flora of the reserve have attracted the interest of several researchers and scientists. It is also a place used for recreation and environmental education.

The lake is surrounded by well-preserved natural vegetation, mainly consisting of juniper, along with other species such as wild olive, lentisk, asparagus, lavender, tamarisk, and ferns, contributing to the site's vegetative cover.

As it lies on the migratory path between the Palaearctic and sub-Saharan Africa, the Sidi Boughaba site is one of the most significant wetlands on the Moroccan Atlantic coast for waterfowl. It is home to thirty species of nesting birds. The most notable and internationally important species include the marbled teal, crested coot, black-crowned night heron, and Cape eagle-owl.

The Sidi Boughaba Reserve was declared a natural and cultural "classified site" in 1951 by the Minister of Cultural Affairs. It was recognized as an internationally important area for waterfowl in 1964. Designated as a "Biological Reserve" by the Department of Water and Forests and Soil Conservation in 1974, it was listed as a Ramsar site of international importance, particularly as a habitat for waterfowl, in 1980.

Merja Fouarate:

Merja Fouarate covers an approximate area of 200 to 400 hectares and is located to the northeast of the city of Kenitra. It is bordered by agricultural lands to the north and residential neighborhoods with small industries to the south. The wetland has a rolling terrain, with varying depths between 0.5 and 3 meters. It is fed by rainfall, natural groundwater, floods during the Sebou River's high water levels, and runoff from the sub-watersheds of Foui, Fouarate, and Blad Ghaba.

Merja Fouarate is characterized by:

- A rich macroinvertebrate fauna, especially in stagnant water, and a diverse avifauna of international significance.
- A natural flora containing very rare species
- Its role in mitigating floods and inundations
- A remarkable landscape near the city of Kenitra

The Merja Fouarate site was recently included on the Ramsar list of wetlands of international importance as a habitat for waterbirds in 2018.

The following map shows the locations of Sites of Biological and Ecological Interest (SIBE) in relation to the AFZ establishment.

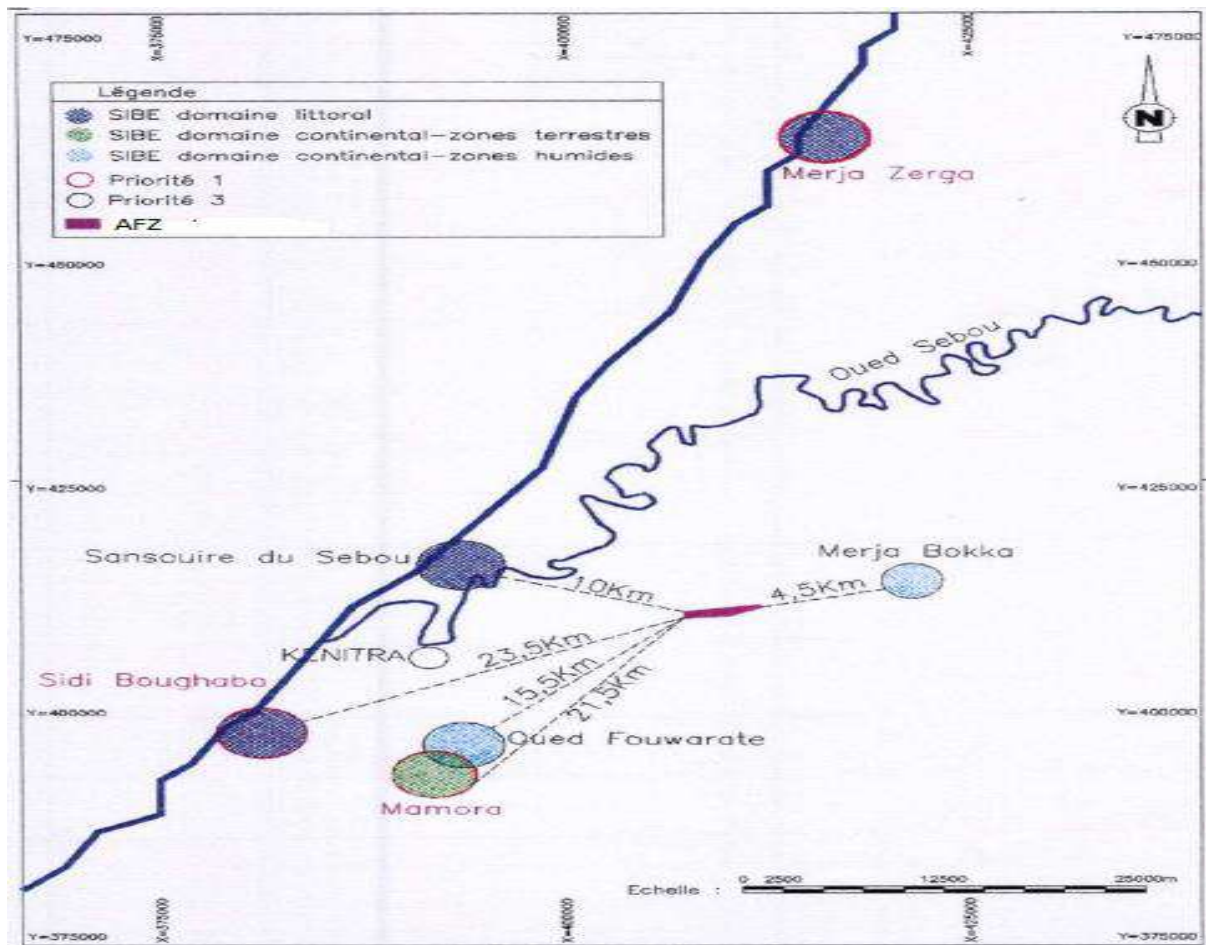


Figure 17: Location of Sites of Biological and Ecological Interest (SIBE) in relation to the AFZ

7.3. SEISMIC DATA:

According to the Moroccan Seismic code RPS 2000, the Kenitra region is located in Zone 2 (low seismicity). The maximum horizontal ground acceleration for a 10% probability of occurrence in 50 years is 0.10 m/s.

7.4. HUMAN AND SOCIO-ECONOMIC ENVIRONMENT:

7.4.1. Administrative framework

The project site is located within the territory of Amer Seflia commune, which is part of Kenitra province, belonging to the Rabat-Salé-Kenitra region.

The following map shows the municipal division of Kenitra province:

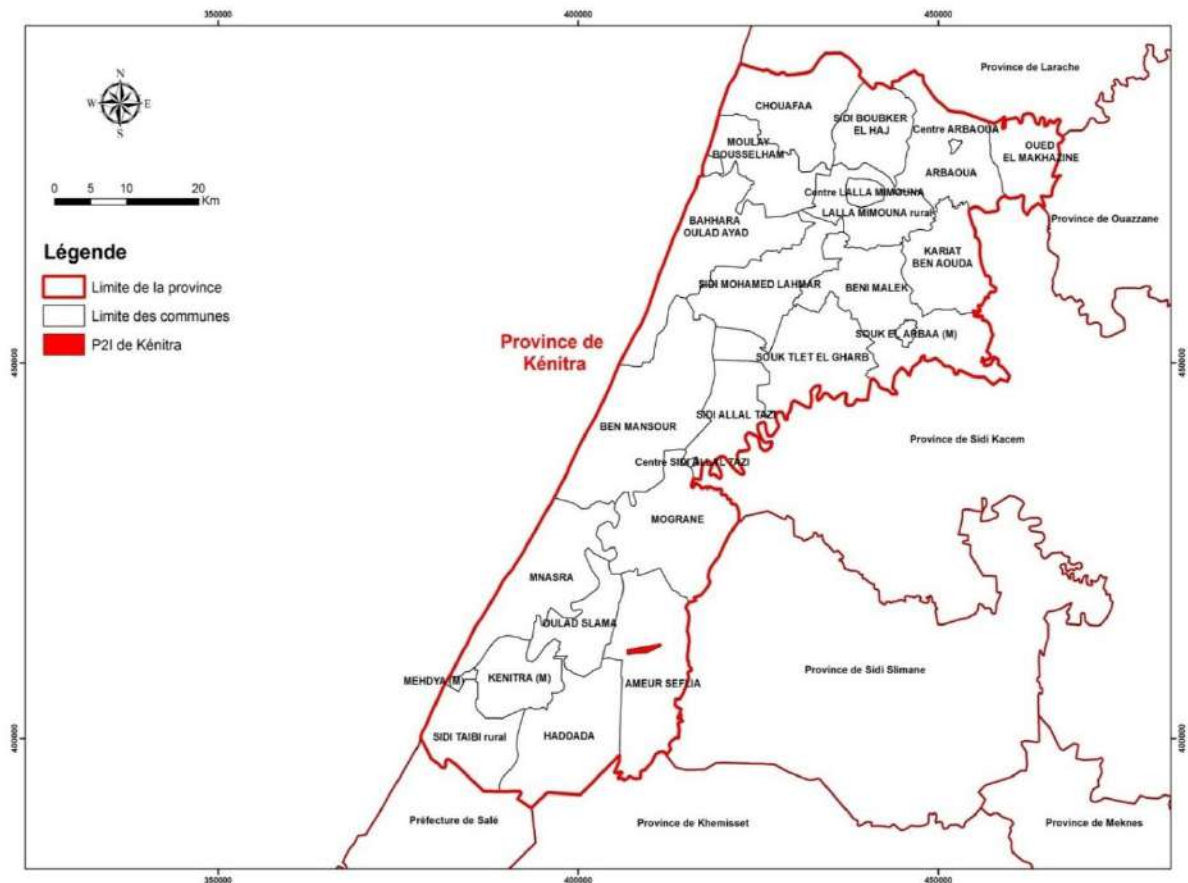


Figure 18: Map of the municipal division of Kenitra province

The study area has considerable potential for economic development and attracting investments. Its geographical location on the axis connecting Casablanca to Tangier gives it a privileged status as a crossroads and a mandatory passage to the North and South. As a result, the region benefits from a well-developed communication infrastructure (roads, highways, and railways).

Presentation of Rabat-Salé-Kenitra region

The Rabat-Salé-Kenitra region covers an area of 18,194 km² and had a population of 4.58 million inhabitants (RGPH 2014), with a population density of 251.8 inhabitants per km², representing 2.56% of the national territory.

It is bordered to the North by the Tanger-Tetouan-Al Hoceima region, to the East by the Fès-Meknès region, to the South by the Beni Mellal-Khénifra and Casablanca-Settat regions. To the West, it is bordered by the Atlantic Ocean.

The region includes three prefectures: Rabat, Salé, and Skhirate-Témara, and four provinces: Kenitra, Khémisset, Sidi Kacem, and Sidi Slimane. The number of municipalities is 114, including 23 urban municipalities, accounting for approximately 7.6% of all municipalities nationwide.

This region is the result of the merger of the two former regions, Rabat-Salé-Zemmour-Zaër

and Gharb-Cherarda-Béni Hssen. The capital of the region is the prefecture of Rabat.

7.4.2. Population:

According to the 2014 RGPH (General Population and Housing Census), the province of Kenitra had a population of 1,061,435 inhabitants, compared to 878,101 in 2004, indicating an average annual growth rate of 1.91%. The following table provides details of its distribution by circle and municipality.

Table 8: population of the Kenitra province by circle and municipality

Province, Municipality, Arrondissement Commune	Number of households	Population
Province of Kenitra	214 640	1 061 435
Kenitra (Mun.)	102 177	431 282
Mehdya (Mun.)	6 653	28 636
Souk El Arbaa (Mun.)	14 268	69 265
Circle of Kénitra-Banlieue	22 293	117 375
Ameur Seflia	4 882	28 540
Haddada	2 758	15 898
Ouled Slama	3 135	19 488
Sidi Taïbi	11 518	53 449
<i>Including center Sidi Taïbi</i>	10 218	46 751
Cercle de Ben Mansour	20 467	128 780
Ben Mansour	6 698	43 822
Mnasra	5 360	34 429
Mograne	5 260	31 292
Sidi Mohamed Ben Mansour	3 149	19 237
Circle of Souk Arbaa El Gharb	13 859	77 141
Arbaoua	6 023	32 690
<i>Including center: Arbaoua</i>	716	3 050
Beni Malek	4 306	26 098
Kariat Ben Aouda	1 924	11 087
Oued El Makhazine	1 606	7 266
Circle de Souk Tlet El Gharb	18 367	115 106
Bahhara Ouled Ayad	5 297	31 860
Sidi Allal Tazi	3 098	18 055
<i>Including center Sidi Allal Tazi</i>	904	4 870
Sidi Mohamed Lahmar	6 358	42 637
Souk Tlet El Gharb	3 614	22 554
Circle de Lalla Mimouna	16 556	93 850

Province, Municipality, Arrondissement Commune	Number of households	Population
Chouafaa	3 072	18 436
Lalla Mimouna	5 309	29 479
<i>Including center Lalla Mimouna</i>	3 058	15 767
Moulay Bousselham	5 026	26 608
<i>Including center: Moulay Bousselham</i>	1 693	7 372
Sidi Boubker El Haj	3 149	19 327

Source: General Census of Population and Housing 2014

Furthermore, the population of Amer Seflia commune was approximately 28,540 inhabitants in 2014 compared to 41,058 in 2004, indicating an average annual regression rate of 2.9%. This means that, on average, the population decreased by approximately 2.9% each year during this period.

To calculate the population projection for 2023, an average annual growth rate of 1% is considered. The estimated population in 2023 is approximately 31,097.

7.4.3. Economic activity and unemployment

The labor force participation rate in the Kenitra province for the population aged 15 and above is 50.2%. This high rate is explained by the predominance of agricultural activities. The unemployment rate is around 14.4% (19.6% in urban areas and 6.9% in rural areas).

Table 9: Unemployment and Labor Force Participation Rates by Place of Residence.

Year 2012	Unemployment rate (%)			Employment rate (%)		
	Total	Urban	Rural	Total	Urban	Rural
Kenitra province	14,4	19,6	6,9	50,2	49,4	51,4

Source: General Census of Population and Housing 2014

7.4.4. Agriculture and livestock

Land tenure

The legal structure and the areas in hectares of agricultural lands in the province of Kénitra are summarized in the table below.

Table 10: Legal Structure of Agricultural Lands in the Kenitra Province.

Legal status					
Melk	Collective	Domaniales	Habous	Others	Total
93 510	63606	22900	202	12955	193173

Source: High Commission for Planning, Monograph of the Rabat-Salé-Kénitra Region 2020

The agricultural land area (SAU) of the commune Ameer Seflia covers 10,200 hectares, of which 1,800 hectares represent irrigated land. The distribution of land ownership statuses related to the agricultural land area (SAU) of the commune is as follows:

- Private Property (Melk): 48%
- Collective Lands: 33%
- State Private Domain: 12%

Source: Regional Office of Agricultural Development of Gharb (2016-2017 agricultural campaign)

Crops:

The province of Kénitra makes a significant contribution to the national cereal production. It covers an area of approximately 96,000 hectares, which represents 71.2% of the total cultivated land area (According to the latest statistics from the High Commission for Planning in 2020).

Livestock:

Alongside agriculture, livestock plays a significant role in the economy of the commune Ameer Seflia due to its numbers, diversity, and role as a source of income in rural areas. The majority of farmers practice extensive livestock farming of cattle, sheep, goats, and equines, in addition to poultry and beekeeping. The table below shows the livestock numbers in the commune Ameer Seflia.

Table 11: Livestock Numbers in the Commune Ameer Seflia

Cattle	Sheep	Goats	Modern beehives
5275	30 649	589	17 000

Source: Regional Office of Agricultural Development of Gharb (2016-2017 agricultural campaign)

Production:

- Milk Production: 5,218,990 liters
- Red Meat Production: 680 tons
- Honey Production: 190 tons.

7.4.5. Marine Fisheries

With its vast Atlantic maritime area and the presence of port infrastructure in Mehdiya and several fishing and marina ports, the Rabat-Salé-Kénitra region is part of the North Atlantic maritime zone that allows for various types of fishing, both active (purse seine, trawls) and passive (nets, longlines, trammel nets, gillnets, etc.).

At the regional level, the port of Mehdiya leads with a production of 6,943 tonnes valued at 62.5 million MAD.

The fishing activities in the region are summarized in the following table:

Table 12: Fishing Activities in the region

Year	2013	2012	2011	2013	2012	2011
	Quantities (tons)			Quantities (tons)		
Rabta-Sale-Kenita	10 176	10 474	8 546	98 049	28 385	24 151
Mehdiya	6 943	7 629	5 829	62 493	-	270
Mohammadia	2 942	2 684	2 457	24 924	22 516	23 881
Rabat	291	161	260	10 632	5 869	-
All the ports of morocco	855 489	848 061	676 440	4 919 489	4 742 381	4 678 052

Source: Ministry of Agriculture and Maritime Fisheries (Department of Marine Fisheries)

7.4.6. Industry:

The industrial sector holds the second position in the economy of the Rabat-Salé-Kénitra region due to its significance, contributing to 10% of the national industrial GDP.

The industrial sector plays a vital role in the region, given its positive impact on value production, job creation, and numerous associated benefits.

- The region is home to the administrative capital of the Kingdom.
- Its proximity to the economic capital, Casablanca, is a significant advantage
- Excellent transportation connectivity through highways, railways, airports, and ports
- Availability of industrial land
- A one-stop-shop approach through regional investment centers

These favorable conditions have facilitated the development of various industrial activities, including the agro-food sector, petrochemicals, metallurgy, and more.

With 802 units, representing 10% of the total number of industrial establishments in the country, the Rabat-Salé-Kénitra region accounted for 10% of the total workforce, 5% of industrial production, and 5% of investments.

However, these contributions are expected to significantly increase due to the momentum created by the development of the new AFZ platform and the establishment of the Peugeot automobile production complex, along with its ecosystem of suppliers and subcontractors.

The existing industrial zones in the province of Kenitra are:

- Saknia Municipal Industrial Zone: housing the CMCP paper pulp factory and the ONEE thermal power plant.
- Bir Rami I Zone: housing companies such as Aic Métallurgie, Delta, and Galvacier.
- Bir Rami II Zone.
- The new P2I Atlantic Free Zone (AFZ)

The AFZ covers an area of 345 hectares and offers modern facilities for businesses, including warehouses, factories, distribution centers, and offices. The zone is equipped with state-of-the-art transportation infrastructure, including a deep-water port and a railway station.

The development of the industrial hub in Kenitra has been accelerated by the establishment of the Atlantic Free Zone Park and the launch of the PSA automobile complex, with its ripple effect on subcontracting activities of associated equipment suppliers.

Among the most significant industrial projects in the AFZ Park that are already operational or under construction are:

- The Stellantis Group (Peugeot-Citroën-Fiat...)
- Acaplast
- Yazaki
- Steep Plastique
- The plant of the Chinese group Nexter Automotive, a global supplier specialized in the manufacturing of automotive steering and transmission systems.
- Delphi: Manufacture of electrical cable harnesses
- The plant of the Chinese group Dicastal, the world's leading manufacturer of aluminum wheel rims.
- Hirschmann Automotive Plant: Engaged in the design and production of innovative solutions in the field of automotive connector technology.
- Lear: Production of cable harnesses and electronic components for automobiles
- SUEZ KZFM Multimodal Waste Management Platform.

7.4.7. Sanitation:

According to the specifications and requirements, the sanitation network and effluent treatment facilities (Wastewater Treatment Plant - STEP) will be managed and maintained by AFZ or an organization designated by AFZ. The designated entity will ensure rigorous monitoring of the wastewater and stormwater collection networks. It will ensure their proper functioning and

compliance with the discharge thresholds specified in the Industrial Zone's CDC by the effluents from the installed factories.

Characteristics of the AFZ Wastewater Treatment Plant:

Based on the results of the VRD study and the environmental impact study conducted by AFZ, the projected average total flow of wastewater amounts to 7,756 m³/day, with 4,535 m³/day for the first phase and 3,221 m³/day for the second phase.

The maximum permissible limits for effluent discharge at the inlet of the Wastewater Treatment Plant are presented in the following table:

Table 13 Maximum Permissible Limits for Effluent Discharge at the Inlet of the Wastewater Treatment Plant

Parameters		Unit	Release limits
Temperature		°C	30
PH			6,5-8,5 (9 if alkaline neutralisation)
Biochemical oxygen demand	DBO5	mg/l	500
Chemical oxygen demand	DCO	mg/l	1200
Suspended solids	MES	mg/l	600
Total nitrogen Kjeldhal	NTK	mg/l	150
Sulfates	SO ₄	mg/l	500
Copper	Cu	mg/l	1
Silver	Ag	mg/l	0,05
Phenol	C ₆ H ₅ (OH)	mg/l	0,5
Arsenic	As	mg/l	0,05
Cyanide	CN ⁻	mg/l	0,1
Fluoride	F ⁻	mg/l	3
Aluminum	Al	mg/l	10
Cadmium	Cd	mg/l	0,2
Cobalt	Co	mg/l	0,1
Zinc	Zn	mg/l	5
Mercury	Hg	mg/l	0,01
Nickel	Ni	mg/l	1
Total Phosphorus	Pt	mg/l	20
Tin	Sn	mg/l	2
Iron	Fe	mg/l	5
Lead	Pb	mg/l	1
Hexavalent chromium	Cr 6+	mg/l	0,1
Total chromium	Cr	mg/l	0,5
Free chlorine	CL ₂	mg/l	1
Sulfides	S	mg/l	0,5
Barium (Ba) mg/l		mg/l	0,5

Parameters		Unit	Release limits
Infrared hydrocarbons mg/l		mg/l	20
Oils and greases mg/l		mg/l	20
Antimony (Sb) mg/l		mg/l	0,1
AOX (organic halogen compounds)		mg/l	5
Selenium (Se) mg/l		mg/l	0,05
Manganese (Mn) mg/l		mg/l	1
Chlorine dioxide (ClO ₂) mg/l		mg/l	0,05
Detergents (anionic, cationic and non-ionic) mg/l		mg/l	2
Conductivity		(μS/cm)	2700
Salmonella/5000 ml		-	-
Cholera vibrio/ 5000 ml		-	-
Inhibitory matter		équinox/m ³	2,4
Total nitrogen NGL		mg/l	200
Biodegradability ratio (COD/BOD ₅)			<3
Hard COD		mg/l	50

Table 14-GHG EMISSION FOR PRIMAY AND SECONDARY SOURCED AL & CU

Metal	GHG Emissions per tonne processed (CO ₂)	
	Primary Route	Secondary Route
Al	~ 3,830 kg	~ 290 kg
Cu	~ 4,150 kg	~ 1,500 kg

Table-15 GHG EMISSIONS ESTIMATION

Scope	Description	Estimated CO ₂ Eq (tonne/annum)
Scope 1	Combustion of natural gas in plant furnaces (2,040 tonne/annum @ 2.75 conversion factor)	5,610
	Other emissions from coke and other pyrometallurgical additives	TBD
Scope 2	Purchased electricity (current planning is to purchase 100% renewable energy)	0

7.4.8. Water Resources

The AFZ free zone will be supplied with drinking water from an underground reservoir.

8. IDENTIFICATION AND EVALUATION OF PROJECT IMPACTS ON THE ENVIRONMENT AND SOCIAL:

8.1.METHODOLOGY

The identification and evaluation of a project's effects on its environment are crucial steps in any impact assessment study. Commonly referred to as impacts, they are derived from the analysis by overlaying the project's content with the components of the affected natural and human environments. The purpose of this section is to determine the potential disturbances to various elements of the environment resulting from different phases of the project. All foreseeable impacts on the environment (positive or negative) are listed and assessed. There are generally two main types of impacts.

- Socio-economic impacts: These are the effects of the project on the local economy, ways of life, and movements of people.
- Impacts on the natural environment: These can include changes in air quality, freshwater, and soil, among others.

These impacts will be described and analyzed precisely in light of environmental protection requirements (existing standards, established tolerance thresholds, etc.). The different impacts are then prioritized according to their relative importance to establish an order of priority for mitigation or compensation measures.

8.2.IDENTIFICATION OF IMPACTS:

The identification of impacts consists of understanding the potential disturbances to the receiving environment during the different phases of the project. The environmental analysis is based on:

- The intrinsic characteristics of the project and those of the area where it is located.
- The experience and knowledge of environmental impacts resulting from the establishment of the proposed industrial unit.
- Information and data collected from responsible entities such as the municipality, province, water and environmental services, and the Sebou Hydraulic Basin Agency.

This approach also allows for cataloging significant environmental impacts by theme and understanding them comprehensively before delving into the appropriate level of detail for each case.

Determining the impacts involves comparing the information from the first step (project description) with that from the second step (description of the valued elements of the environment) that could potentially be affected.

Based on this comparison, potential positive and/or negative impacts can be identified. Negative impacts are often explored selectively.

The positive or negative impacts that the project's implementation could have on the natural environment, population, and economic activities have been identified and assessed before being ranked by their importance and extent.

8.3.IMPACT ASSESSMENT

The evaluation of impacts aims to quantify the significance of the expected impacts in order to prioritize required mitigation and compensation measures.

The importance of impacts is assessed using various indicators, including sensitivity, intensity, extent, and duration.

- The degree of sensitivity assigned to an element depends on its intrinsic value and the scope of the anticipated impact to which the project exposes it. Four levels of sensitivity are considered:
- Absolute sensitivity: Space or environmental element protected by the law, prohibiting the project's establishment;
- High sensitivity: Space or environmental element to be avoided for the project's establishment;
- Moderate sensitivity: Space or environmental element may be considered for the industrial zone's establishment but with certain reservations;
- Low sensitivity: Environmental element can be considered for the industrial zone's establishment with minimal restrictions due to its low significance.

Intensity evaluates the magnitude of any negative effect that could affect the integrity, quality, or use of an element. Three levels of intensity are distinguished:

- High intensity: Characterizes the destruction of the element by the impact, compromising its integrity and reducing its quality;
- Moderate intensity: The impact modifies the element without compromising its integrity but reduces its quality to some extent;
- Low intensity: Characterizes the alteration of the element by the impact despite limited use.

Extent refers to the spatial reach of the impact within the study area, assessed based on the proportion of the population exposed to the impact. Three levels are distinguished:

- Regional: The impact will be noticeable by the population of an entire region;
- Local: The impact will be felt by the population of a locality or a portion of it;
- Point-specific: The impact will be limited to specific locations and will only affect a restricted group of individuals.

The combination of evaluation criteria determines the importance of the anticipated impact, categorized as unacceptable, major, moderate, or minor.

8.4.POSITIVE IMPACTS DURING CONSTRUCTION AND OPERATION PHASES

8.4.1. Positive impacts during construction phase

The positive impacts during the construction phase are mainly of a socio-economic nature:

- **Job Opportunities:** The construction site will create a certain number of direct and indirect jobs (workers, transporters, and security personnel) that will benefit the local labor force. Considering the scale of the construction, it is estimated that around 150 direct and indirect employment positions will be generated during the construction period, which is expected to last approximately 12 months. However, the workforce may vary over time based on the progress of construction activities and the execution schedule.
- **Economic Activities:** Parallel economic activities in the municipality may be stimulated, benefiting from increased exchanges and commercial transactions.
- **Local Procurement:** The supply of construction materials can be sourced locally or regionally, contributing to the local economy.
- **Regional Companies:** A significant portion of the construction work, including earthworks, material supply, transportation, civil engineering, roads, and various networks, can be carried out by regional companies.

These positive impacts during the construction phase are expected to contribute positively to the local and regional economy, providing employment opportunities and promoting economic activities in the area.

8.4.2. Positive impacts during the operation phase:

This project will be positioned upstream and downstream of the copper and aluminum manufactured products chain. It will contribute to the success of the national industrial acceleration plan, reduce the trade deficit, and enable the country to position itself well in the race for managing the energy transition. By creating a virtuous cycle, it will actively participate in the development of this ecosystem. This movement will be supported by the growth in industries such as aerospace, electric vehicles, and infrastructure, which are expected to grow by 20% annually according to national economic forecasts.

8.4.3. Working environment

The new project for recycling metal residues by Samta Metals & Alloys will be installed within an integrated industrial park (AFZ) that provides excellent working conditions, enabling effective management of the nuisances generated by various establishments. This framework

ensures proximity to services, availability of labor, and logistical resources. This represents a major positive impact and is the *raison d'être* of integrated industrial parks, which prevent the scattering of factories across the territory and the environmental problems arising from their dispersion. Thus, AFZ provides different industrial units with a framework designed by specialists, with the expressed intention of various stakeholders (AFZ, administration, industrialists) to create an exemplary development operation in practical, economic, and environmental terms. The management of the integrated industrial platform in Kenitra is governed by a charter of specifications (CDC) which includes contractual clauses (regulatory, urban, and architectural requirements) that must be respected by all parties involved. The purpose of this CDC is to regulate the intervention of different actors (industrialists) through common rules, ensuring a well-managed industrial infrastructure.

The industrial zone is fully equipped with basic infrastructure:

- Road network
- Sanitation (separate collection of rainwater and wastewater made compliant with the CDC and purified by its wastewater treatment plant)
- Drinking water supply
- Electricity
- Public lighting
- Telecommunications

The improvement of the working environment has undeniable positive effects on the success of activities of industrial, commercial, and service units located there, as well as on the quality of life of employees and neighboring populations.

8.4.4. Employment:

The establishment of a new industrial project will provide a significant source of direct and indirect job opportunities.

Upon opening, the project will generate a total of about 200 job opportunities, with 80% being local permanent contracts. These contracts will include engineers, senior executives, and specialized technicians (20%). The workforce will consist of both skilled workers and administrative staff.

Operational Staff requirements:

Role	Requirement
Chief Operation Officer	1
Senior managers	7
HSSEC and HR officers	4
Technical managers	14
Technicians	84
Finance	3
Admin and support services	11
Customer services and quality	11
Supplies and logistics	5
Sourcing and sales	2
Security	8
Total	150

8.5.NEGATIVE IMPACTS DURING CONSTRUCTION AND OPERATION PHASES:

8.5.1. Negative impacts on human health and safety:

Health and safety of employees

During the construction phase

A poorly organized construction site where safety measures are not respected poses a threat to public safety and the safety of workers.

Activities related to the construction of project units involve potential physical risks of accidents due to repeated exposure to mechanical actions. Rotating machinery and mobile equipment are also sources of accidents that can occur when personnel are trapped, caught, or struck by machine elements due to accidental start-ups or unexpected movements of these equipment.

The most common accidents on construction sites include falls from a great height, impacts with blunt objects or from poorly controlled machinery (such as cranes, loaders), falling of heavy objects (tools or formwork), impacts and projections from rotating machinery, burns (from welding and sealing work), slips, etc

H&S policies will be communicated to all the workers in the local and english language , Record will be maintained by SAMTA as per H&S policy.

- the HR policy and the Code of Conduct of Samta will be communicated to all employees and contractors in comprehensive language to address any potential gaps with Samta Standard
- The internal grievance mechanism of Samta will be accessible on site (please describe the mechanism or put the procedure in annex of available)
- Harassment will be addressed on site
- No child of forced labour in the workplace
- Work organisation possible without any retaliation

However, the recommended mitigation measures will help minimize these risks, especially as the project site is located within the well-fenced and guarded industrial platform of AFZ.

During the operational phase

The personnel working in the proposed plant will be exposed to several risks. This includes accidents related to equipment, exposure to hazardous chemicals, thermal risks related to metal melting, waste and emissions management, as well as ergonomic issues associated with heavy loads. It is necessary to take safety measures such as adequate training, use of appropriate personal protective equipment, and implementation of risk management protocols to ensure the safety of personnel.

Mitigation Measures

During the construction phase

Ensuring the safety of construction site personnel is the primary objective. For the protection of workers, it is necessary to equip them with helmets, gloves, masks, and safety shoes, and to ensure their systematic use by all personnel involved in the works.

As for public safety, the existence of the construction site must be clearly marked, fenced, and access should be restricted to authorized personnel only. It is important to note that this is already the case for the entire industrial zone of Kenitra, where access is controlled by security personnel from AFZ.

During the operational phase

An environmental management plan will be implemented to ensure the safety of employees and promote good environmental protection practices on the site. An emergency response plan is also recommended, which should include at least the description of how to respond in the event of accidents, leaks, spills, or fires. Emergency instructions should be well understood by employees and be subject to information and training actions (Rescue and First Aid - Safety - Prevention Plan)

Storage:

The main objective of the chemical storage area is to secure the chemicals and reduce exposure to associated risks by protecting personnel from harmful emissions or potential spontaneous chemical reactions.

The use of storage facilities must comply with strict rules, which will be regularly monitored by a Health-Safety-Environment (HSE) manager. Some of these rules include:

- Restricting access to the storage area to trained and authorized personnel only;
- Maintaining an up-to-date inventory indicating the nature and quantity of stored products, along with a general plan of different storage zones. This inventory should be available to fire and rescue services;
- Conditioning the storage of a product based on the availability of its regulatory Safety Data Sheet (SDS) and labeling;
- Implementing a rigorous and well-known classification, including displaying a plan and a list of stored products, prohibiting the storage of bulky or heavy packaging at heights, and preventing tools and equipment from being deposited in the chemical storage area;
- Adhering to product expiration dates;
- Establishing a procedure for disposing of unnecessary or expired products;

- Avoiding obstruction of access ways, exits, and emergency equipment;
- Organizing storage in a way that quickly detects any leaks, contains them, and allows for easy identification and evacuation of the affected containers. For this purpose, chemical-resistant containment basins not connected to the sewer or similar containment devices can be used. Additionally, storage areas should be designed and equipped with a retention pit that has no connection to the sewer, in order to prevent any risk of water contamination in case of accidental spillage of these products;
- Storage areas must be clearly labeled and well-ventilated. Warning signs such as "Corrosive Materials," "Toxic Substances," etc., should be displayed at the entrance;

In addition to the storage plan (location of different products, maximum capacity, etc.), a summary of the labeling of stored products and a reminder of possible incompatibilities should also be displayed.

Fire prevention and firefighting:

The storage area for significant quantities of products must be isolated from the rest of the building and equipped with an alarm system (smoke detector) to prevent the spread of any potential fire. It should be constructed with fire-resistant materials and be equipped with appropriate evacuation and firefighting systems, such as fire doors and extinguishers. The access to the area must be easy to allow for a quick evacuation in case of an accident.

The entire building must be protected by an automatic water spray extinguishing system, such as a sprinkler system, which will be installed throughout the building.

A fireproof water dispersion network, covering the entire surface of the plant, must be installed with an independent water supply, in compliance with the applicable standards.

An approved external and internal fire protection network, certified by the civil defense authorities, will be established.

Ventilation and Air Conditioning:

To avoid the generation and/or accumulation of dust and airborne particulate matter, openings placed at the upper part of the building will be installed to ensure efficient ventilation of the workshops. The areas at risk of fire will also be ventilated.

8.5.2. Impacts on the physical environment:

Soil Quality

Impacts during the construction phase

The impacts on the soil will be minor. The passage of machinery and workers during certain construction activities will cause slight soil compaction around the site, given their limited nature. The main concerns will be related to earthworks, including excavations and embankments necessary for the construction and development of the proposed factory site. There may also be soil pollution resulting from accidental spills of hydrocarbons.

During the construction phase, there is a risk of accidental spills and leaks of various chemicals, paints, clean and used oils, fuels, lubricants, and cleaning products. The impacts can occur in areas dedicated to their storage as well as during their transport on the site.

Indeed, the storage of certain construction materials, such as cements and hydrocarbons used for machinery, fuels, and lubricants, can be a source of soil pollution. If stored in non-improved areas (without protection against rainwater and runoff or on non-sealed platforms), these products can contaminate the soil and be carried deep into the ground through infiltration, towards the groundwater table.

Certain operations can also cause soil pollution:

- Uncontrolled draining of construction machinery outside impermeable and specially designed areas for this purpose;
- Fueling machinery under conditions that do not prevent or contain leaks and accidental spills of fuel;
- Direct discharge of liquid effluents, including used oils, accidental spills, and various types of solid waste (including household waste, various soiled or non-soiled packaging, and rubble) generated by the construction site.

The impact is temporary, reversible, and of minor to moderate significance:

During the Operation Phase

The temporary storage of hazardous waste, such as used oils in barrels, also presents potential risks of soil contamination caused by possible leaks or accidental spills that may result from improper sealing of the barrels.

The storage area for hazardous waste (180m²) must be equipped with an impermeable and watertight lining. As a result, there will be no generation of contaminated soil.

Mitigation Measures

During the construction phase

The soil may be affected by the storage of construction materials and waste, as well as by the movement of machinery. Several measures are recommended to address these issues.

- Strictly organize the circulation of heavy machinery;
- Immediately distribute excavated materials for site reclamation around the structures. Any unused excavated materials should be deposited in designated storage areas if they are intended for future use; otherwise, they should be transported to approved fill areas;
- The removed topsoil should be preserved in a protected location on-site for later reuse, either within the perimeter of the new industrial zone for landscaping purposes or as a supply of fertile soil for neighboring agricultural fields;
- Perform maintenance of construction machinery and vehicles, as well as fueling and lubricating, in a sealed concrete area with containment and an oil separation system. On-site provision of absorbent materials and labeled watertight containers should be available to collect any hydrocarbon residues and waste from potential accidental spills.
- The construction company responsible for the project must ensure the collection of waste produced at the construction areas as the project progresses:
- They must ensure specific management for each category of waste, adhering to rules and best practices for environmental protection;
- Domestic waste will be disposed of by transporting it to an authorized landfill, while the disposal of hazardous waste (metallic dust) will be entrusted to an approved specialized company.
- Collection, storage, and disposal of used oils and lubricants should be carried out by an approved specialized company;

- Worker's handling labeled hazardous and/or toxic products at the construction site should receive pre-training. This training should focus particularly on three topics: environmental protection, workplace safety, and first aid procedures.

Measures	Waste management recommendations
Source reduction	Special attention will be given to the purchase of consumables to avoid any material waste. If there are excess stocks, they will be returned to the suppliers whenever possible, through a consultation process that promotes the reuse of the original packaging containers.
Selective sorting	The separation of different types of waste allows for optimal valorization. The Company will set up clearly identified receptacles on the construction site: bins for domestic waste (canteen, administrative offices kitchen), container for non-recyclable DIB plastics, container for non-recyclable DIB waste, container for wood, container for ferrous and metal packaging, container for contaminated waste (Hazardous Industrial Waste), drums for used oils.
Storage and collection	<p>Before waste removal, storage will be organized under appropriate conditions to reduce any risk of pollution. Proper transport will be arranged for the evacuation of hazardous waste (HIW) to ensure their traceability.</p> <p>Compactable components such as plastics, paper, cardboard, and other non-hazardous industrial waste can be compacted to reduce their volume.</p>
Waste traceability	Waste traceability will be ensured by the company, which will maintain a register updated as the construction progresses in accordance with regulations. This register will contain the required information: waste code according to the classification, nature of the waste, quantity evacuated, disposal route, type of document issued for traceability, based on a tracking form for all Hazardous Industrial Waste (HIW)

Measures	Waste management recommendations
Maximum valorization	<p>Wherever feasible, the companies will ensure the highest possible waste valorization through reuse, recycling, regeneration, or incineration with energy recovery.</p> <p>The non-recyclable portion of the waste will undergo appropriate treatment at specialized authorized centers to reduce volume and/or toxicity;</p>

Table 14: Waste Management Recommendations

During the Operation Phase:

To minimize the impact on the soil, it is recommended to ensure the waterproofing of the platform that houses the new plant, in order to prevent any risk of contamination from accidental spills of hazardous liquids or hydrocarbons. Additionally, it is advisable to systematically implement containment systems for potential leaks.

The project includes stocks for the following chemicals used/

- Sulfuric acid
- Hydrochloric acid
- Sodium hydroxide (NaOH)
- Hydraulic oil

It is recommended that all liquid storages be placed on sealed concrete platforms equipped with appropriate retention structures whose volumes should be equivalent to those of the corresponding chemicals.

The storage units for these products will take the form of tanks, barrels, pallet-mounted containers, and cans placed in appropriate containment areas to prevent any spillage or leakage of chemicals. Cleaning equipment for any spillage with absorbent materials must be provided and maintained in perfect condition.

Strict control of the inputs and outputs of each process or treatment that may have environmental impacts will allow for the management of incurred risks. Understanding and evaluating their use and storage, particularly through labeling and providing safety data sheets, are necessary.

In order to limit negative environmental impacts and conserve natural resources, all waste must be treated according to its nature (recycling, valorization, incineration, landfilling, or other treatment for hazardous components). To direct each waste to the appropriate treatment process, it is essential to implement selective waste collection.

To this end, it is strongly recommended to have containers of adequate capacity on-site, as well as identified trash bins placed in appropriate locations according to activities. Training the staff on the application of waste sorting is crucial for the implementation of rational waste management methods.

Water resources

Impacts during construction Phase

During the construction phase, the risks of water quality impairment are mainly related to accidental spills (hydrocarbons, oils, etc.) from the operation, cleaning, and maintenance of construction equipment (fueling and drainage, in particular).

Liquid and solid waste from the construction facilities can be sources of water contamination if not properly managed. However, these risks are considered low since the site is located within an integrated industrial park, there is no hydrographic network nearby, and the number of workers permanently residing on the construction site is limited.

During the Operation Phase:

During the operation phase, considering the use of well-maintained machinery and the waterproofing of the plant platform, no impact on groundwater quality is anticipated.

However, there will always be a risk of accidental spills of hazardous liquids that could reach the AFZ sanitation network and its sewage treatment plant (STEP) before potentially causing an extremely unlikely disturbance to the surface waters of the Sebou River, which serves as the final receiving environment. It is important to note that the storage areas for hazardous waste will not have any connection to the AFZ sanitation network.

Like all companies that settle in this zone, Samta Metals & Alloys commits to complying with the specifications. The company will ensure a pretreatment of its industrial effluent to recycle it entirely (zero liquid discharge). Only domestic wastewater will be directed to the wastewater treatment plant (STEP) in accordance with the limits specified in the specifications.

Mitigation measures

Construction phase

Given the existing hydrographic network downstream of the AFZ industrial zone, the risk of surface water contamination will always be present due to the presence of stocks of hazardous liquid chemicals and used oils on-site. To minimize or even avoid this impact, a set of preventive mitigation measures is recommended.

- Exercise utmost caution during refueling of vehicles and machinery to prevent any accidental spills;
- Any handling of fuel, oil, or other contaminating products must be carried out under constant supervision to prevent accidental spills,
- Plan for measures in case of accidental spills, such as using absorbent materials, removing the potentially affected soil layer by hydrocarbons, and disposing of it properly or sending it to an authorized landfill;
- Limit traffic to the construction site area only.

It is essential to ensure that materials and hydrocarbons on the construction site are stored away from adverse weather conditions (rain and wind) and potential runoff during rainy episodes.

- Materials susceptible to be carried away by the wind (sand, cement, etc.) must be covered or placed behind a barrier.
- Materials that could be carried away by runoff water should be stored outside areas with strong water flow and on impermeable surfaces equipped with retention pits (fuel tanks and lubricant and chemical stocks).

Operation Phase:

The project's liquid discharge consists solely of domestic wastewater, as the internal treatment plant ensures complete recycling of treated effluent. Thus, no industrial liquid effluent will be discharged into the environment.

Domestic wastewater will be conveyed through the AFZ network to the wastewater treatment plant (STEP) for purification before being released into the natural environment.

The vehicle and machinery washing area will be equipped with a system to capture any potential spillage of polluting liquids (oil) and will also be connected to an oil separator. This separator will use gravity to separate lighter liquids (oils or hydrocarbons) from the washing water.

Air quality

Impacts during the Construction Phase

Construction activities are likely to have impacts in terms of emitting gaseous pollutants (exhaust gases) and dust into the air. The extent of these impacts depends on the distances traveled, the speed of the machinery, and the characteristics and moisture content of the roads and soils.

The anticipated impacts on air quality are minor, localized, and occur over short periods. They result from increased concentrations of dust and pollutants from exhaust gases due to the operation and movement of construction machinery and transport trucks.

Given the absence of a population in the immediate vicinity of the site, this impact will be temporary, reversible, and of low significance.

Operational phase

Air pollution, as it affects air quality, is responsible for many environmental and human health issues, particularly in areas where industrial activity is concentrated.

The operations involved in copper metal and aluminum alloy production will generate dust, including a significant proportion of metallic particles, and emissions of gaseous pollutants. These substances can negatively affect ambient air quality.

The exhaust flow rates from the copper and aluminum manufacturing lines are as follows:

- Copper cathode production chimney: 32,000 m³/h;
- Aluminum alloy production chimney: The maximum level is 130,000 m³/h.

The tables below represent the polluting substances present in the atmospheric emissions from the two processes of the project (copper and aluminum) and the emission limit values that must be complied with in accordance with Moroccan regulations.

Table 15: Gaseous Pollutants from Copper & Aluminum process Before and After Treatment showing the limiting values in compare to Morocco & BAT norms standard

Pollutant generation				Mitigation measures		Teneur	Seuil de rejet		
						sortie	Morocco Std.		BAT Norms
Débit de fumée Nm3/h	pollutant	Accounting method	mg/Nm ³	Process	Efficiency %	mg/Nm ³		Min Monitoring frequency	
							mg/Nm ³		mg/Nm ³
32000	SO2	Material balance	775		77	178	500	Continuous	50-300
	NOX	Pollution production coefficient	880		58	370	500	Continuous	Use of Low Nox burners
	particulate matter	Product coefficient	82	Bag dust collector	80	16	50	Continuous	NA
	Fluoride	Analogy	8.7		54	4	5	Once/Year	NA
	Arsenic and its compounds	Material balance	1.8		56	0.8	1	Once/Year	Use of Bag filter/ESP/wet scrubber
	Lead and its compounds	Material balance	9.6		69	3	5	Once/Year	Use of Bag filter/ESP/wet scrubber
	Tin and its compounds	Material balance	9.2	+	57	4	5	Once/Year	Use of Bag filter/ESP/wet scrubber

	Antimony and its compounds	Material balance	7.3		59	3	5	Once/Year	NA
	Cadmium and its compounds	Material balance	0.18	Alkali spray	44	0.1	0,1	Once/Year	Use of Bag filter/ESP/wet scrubber
	Chromium and its compounds	Material balance	1.74		54	0.8	5	Once/Year	NA

Pollutant generation				Governance measures		Pollution	Executive standards		
Waste gas volume Nm ³ /h	pollutant	Accounting method	mg/Nm ³	Process	Efficiency%	mg/Nm ³	Morocco Std		BAT Normas
								Min Monitoring frequency	BAT 10
							mg/Nm ³		mg/Nm ³
130000	SO ₂	Material balance	34.14	Bag dust collector	10	30.72	500	Continuous	Use of Wet scrubber and bag filter
	NO _X	Pollution production coefficient	42.7		0	42.7	500	Continuous	Use of Low Nox Burners
	particulate matter	Product coefficient	653.85	(+Activated carbon adsorption+	98	13.07	50	Continuous	NA
	HCl	Analogy	6.39		10	5.75	30	Continuous	5-10
	fluoride	Analogy	0.69	Alkali spray)	60	0.276	5	Once/Year	NA
	Dioxin	Analogy	2.91E-07		20	2.32E-07	0.5ngTEQ/m ³	Once/Year	NA

	Arsenic and its compounds	Material balance	3.04		99	0.0304	1	Once/Year	NA
	Lead and its compounds	Material balance	21.4		99	0.214	5	Once/Year	NA
	Tin and its compounds	Material balance	4		99	0.04	5	Once/Year	NA
	Cadmium and its compounds	Material balance	0.93		99	0.0093	0.1	Once/Year	NA
	Chromium and its compounds	Material balance	4.57		99	0.00457	5	Once/Year	NA

Table 16: Gaseous Pollutants from Aluminum Alloy Production Before and After Treatment

Sr No.	IED BAT	Actions Required
BAT	BAT: Air emissions	
	Summary: Some Best Available Technologies have been incorporated into management of channeled air emissions, however the documentation and designs reviewed do not indicate that diffuse air emissions are considered, and monitoring of air emissions requires improvement.	
BAT 1.1	Channeled Air Emissions	Installation of bag filter, alkali spray tower and activated carbon absorption has been implemented as per BAT Use of a wet scrubber in addition to a bag filter.
BAT 1.2	Diffuse Air Emissions	Considering implementing BAT recommendations for diffuse emissions into the design of the plants and the site structures and layout.
BAT 1.3	Monitoring of Air Emissions	Considering continuous or periodic monitoring of emissions (on a more frequent basis than once per year) and include diffuse emissions and dust monitoring in the ESMP.
BAT	BAT: Contamination of Soil and Water	
	Summary: Containment and housekeeping practices reduce the risk of contamination of soil and water; however, limited information is available on the anticipated contaminants and the implications for process water and contamination	
BAT 2.1	Prevention of soil and water contamination	Considering a high-level mass balance to assess potential contaminants and inform capture and treatment design. Designing proper drainage system and in house treatment of all process water waste within the plant site. No liquid discharge policy. we have approved sanitation plan in placed

Table 17: BAT adaptation for air emission and water and solid contamination.

Activated carbon adsorption and alkaline solution spraying systems have been selected to reduce emissions of dioxins, hydrochloric acid, and sulfur dioxide.

Based on the analysis of the two tables, it is evident that the project will comply with the emission limit values established by Decree No. 2-09-631 for gaseous pollutants. Thanks to the planned flue gas purification processes, the project's emissions will be in accordance with current Moroccan regulations, ensuring the protection of the environment and public health for neighboring human settlements.

According to calculations based on the specifications of the NF DTU 24.1 standard, for the highest pollutant content emitted (Nox), the minimum heights for the chimneys of the copper and aluminum blast furnaces are 25 and 28 meters, respectively. To ensure a sufficient safety margin, a height of 30 meters has been selected for both chimneys. The calculation details are provided in the appendix of this report

Mitigation measures

Construction phase

- ✓ Maintain the transport vehicles and machinery in good working condition to minimize polluting emissions from their exhaust gases;
- ✓ Promptly repair construction machinery and vehicles that produce excessive exhaust gas emissions;
- ✓ Ensure proper maintenance of construction machinery and vehicles;
- ✓ Systematically cover the trucks used for material transport;
- ✓ Water the roads used by vehicles for transport if necessary.
- ✓ SAMTA has own policy towards Health and safety, Incident report firm, ground disturbance clearing firm, Training policies. These policies has been annexed with this report. SAMTA will implement the guidelines during construction and operation.
- ✓

Operation Phase

The project developer has already planned mitigation measures for the negative impacts of air pollutants, which are integrated into the project design to minimize the significance of these impacts. These measures are outlined above:

- ✓ Installation of bag filters to effectively capture fine particulate emissions;
- ✓
- ✓ Preferential use of natural gas as a relatively clean fuel.
- ✓ Effective treatment of fumes through bag filters.
- ✓ Implementation of activated carbon adsorption and alkaline solution spraying to reduce emissions of dioxins contained in dust, hydrochloric acid, and sulfur dioxide, as explained in Tables 15 and 16 on pages 97 and 98.

- ✓ Disposal and elimination of metallic dust by an approved specialized company.

Additional complementary measures are recommended, such as:

- ✓ Maintaining the transport vehicles in good working condition to minimize polluting emissions from their exhaust gases.
- ✓ Promptly repairing vehicles that produce excessive exhaust gas emissions.
- ✓ Ensuring proper dispersion of treated fumes through chimneys with a height exceeding the roof by at least 5 meters.
- ✓ Recovery of metallic dust and elimination by a qualified company.
- ✓ SAMTA has own policy towards Health and safety, Incident report firm, ground disturbance clearing firm, Training policies. These policies has been annexed with this report. SAMTA will implement the guidelines during construction and operation.
- ✓ Compulsory Health and safety training will be provided before starting construction and operation phase.

⇒ Regarding boiler emissions, the following measures are strongly recommended to limit their polluting emissions:

- ✓ Ensure the best combustion conditions through excess air control;
- ✓ Implement appropriate inspection and maintenance cycles;
- ✓ Ensure that operating personnel are well-trained in the application of best boiler operating practices

Noise nuisance

Impacts during construction phase

Construction sites are inherently noisy areas. During the construction phase, there will be temporary nuisances related to increased levels of noise emissions. These noises mainly originate from construction machinery (excavators, cranes, rollers, concrete plants, etc.) and trucks and trailers transporting materials and equipment. The impacts should be considered based on the proximity of the site to the nearest residences, which are, however, sufficiently distant, resulting in very low impact in this regard. However, the noise may be noticeable at neighboring industrial establishments due to the cumulative effect of noise from multiple construction projects.

Operation phase

Machinery in the production lines, engines, and pumps are generally sources of noise emissions during the operation of industrial units. The movement of trucks transporting raw materials and other products inside and around the site can generate significant noise levels. The

corresponding impacts in terms of nuisance for the users of the industrial park can be significant if proper sound insulation measures are not implemented in accordance with the regulations recommended by AFZ's specifications. However, the distances separating the nearest establishments are sufficient to significantly attenuate the noise emissions at the site's property boundaries. The noise from the crusher can exceed 90 dB, but it will be limited to 50 dB outside the enclosure as stipulated by AFZ's specifications. Ultimately, the impact of noise will only be felt within the project site and should not extend to affect neighboring establishments.

Mitigation measures

Construction phase

It is necessary to:

- ✓ Ensure the sound quality of equipment and construction machinery through regular checks and proper maintenance;
- ✓ Reduce the noise emissions of equipment used by selecting the least noisy construction machinery possible;
- ✓ Optimize the loading of construction machinery to limit their rotation frequency;
- ✓ Restrict noisy works outside normal working hours to avoid disturbing neighboring establishments;
- ✓ Provide instructions to drivers to minimize the use of horns and to switch off vehicle engines when idle;
- ✓ Compulsory Health and safety training will be provided before starting construction and operation phase.
- ✓

Operation phase

- ✓ In accordance with the requirements of AFZ's specifications, Samta Metals & Alloys commits to reducing the noise nuisances resulting from its activities to comply with the authorized limits around the site. This will be achieved by implementing soundproofing measures to attenuate sound levels and prevent their propagation beyond the site's property boundaries;
- ✓
- ✓ In addition, the layout of the industrial lots is designed with sufficiently wide separation roads to reduce the received noise emissions at the boundaries of neighboring factories;
- ✓
- ✓ The preventive approach is based on source reduction of nuisances by, whenever possible, selecting machinery that generates minimal noise emissions. Similarly, confining workshops housing noisy equipment significantly reduces these emissions;
- ✓

- ✓ However, employees working in noisy areas will be provided with ear protection headsets.
- ✓ Compulsory Health and safety training will be provided before starting construction and operation phase.
- ✓

Landscape aspect

Impacts during construction phase

The landscape impact of a construction site depends on its duration and size. In the case of the planned factory on the AFZ platform, there will be slight modifications to the local landscape due to the presence of material and waste stocks. This may temporarily alter the visual environment in the vicinity. It is essential to consider the proper management of the construction facilities, as well as their location and height. Ensuring cleanliness inside and around the site, as well as organized material storage, is crucial to preserve the visual aspect of the construction site for nearby residents. Additionally, this contributes to avoiding potential accidents for employees and damage to stored materials. It should be noted that the area that will host the project has already undergone significant modifications for the development of the AFZ industrial platform. Furthermore, given the temporary nature of the construction work, the landscape impact is considered minor, provided adequate site organization is ensured.

Operation phase

The visual impact of the project will mainly be confined to the AFZ industrial zone. The specifications require architectural criteria that contribute to reducing the visual impact of the projected buildings and enhancing their landscape integration. However, it is important to note that poor management of waste, raw material stocks, or waste could affect the visual quality of the factory buildings. Despite this, the impact on the surrounding landscape is considered low, thanks to the mitigation measures recommended in this domain.

Mitigation measures

Construction phase

These inevitable nuisances can be limited by:

- ✓ Proper management of construction material stocks within the site;
- ✓ Regular collection and storage of construction waste in appropriate locations before regular disposal;
- ✓ Installation and proper positioning of various information and awareness panels;

- ✓ Fencing surrounding the work area.
- ✓ Compulsory Health and safety training will be provided before starting construction and operation phase.
- ✓

Operation phase

Proper management of storage areas, chemicals, and waste will ensure a better visual quality of the factory site perceived by both its clients and neighbors.

Infrastructure and road traffic

Impacts during construction phase

The project implementation will not result in any bypass of existing roads and thoroughfares. Current accesses will be preserved, causing temporary disruptions during construction works, without harming other infrastructures. The construction site will inevitably lead to some disturbances in road traffic due to transportation operations related to the supply of construction materials and equipment. However, the traffic associated with the commissioning of the Samta Metals & Alloys project will add to that of other industrial units in the AFZ, resulting in a cumulative impact on the RN4 traffic. These activities will contribute to increased traffic on the RN4, which may lead to an elevated risk of congestion-related accidents in the absence of appropriate mitigation measures.

During the operational phase

The road hierarchy and access organization to different plots have been considered by the AFZ developer to meet specific objectives such as ensuring good visibility, easy access to maintenance and emergency services, and smooth maneuverability for heavy vehicles, etc.

The vehicles will have a significant rotation frequency, equivalent to that of 5 to 6 trucks with a transport capacity of 25 tons per day. However, it is worth noting that this frequency remains relatively low and should not exert considerable pressure on the infrastructure. Samta Metals & Alloys will take necessary measures to ensure that truck movements occur outside peak hours to minimize potential disruptions to RN4 traffic.

Samta Metals & Alloys will consistently adhere to the authorized payload of heavy vehicles (regulatory axle load) as set by the Ministry of Equipment and Transport (traffic code).

Mitigation measures

Construction phase

To ensure road traffic safety on this section of RN4, it is recommended to follow precautionary instructions (slowing down) at the intersections with RN4 and install highly visible vertical signs during both day and night, indicating the exit points for trucks. The access roundabout established in the AFZ development already includes these provisions.

To this end, the transportation of materials and movement of heavy equipment and exceptional convoys will be conducted outside peak hours to avoid disrupting road traffic on RN4. Additionally, truck drivers should be required to limit their speed at the project site's access points and exercise strict vigilance when entering and exiting the construction area.

- ✓ To prevent any risk of road degradation, it is mandatory to:
- ✓
- ✓ Systematically enforce the authorized payload of heavy vehicles (axle load) as set by the Ministry of Equipment and Transport in the traffic code;
- ✓ Compulsory Health and safety training will be provided before starting construction and operation phase.
- ✓

Systematically cover trucks carrying materials to prevent spillage on the road and flying fines.

During the operational phase

The road hierarchy and access organization to plots and constructions have been taken into account by the developer to ensure specific objectives are met, such as ensuring good visibility, easy access to maintenance and emergency services, and proper maneuvering of heavy vehicles. The goal is to ensure smooth and secure traffic while avoiding negative impacts on other road users.

8.5.3. Negative impacts on the biological environment

The most evident impact during construction is related to the movement of equipment (trucks, bulldozers, etc.) on the terrain. The project will have no real impact on biodiversity, given the absence of natural habitats and the completely artificialized state of the soils due to the development of the AFZ area and the start of construction operations for the new factories. The site is already open, and any animal species it previously housed have likely already moved away due to the initial modifications that occurred with these works. The process of opening up the environment and exposing the vegetation has already taken place during the implementation of various developments concerning the AFZ industrial platform.

8.6.DEMOLITION PHASE

Samta Metals & Alloys commits to making the necessary arrangements for the complete dismantlement of its factory installations after the definitive cessation of operations. This phase mainly comprises two aspects:

- Dismantlement of the installations;
- Site rehabilitation to restore it to its original state.

In general, the impacts related to dismantlement will be of a similar nature to those during the construction phase. The project's effects and corresponding mitigation measures will be addressed within the framework of the dismantlement operations.

Dismantlement:

Samta Metals & Alloys commits to taking, if necessary, the necessary measures for the complete dismantlement of the installations after the definitive cessation of their operations. This includes:

- Disassembling the factory;
- Removing annexed equipment;
- Leveling the foundations of concrete platforms;
- Breaking concrete bases to allow for free drainage of rainwater;
- Foundation scraps and debris will be sorted and then valorized by specialized contractors.

In case of valorization of the buildings by a third party for other activities, only the first aspect (disassembling the factory) will be implemented.

Metal scraps will be collected separately to be valorized through specialized circuits and organizations for this type of recycling.

Concrete will be made available for local reuse, for example, as "hard material" for construction or as backfill.

After dismantlement, the site will be left clean, free of any waste, and safe for the environment or the safety of future users.

Rehabilitation:

The site's rehabilitation work should lead to its restoration to be reintegrated into its natural environment.

The local impact of dismantlement will be positive. Indeed, the companies chosen for the disassembly work will, as far as possible, be local or regional. Hiring the required personnel should result in some positive economic benefits for the local population, the municipality, and local businesses.

Impacts related to the dismantlement site concern:

- Sound emissions and vibrations.

Potential sources of vibration on the dismantlement site will include:

- Cutting operations using torches and shears;
- Placing scrap blocks on the ground using cranes.

Mitigation Measure

Equipment and machinery will comply with prevailing standards, considering that the nearest human establishments to the site are neighboring factories.

Waste Impacts

The dismantlement will generate a significant amount of waste.

Mitigation Measure

Special or contaminated waste will be removed and managed by an approved specialized company.

Ordinary waste will be transported to an authorized landfill;

Waste sorting will be carried out on-site to ensure maximum valorization of recyclable components (metals, plastics, glass, etc.);

Collection containers will be adapted to each type of waste, with dedicated storage areas for different categories.

Traffic Impact:

The evacuation of dismantled elements will be carried out by specialized companies for recycling or ecologically acceptable disposal.

Mitigation Measure:

Transport will be scheduled to avoid peak hours

Air Quality Impact:

Work may generate dust during the concrete demolition phase and movement of machinery.

Mitigation Measure:

Watering of roads will be practiced if necessary (during dry and windy conditions)

8.7.IMPACT IDENTIFICATION AND ASSESSMENT MATRIX

Based on the cross-referenced descriptions of the project and the environment, the classification and assessment of impacts are carried out using a matrix. The impact identification and assessment matrices below link the project elements with the receptor environment components that may be affected and are grouped by categories, namely: Human (health, quality of life, safety, etc.), air quality, water, soil, landscape, and noise.

The evaluation of the project's environmental impacts is presented in the form of matrices in the following tables:

- Table 18 for positive and negative impacts during the construction phase.
- Table 19 for positive and negative impacts during the operational phase

To facilitate reading and understanding of the tables, the notations specified in the table below have been used:

Table 17: codification

Notation	Signification
F	High
M	Medium
f	Low
R	Regional
Lc	Local
P	Punctual
L	Long
C	Short
Mj	Major
Md	Moderate
Mn	minor
+	positive impact
-	negative impact

Table 3: Impact matrix - construction phase

Environment	Elements affected	Impact	Type of impact	Sensitivity	Intensity	Extent	Duration	Importance	Residual impact
Human environment	Population	Hiring of labor-creation of direct and indirect jobs Increase in trade	+	F	f	lc	VS	M	
	Safety (people and employees)	Increased risk of road accidents and traffic on the site	-	M	f	lc	VS	min	f
		Safety of people during work	-	f	f	P	VS	min	f
		Pollution generated by the living camp of the site personnel	-	f	F	P	VS	min	
	Living environment	Noise pollution caused during earthworks	-	F	f	P	VS	min	f
		Nuisance caused by vibrations	-	f	f	P	VS	min	f
	Air quality	Release of gaseous pollutants and dust	-	f	f	lc	VS	min	f
Physical environment	Waters underground	Spills of oil or other pollutants from gear and machinery: risk of contamination of groundwater	-	f	f	lc	VS	M	f
		Storage of certain construction materials which can constitute a source of groundwater pollution	-	f	f	P	VS	min	f
	Quality of the ground	Soil compaction due to the passage of construction machinery and workers will be limited to the site	-	f	M	P	VS	min	f
		Unsecured storage of certain site materials can be a source of soil pollution	-	f	f	P	VS	min	f
		Construction waste may degrade the soil	-	f	f	P	VS	min	f
	Countryside	Construction work harms landscape values	-	f	f	lc	VS	min	f

Table 4: Impact matrix - operation phase

Environm ent	Elements affected	Impact	Type of impact	Sensitivity	Intensity	Extent	Duration	Importanc	Residual innact
Human environment	Employment and socio-economic activities	Significant source of direct and indirect jobs Improvement of the working environment	+	F	f	lc	I	M	
	Health and safety (population and personnel)	Increased traffic Increased risk of accidents due to congestion on the RN4 Exposure to machinery (ovens, liquid aluminum magnet machine) presents potential hazards to workers.	-	M	f	lc	I	M	f
Biophysical environment	Resources in Waters	Increase in water consumption.	-	f	f	lc	I	M	f
	Air quality	Emissions of dust and gaseous pollutants (acid and metals)	-	f	f	I	I	F	M
	Soil quality	Risk of contamination from accidental leaks and spills for storage of chemical products (acids, soda) Risk of contamination by used oils and greases.	-	M	f	P	I	F	f
	Countryside	The buildings and technical installations of the platform may affect the landscape values around the site.	-	f	f	lc	I	mi n	f

8.8.SUMMARY OF NEGATIVE IMPACTS AND MITIGATION MEASURES

Construction phase :

Table 5: Summary of negative impacts and mitigation measures - Construction phase

Environment	Elements affected	impacts	Importance impact	Recommended mitigation measures
Human	Peoples' security	<ul style="list-style-type: none"> ▪ Risks to employee safety during work (accidents) 	Minor	<ul style="list-style-type: none"> ▪ Equip workers with PPE; helmets, gloves and safety shoes and ensure that they are used by all staff.
Physical	Water quality	<ul style="list-style-type: none"> ▪ Oil or fuel spills from machinery and machinery with risk of groundwater contamination; ▪ Unsafe storage of chemicals that can pollute water. 	Minor	<ul style="list-style-type: none"> ▪ Any handling of fuel or lubricants must be carried out under constant supervision, in order to avoid any accidental spillage; ▪ Care must be taken to store site materials and hydrocarbons protected from bad weather (rain and wind) and runoff water during rainy periods.
	Soil and subsoil quality	<ul style="list-style-type: none"> ▪ Unsecured storage of site materials, lubricants and paints can be a source of pollution. ▪ Construction waste may degrade the soil 	Minor	<ul style="list-style-type: none"> ▪ Ensure secure storage of chemicals (paints, lubricants); ▪ Ensure the collection, storage and disposal of used lubricants by approved specialized companies; ▪ Ensure the collection of waste produced as the work progresses.
	Air quality	<ul style="list-style-type: none"> ▪ Emissions of gaseous pollutants and dust 	Minor	<ul style="list-style-type: none"> ▪ Properly maintain transport vehicles and machinery; ▪ Drive carefully and obey speed limits.

Operation phase:

Table 6: Summary of negative impacts and mitigation measures - Operation phase.

Environment	Elements affected	impacts	Significance of impact	Recommended mitigation measures
Human	Staff health and safety	<ul style="list-style-type: none"> ▪ Exposure to dust; ▪ Risk of work accidents; ▪ Risk related to the handling of equipment (machine with liquid aluminum magnet) 	Mean	<ul style="list-style-type: none"> ▪ Provide collective protection (effective ventilation of workshops and dust extraction at source, electrical installation and fire protection in accordance with standards, compliance with general hygiene rules, etc.); ▪ Systematically use personal protective equipment; ▪ Respect the instructions when operating the equipment, ▪ Information, awareness and security training.
Physical	Water quality	<ul style="list-style-type: none"> ▪ Quality of effluent discharged to the AFZ network: ▪ Loading of rainwater with oils and fats 	Mean	<ul style="list-style-type: none"> ▪ Compliance with AFZ discharge thresholds for domestic liquid effluent; ▪ The project has zero industrial liquid discharge; ▪ Set up containment devices for accidental spills. ▪ Before being discharged into the AFZ network, the collected rainwater will pass through an oil separator, which is designed to remove oils and fats from the water

Environment	Elements affected	impacts	Significance of impact	Recommended mitigation measures
	Soil Quality and Waste Management	<ul style="list-style-type: none"> Production of significant flows of hazardous and non-hazardous industrial waste; Soil pollution and contamination 	Minor	<ul style="list-style-type: none"> Reduce volumes at source; Evacuate the quantities produced to recovery and disposal channels via approved specialized companies; Optimize collection through zoning with appropriate selective sorting ; Place dumpsters of adequate capacity and identified bins in the appropriate places, for ordinary household and industrial waste (DIB) and special waste (DIS).
	Air quality	<ul style="list-style-type: none"> Gaseous emissions of dust and gaseous pollutants (acids and metals) 	Mean	<p>Flue gas treatment by filter and alkaline washing</p> <p>Activated carbon adsorption device</p>

Dismantling phase:

Table 7: Summary of negative impacts and mitigation measures - Dismantling phase.

Environment	Elements affected	impacts	Significance of impact	Recommended mitigation measures
Human	Musical ambiance	<p>Potential sources of vibration and noise :</p> <ul style="list-style-type: none"> • Dismantling of installations and ancillary equipment; • Emptying operations of the premises; • Torch and shear cutting operations; • Place blocks of scrap on the ground by the cranes. 	Minor	The equipment and machinery must meet the standards in force knowing that the nearest establishments are quite far from the factory.
	Road traffic	The removal of the dismantled elements by specialized companies for recycling or environmentally acceptable disposal may disrupt road traffic, but the rotation frequency will be modest.	Minor	Transport will be done at a fairly slow pace avoiding peak hours.

Environment	Elements affected	impacts	Significance of impact	Recommended mitigation measures
Physical	Air quality	<p>The work will generate:</p> <ul style="list-style-type: none"> • Dust during the demolition of concrete structures and the movement of machinery; • Polluting emissions from the exhaust gases of transport trucks. 	Minor	<p>The watering of the ways must be practiced in case of need (dry and windy weather).</p> <p>Transport vehicles will be maintained in good condition. They must be controlled to limit their polluting emissions.</p>
	waste management	Dismantling will generate significant production of different types of waste.	Minor	<p>Waste will be sorted on site to ensure maximum recovery of recyclable components (plastics, glass, cardboard, metals, etc.).</p> <p>Special or contaminated waste will be evacuated and taken care of by an approved specialized company. Ordinary and household waste will be sent to an authorized landfill.</p>
Biological	Biodiversity	The future factory will be installed in the AFZ industrial zone, consisting of a completely artificial environment.	Nothing	No mitigation measure required.

9. ENVIRONMENTAL MONITORING AND SURVEILLANCE PLAN

Samta Metals & Alloys will implement:

- An environmental surveillance plan;
- An environmental monitoring program.

The main objective of the environmental surveillance plan is to ensure that the project complies with environmental regulations. The monitoring program aims to verify the accuracy of the predictions presented in the Environmental Impact Assessment (EIA) and to determine if additional corrective measures need to be applied to ensure compliance with environmental standards.

The monitoring program aims to ensure that the recommendations outlined in the EIA, including proposed mitigation measures, are implemented. An Health, Safety, and Environment (HSE) officer from Samta Metals & Alloys will be present during the execution of the project to verify the adequacy of the proposed measures in achieving the environmental protection objectives.

The environmental monitoring program for the plant will achieve the following objectives:

- Verification of the predictions presented in the EIA regarding residual impacts;
- Determination of the effectiveness of mitigation measures in cases where uncertainties persist;
- Acquisition of knowledge that will improve impact predictions for future projects and contribute to the review of standards, guidelines, and policies concerning environmental protection.

It is recommended that these tasks be carried out by an independent external organization. The project owner must conduct activities related to environmental monitoring at different phases of the project's implementation and ensure the integration of mitigation measures into construction contracts.

At the end of the construction period, the project owner should prepare an environmental monitoring report to assess the outcomes and derive lessons for future similar projects.

The aspects that require special attention during the course of the work, in the spirit of environmental respect, are described below.

9.1.CONSTRUCTION PHASE:

The surveillance program aims to ensure that the construction works are carried out under controlled conditions to guarantee the implementation of the mitigation measures recommended in the Environmental Impact Assessment (EIA), both in terms of site organization and execution of the works.

9.1.1. Safety standards at the construction site

For a construction site, reducing environmental nuisances serves two objectives at two levels:

- The site and its vicinity: This concerns the nuisances experienced by users, both inside and outside the site (personnel and neighbors), such as noise, dirt, disturbance to traffic, and parking issues;
- Environmental impacts and nuisances for the surrounding population: This involves preserving neighboring human establishments and natural resources.

Three types of targets are distinguished for the implementation of actions to reduce environmental nuisances:

- Incoming flows to the construction site: machinery and equipment used, materials and chemicals used, etc;
- The construction site itself: techniques employed, work organization, management of machinery and chemicals, etc;
- Outgoing flows from the construction site: waste and excavated materials, nuisances generated for neighbors, etc.

9.1.2. Earthworks (Fills and Excavations)

Before commencing the works, it will be necessary to develop a detailed earthwork plan, specifying the quantities of materials to be reused as fill, those to be removed, and any borrowings, while also considering the management of temporary deposits. Temporary deposits, in particular, should be placed in a manner that does not disrupt water flow (threshold effect that may cause material loss through runoff during heavy rain). The deposit of excavated topsoil should also be monitored. Lastly, it is important to plan for the restoration of any borrowing sites.

9.1.3. Circulation within the Construction Site Perimeter

Ensuring safety conditions at the construction site is essential. The supervisor in charge of the construction works must ensure that the speed of circulation for machinery and heavy vehicles on access roads is limited to the authorized maximum (20 km/h) and that appropriate signage is installed.

9.1.4. Waste Management, Contaminated Soils, and Sanitary Facilities

The construction site will generate waste, including residues of wood, metal, concrete, "domestic" waste, papers, cardboard, used oils, and lubricants. A waste management plan in line with the principles of the 4 RVE (Recovery, Reuse, Reduction, Recycling, Valorization, and Elimination) should be established for the construction site. The management of sanitary facilities on-site is also crucial. To achieve this, the HSE Supervisor of the plant must ensure:

-
- Proper waste management by providing suitable containers to companies or requiring each contractor to provide sufficient containers for selective sorting of waste according to the waste management plan.
- Valorization or disposal of industrial waste at authorized sites.
- Collection and storage of domestic waste in closed containers and regular evacuation to an authorized landfill.
- For equipment that cannot be easily maintained outside the site (emptying), a dedicated area should be provided for storing used oils and lubricants in closed tanks equipped with adequate retention systems.
- Disposal of hazardous waste by a specialized company.
- Reporting any chance discovery of soils showing visual or olfactory signs of contamination.
- Appropriate management of any contaminated soil. It should be temporarily stored on a sealed platform, then characterized and evacuated by an approved specialized company for treatment or disposal in compliance with applicable regulations.
- Proper management of sanitary water by installing adequate toilets at appropriate locations and ensuring regular emptying

9.1.5. Nuisance Management:

Nuisance management includes dust and construction noise. To achieve this, the HSE supervisor must address several aspects.

9.1.6. Air Quality:

- Avoid unnecessarily running vehicle engines to reduce exhaust emissions, smoke, and dust.
- Cover aggregate loads transported by trucks securely with a tarp.
- Promptly repair construction machinery and vehicles producing excessive smoke emissions

9.1.7. Noise

- Limit noisy activities, whenever possible, from 7 a.m. to 7 p.m.
- Ensure that vehicles and equipment used on the construction site are in good condition.

9.1.8. Operation phase

9.1.9. Water Quality Discharge

At the level of the wastewater collection network, the monitoring program aims to ensure:

-
- Periodic visits to the facilities of the connection point to the AFZ wastewater network, at least once a year.
- Regular monitoring of the main wastewater collector, once a year, preferably before the rainy season

The monitoring will focus on the basic parameters for characterizing the pollution of domestic liquid effluent (the project has zero industrial liquid discharge since it will have a treatment station with full recycling) before its discharge into the AFZ wastewater network.

The flow rate of domestic wastewater is 4.8m³/day.

Measurement parameters	Sampling point location	Frequency	Data logging
DBO ₅ , DCO, MES Oils and greases Total hydrocarbons	AFZ sewer connection manhole	Semi- annual	Sampling dates and analysis sheets from an accredited laboratory

9.1.10. Air Quality

After the commissioning of the plant, it is recommended to monitor the quality of gas emissions from chimneys, taking into account the thresholds set by the decree implementing the air pollution law. This task should be carried out by an independent organization that will prepare a summary report regarding these measurements.

For the copper cathode manufacturing process:

Measurement Parameters	Sampling Point Location	Frequency	Data logging
SO ₂ Oxyde de nitrogène Fluoride Arsenic and its compounds Lead and its compounds Tin and its compounds Antimony and its compounds Cadmium and its compounds Chromium and its compounds Particulate matter	Chimney Outlet	Semi-annual in the first year Annual in the absence of non-compliant levels	Recording of measurement data As per BAT 10

For the aluminum alloy manufacturing process:

Measurement Parameters	Sampling Point Location	Frequency	Data logging
SO ₂ NO _x Fluoride HCl Dioxin Arsenic and its compounds Lead and its compounds Tin and its compounds Cadmium and its compounds Chromium and its compounds	Sortie de la cheminée	Semi-annual in the first year Annual in the absence of non-compliant levels	Recording of measurement data As per BAT10

9.1.11. Solid Waste Monitoring

This waste management plan concerns residual materials during the operational phase. The aim is to minimize environmental impacts by applying the principles of the 4RVE (Recovery, Reuse, Reduction, Recycling, Valorization, and Elimination). To achieve this, the HSE supervisor must ensure.

- Waste is sorted at the source to facilitate recovery, reuse, reduction, recycling, valorization, or elimination.
- Clearly identified containers suitable for the type of waste are available near their production areas.
- Regular and recorded tracking of quantities of industrial waste dispatched for recovery, reuse, reduction, recycling, valorization, or elimination.
- Domestic waste is placed in appropriate bins for evacuation to an authorized landfill.
- Hazardous waste is taken care of for treatment or off-site disposal by an approved specialized firm, providing a receipt acknowledgment for reporting and archiving purposes.

9.1.12. Noise As per **BAT 18**

Preferential consideration will be given to reducing noise levels at the source through the specification and selection of equipment that complies with the emission limits.

An annual noise measurement campaign will be conducted at the site's property boundaries if necessary.

10. Results of the public survey

The public inquiry, as stipulated by the regulatory procedure concerning the environmental impact assessment of the Santa Mines & Alloys metal residue recycling plant project, took place from September 5 to September 25, 2023, in the municipality of Ameer Seflia, located in the province of Kénitra. This inquiry was initiated following the opening decree issued by Governor No. 12 dated August 01, 2023. The announcements related to this decree were included in the appendices of this report, as published in two newspapers.

It is noteworthy that the minutes (PV) prepared after its conclusion indicate that no objections or comments were raised during this public inquiry by the concerned parties

11. Environmental Assessment and Conclusion

The main positive impacts of the project lie in the creation of numerous job opportunities, both directly and indirectly (services), for the local population, particularly in the city of Kenitra, and its contribution to the country's economic development.

However, it is important to note that the construction and operation of the project may have negative repercussions on the human and natural environment.

Most of the negative impacts identified during the construction phase are generally short-term and of low significance. Appropriate mitigation measures are recommended to minimize them. It is possible to largely limit or eliminate the impacts of the construction site by adhering to regulatory standards and prioritizing preventive construction management techniques. The main areas of impact concern water, soil, air quality, and transportation.

During the operational phase of the new plant, it is crucial to consider the negative impacts while adhering to the current regulations. The main identified effects, for which mitigation and minimization are recommended, focus on preserving air quality, water resources, and the proper management of chemicals and waste.

Overall, the impacts can be controlled through the implementation of the recommended mitigation measures to prevent any alteration in air, soil, and water quality. These measures also include limiting the production and dispersion of waste generated by the activities of the new plant, which has been designed to harmoniously integrate with its environment.

Strict adherence to safety measures related to the use of chemicals, as well as the adoption of an environmental management plan for the facilities, must be considered from the project's inception to ensure rigorous monitoring.

Considering the main identified and assessed positive and negative impacts, it can be concluded that the environmental balance of the project for the production of copper metal and aluminum alloys is positive, thanks to the implemented mitigation measures to enhance positive outcomes, minimize identified negative effects, and execute the planned environmental monitoring program.

As usual and on the basis of the analysis results provided by us, we can, unless there is a failure of the data provided by the customer in terms of emission sources and substances emitted (change of positions or type of emission. ..), decide on the quality of the simulated model using the AERMOD computer tools in the area where the SAMTA METALS & ALLOYS industrial unit is located, during a maximum production regime, continuous and simultaneous operation of the two plants (COPPER & ALUMINIUM CHIMNIES), cumulative impacts, in accordance with the standards and levels tolerated by local regulations, European and International ones. Attached Annexure-0010

Annex:



SAR la Princesse Lalla Hasnaa reçoit les enfants maqdessis participant à la 14^{ème} édition des colonies de vacances de l'Agence Bayt Mal Al-Qods

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Libération

Directeur de Publication et de la Rédaction : Mohamed Benarbia

Pris: 4 DH N°: 10603

Lundi 28 Août 2023

Chantage par visas Schengen



17 Annonces

LIBÉRATIC

Arrêté du Gouverneur N° 12 du 01-08-2023

Il sera procédé à l'ouverture d'une enquête publique à partir du 05 septembre 2023, au niveau de la commune de Ameer Seftia, province de Kénitra, concernant l'Etude d'Impact Environnemental du projet d'usine de recyclage des résidus métalliques et de fabrication des cathodes de cuivre et d'alliages d'aluminium présentée par la société Santa Metals & Alloys qui sera implantée sur la plate-forme industrielle (P2I) de Kénitra. Commune de Ameer Seftia.

Le dossier de l'enquête publique accompagné de cet avis ainsi que les registres seront mis à la disposition du public en vue d'y consigner les observations et les suggestions relatives au projet pendant (20) jours correspondant à la durée de déroulement de l'enquête publique. L'arrêté d'ouverture de l'enquête publique reste affiché à la commune de Ameer Seftia pendant 15 jours au moins avant la date d'ouverture de celle-ci et durant les (20) jours de déroulement de l'enquête publique.

N° 6272/PA

MINISTÈRE DE LA SANTÉ ET DE LA PROTECTION SOCIALE
Préfecture d'arrondissement HAY HASSANI
Centre hospitalier HAY HASSANI
AVIS D'APPEL

D'OFFRES OUVERT N° 06/2023

(Séance publique)
Le 17/10/2023 à 10 heures, il sera procédé à la salle des réunions du Centre hospitalier préfectoral HAY HASSANI (Hôpital AL HASSANI : sis angle Bd Bouchaib Reddad et bd oued sebou Oulfa Casablanca), à l'ouverture des plis relatifs à l'appel d'offres sur offre de prix pour :

ACHAT DE MATERIELS MEDICO TECHNIQUE DESTINÉ AU CHP HAY HASSANIEN 2 LOT :
LOT 1 : ACHAT DE MATERIEL DE STERILISATION, D'ECLAIRAGE ET D'ASPIRATION
LOT 2 : ACHAT DE MATERIEL DE RADIOLOGIE

Le dossier d'appel d'offres peut être retiré du bureau des marchés du CHP HAY HASSANI : sis angle Bd Bouchaib Reddad et bd oued sebou Oulfa Casablanca, il peut également être téléchargé à partir du portail des marchés de l'Etat www.marchespublics.gov.ma.

Le cautionnement provisoire est fixé à la somme de :
* Lot 1: 10 000.00 dix mille dirhams
* Lot 2: 5 000.00 cinq mille dirhams

L'estimation du Maître d'ouvrage en TTC est fixée à :

* Lot 1: 606120.00 dhs (six cent six mille cent vingt dirhams TTC)
* Lot 2: 180 000.00 dhs (cent quatre vingt mille dirhams TTC)

Le contenu ainsi que la présentation et le dépôt des dossiers des concurrents doivent être conformes aux dispositions des articles 27, 29 et 31 du décret n° 2-12-349 relatif aux marchés publics.

Les concurrents doivent transmettre par voie électronique via le portail marocain des marchés publics (www.marchespublics.gov.ma)

La documentation technique exigée par le dossier d'appel d'offres prévue par le règlement de la consultation (Catalogue) doit être déposée au bureau des marchés du CHP HAY HASSANI : sis angle Bd Bouchaib Reddad et bd oued sebou Oulfa Casablanca avant le 16/10/2023 à 10 heures.

Les pièces justificatives à fournir sont celles prévues par l'article 7 du règlement de consultation.

N° 6273/PA

ROYAUME DU MAROC
MINISTÈRE DE L'INTERIEUR
PROVINCE DE MIDELT
CERCLE D'IER-RICH
CAIDAT DE GOURRAMA

COMMUNE DE GOURRAMA
AVIS D'APPEL D'OFFRES OUVERT N° 01/2023

Le mardi 26 septembre 2023 à 10 h, il sera procédé, dans le bureau du président de la commune de gourrama à l'ouverture des plis relatifs à l'appel d'offres ouvert sur offres de prix relatif aux travaux d'électrification 2°/1° catégorie et 1° catégorie

rie des agglomérations : centre gourrama, village pilote hay eljadid, lahrouch laqdim, lahrouch eljadid elgharbi, lahrouch eljadid charqui, ait Said Omer, ait Ali, tafendaset, tamelkant, tagrit, lahri, talahrit, tadoout, ksar labiad, tinah, tiouzaguin, adachez, zionayalen, almou abouri, et ouaziten de la commune de gourrama - province de Midelt.

Le dossier d'appel d'offres peut être retiré au bureau technique de la Commune de gourrama, il peut également être téléchargé à partir du portail des marchés publics.

(www.marchespublics.gov.ma) Le cautionnement provisoire est fixé à la somme de quarante-cinq mille dirhams (45.000,00dhs).

L'estimation des coûts des prestations est fixé à la somme de : Un million cinq cent quatre-vingt-dix-neuf mille sept cent quatre-vingt-douze dirhams 0 Cts : (1 599 792.00dhs).

Le contenu ainsi que la présentation des dossiers des concurrents doivent être conformes aux dispositions des articles 27, 29 et 31 du décret n° 2-12-349 relatif aux marchés publics.

Conformément aux dispositions des articles 27, 29 et 31 du décret n° 2-12-349 relatif aux marchés publics.

ITISSALAT AL-MAGHRIB DIRECTION REGIONALE D'AGADIR

AVIS DE REPORT

CONSULTATION OUVERTE

Le Directeur Régional d'Itissalat Al Maghrib
Lundi 11 septembre 2023 à 16 heures dernier délai
Division Administrative et Financière, sise Avenue relatives à :

Consultation Ouverte N°36/DRA/2023

« Fourniture, installation et mise e détecteurs d'incendies pour la Direction Agadir »

Les cahiers des charges sont disponibles à la /Division Administrative et Financière/Service Acha Avenue Hassan 1er Agadir.

Tél : 05 28 22 30 40 / Fax : 05 28 22 14 14.

رسالة الأمة

العدد 12521

الطبعة 11 صفر 1445

الموافق لـ 28 غشت 2023

rissalaxport@gmail.com

رياضة 12

الخلاصة

من أين أتت
الرياضة في
الوطن؟

في هذا
العدد

كراداي أول عداءة مغربية وعربية تتوج في ماراطون السيدات العالمي

**كراداي تتفعل بالعلم
الوطني بخاص**



**أهدت إنجازها العالمي غير المسبوق إلى جلالة الملك
وأكدت أن حلمها تحقق بفضل روح الثقة والمثابرة**

* فتيحة الهواري

دخلت العداءة المغربية فاطمة الزهراء كراداي، تاريخ ألعاب القوى من أوسع أبوابها، بعدما توجت بتمثيلها لرواية ضياء أول أمسية السبت (26 غشت 2023) في سباق الماراثون، ضمن بطولة ألعاب القامة حاليا بيواديسيت، لتصبح أول مغربية وعربية تحقق هذا

**أعلم بعمود منعمية الت
والحمد لله هذا الحلم لم
تفقدت ثمارها، مكشوفة منذ
الذات الصغرى مع مدربي
قروان، السعادة الآن تقصرون
حلمي تحقق،
ومن طرفة كدير سباق المار
قات كراداي، كانت هناك طما
وبين مدربي كريم أيت الحيا
لا أسافر العداءات الإليويدي**

العالي الأول في مساري لصاحب
الجلالة الملك محمد السادس تصور
الله على قمة التواضع والحيثية
الرياضيين وأهلية أيتها الرئيس
الجامعة عبد السلام أخزون على
توفيقه كل الظروف للاستعدادات
وأشكر مدربي كريم أيت الحاج على
التدريب المكثف الذي قلنا به في
إطران وأهدي الميدالية للتحبيب
الوطني وللحرس

**الملك وللجامعير المغربية التي لم
تجلب علينا بالاشجاعات،
وأكدت كراداي على أن تنويعها
بالميدالية البرونزية في بطولة
العالم لم يأت بالصدفة أو من فراغ،
ولمّا تمرة عمل حجاز وتداريب
متواصلة وشاقة، وفالت بالخير
بمساعدة لانسوست، وأما أحمد الآن
غير مستوعبة هذا الإنجاز -
لقد كانت دائما**

الملك وللجامعير المغربية التي لم
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غير مستوعبة هذا الإنجاز -
لقد كانت دائما

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