**Environmental Assessment (EA) Form for Red Category Projects 2020 – Industrial Projects**

Note 1: In accordance with section 47 of the Regulation for Environmental Clearance of Projects 2016, consent must be obtained from individual or juristic person if activity has direct impact on a property.

Note 2: The completed EA form shall be submitted to the NECS.

Note 3: The completed EA form shall be the basis to determine the requirement of detailed Environment Assessment (EA). If detailed EA is required, applicant will be notified to submit Terms of Reference for the project.

Note 4: The application shall be subjected to Fee Schedules to cover the cost of administering the Environmental Assessment Act 2000.

1. **General Information:**
	1. Name of the project:………………………………………………………………………...
	2. Project Type (Tick as appropriate): ☐ New ☐ Expansion/modification
	3. Type of Industry:

☐ Ferroalloys

☐ Steel plants and Rolling Mills

☐ Cement Industry

☐Others………………………………………………………………………….................

* 1. Project area (acres):…………………………………………………………………………
	2. Applicant Details:
		1. Name of the promoter/company……………………………………………………
		2. Address:…………………………………………………………………………….
		3. Post Box No:………………………………………………………………………..
		4. Contact No:………………………………………………………………………....
		5. Email:……………………………………………………………………………….
		6. Name and contact details of Environmental Focal Person (The person nominated as Environmental Focal Person shall be responsible to ensure compliance with EC terms and conditions, maintain record, and report to NECS):……………….....................................................................................................
		7. Name and contact details of the consultant/consultancy firm/individual(s) preparing this form………………………………………………………………….
1. **Project Location:**

2.1 For projects proposed within the approved Industrial Estate/Park, fill in the following information:

2.1.1 Name of the Industrial Estate/Park:

☐ Pasakha Industrial Estate

☐ Jigmeling Industrial Park

☐ Motanga Industrial Park

☐ Others……………………………………………………………………………

2.1.2 Mention the zone allocated for the proposed project:……………………………………………………………………………...

2.2 For projects proposed outside the approved Industrial Estate/Park, fill in the following information:

* + 1. Dzongkhag/Thromde:……………………………………………………………....
		2. Gewog:……………………………………………………………………………...
		3. Village:……………………………………………………………………………...
		4. Name of the Project site:……………………………………………………………
		5. Co-ordinates of the project boundary:………………………………………...........
		6. Land ownership:
		7. ☐ Private
		8. ☐ Government
		9. ☐ Others, specify……………………………………………………………….
1. **Project Cost:**

3.1 Total budget allocated for Environmental Management:……………………………..........

3.2 Total project cost:…………………………………………………………………………..

1. **Baseline/Existing information (for projects proposed outside the approved Industrial Estate/Park):**

***Note:*** *The baseline information should cover a study area of 1 km radius from the project boundary for one time period. However, this area of coverage may differ depending on the nature of the proposed project and the sensitivity of the receiving environment.*

* 1. Topography/Terrain characteristics of the project site/ Site analysis
1. Elevation:…………………………………………………………………………………...
2. Tick as appropriate:
	* 1. ☐ Flat land (below 20 degrees)
		2. ☐ Gentle slope (below 45 degrees)
		3. ☐ Steep slope (46 – 60 degrees)
		4. ☐ Very steep slope (above 60 degrees)
3. Provide information on the presence of any of the following:

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl.no.** | **Land use/existing infrastructure** | **Name/Location Name** | **Distance from the proposed project site (km)** |
|  | Agricultural lands |  |  |
|  | Settlements |  |  |
|  | Roads |  |  |
|  | Powerlines |  |  |
|  | Schools/Institutions |  |  |
|  | Protected Areas |  |  |
|  | Migration route/habitat |  |  |
|  | Hospitals/BHUs |  |  |
|  | Heritage/religious/cultural sites |  |  |
|  | Industries |  |  |
|  | Others |  |  |

* 1. Provide data on ambient air quality and other parameters as follows:

|  |
| --- |
| **Ambient Air Quality** |
| **Sl.no.** | **Parameters (in mg/Nm3)** | **Readings** |
| **Sampling location 1 (within project site)** | **Sampling location 2****(at project boundary)** | **Sampling location 3**  |
|  | TSPM (24 Hour Average) |  |  |  |
|  | RPM (24 Hour Average) |  |  |  |
|  | SO2 (24 Hour Average) |  |  |  |
|  | NOx (24 Hour Average) |  |  |  |
|  | CO (8 Hour Average) |  |  |  |
|  | Any other gaseous pollutants as appropriate |  |  |  |
|  | Geo-coordinates of the sampling locations |  |  |  |
| *Note: The sampling locations should be selected as follows:*1. *Sampling location 1 within project site*
2. *Sampling location 2 at the project boundary*
3. *Data should be provided for all sensitive receptors (BHU/hospital/school/settlements) within the study area*
 |

|  |
| --- |
| **Other parameters** |
| **Sl.no.** | **Parameters** | **Readings** |
|  | Temperature (degree celsius) |  |
|  | Humidity |  |
|  | Rainfall (mm) |  |
|  | Wind direction |  |
|  | Wind speed (m/s) |  |
| *Note: The above readings should cover the project area* |

* 1. Data on ambient noise measured at minimum of four different directions of the locations at the project boundary:

|  |  |  |
| --- | --- | --- |
| **Sl.no.** | **Sampling location** | **Readings (in dB)** |
|  | Northern boundary |  |
|  | Southern boundary |  |
|  | Eastern boundary |  |
|  | Western boundary |  |
|  | Any other |  |

* 1. Data on ambient water quality for physical, chemical and biological characteristics:

|  |  |  |
| --- | --- | --- |
| **Sl.no.** | **Parameters** | **Readings** |
|  | pH |  |
|  | TSS (in mg/L) |  |
|  | TDS (in mg/L) |  |
|  | Conductivity (in μS/cm) |  |
|  | BOD (in mg/L) |  |
|  | COD (in mg/L) |  |
| *Note: Readings for the above parameters should be provided for all the water resources within study area of 1 km radius from the project boundary* |

* 1. Provide a list of flora and fauna present at the project site and the study area:

|  |  |
| --- | --- |
| **Flora** | **Fauna** |
|  |  |

* 1. Basic information on socio-economic environment (If there are no settlements within the study area, skip this section):
1. Name of the settlements:………………………………………………………………...
2. Total population:………………………………………………………………………...
3. Main source of income:………………………………………………………………….
4. **Project Description:**
	1. Project Objective:……………………………………………………………….....................
	2. Technology to be used (furnace/boiler/pollution control equipment, etc.) along with specifications (Brochures from the company may be annexed):
	3. Installed capacity of the plant per annum:………………………………………………….
	4. Resource consumption:
		1. Raw materials

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sl. No.** | **List of raw materials (major)** | **Annual consumption** | **Elemental composition** | **Source and method of transportation** | **Storage (fully enclosed/partially enclosed/open)** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

* + 1. Data on hazardous chemicals, toxic or inflammable substances including carcinogenic materials to be used in the process:

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Name of chemicals/substances** | **Quantities** | **Storage method** |
|  |  |  |  |
|  |  |  |  |

*Note:* *The material safety data sheet of each hazardous chemical/solvent should be annexed as provided by the manufacturers, if any*

* 1. Manufacturing process:

Describe the production process in a sequential manner starting from raw material, handling and production to the final product. In the process description, submit and explain the stoichiometric reactions/mass balance involved with temperature change:

The above explanation must be supported with schematic representation and indicate points/areas where there will be emission and discharges, odor if any, recycling and reusing of used materials or by-products and generation of unwanted products:

* 1. Products and by-products

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Name of Products/ by-products** | **Quantity per annum** | **Storage (fully enclosed/partially enclosed/open)** |
| Products | 1.2. | 1.2. | 1.2. |
| By products | 1.2. | 1.2. | 1.2. |
| *Note: Above information should be provided for all products and by-products and not only limit to two products and byproducts.* |

* 1. Utilities and services
		1. Water use:
1. Describe the use of water in the following table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl. No.** | **Purpose** | **Source** | **Quantity of water consumption in KL per day** | **Quantity of water recycled/reused in KL per day** |
|  | Raw Material |  |  |  |
|  | Process (cooling/boiler use) |  |  |  |
|  | Domestic (Drinking and sanitation) |  |  |  |
|  | Others |  |  |  |

1. Provide information on downstream users, if any:……………………………………………………………………………………..
2. Flow rate (liters/second) :……………………………………………………………….
3. Source distance to the project site:……………………………………………………………………………………...

***Note:*** *In accordance to section 64 of the Water Regulation of Bhutan 2014, minimum environmental flow of 30% of lean season flow should be maintained in a watercourse, where scientific study has not been conducted.*

* + 1. Energy:
1. Mention the source of energy to operate the proposed plant:…………………………………………………………………………
2. If source of energy is electricity then provide the tapping point:…………………………………………………………………………
	1. Fill in the information for relevant ancillary facilities/ associated activities:

***Note:*** *The below ancillary facilities may apply to projects proposed outside the approved Industrial Estate/Park.*

* + 1. Approach road
1. Length of road in km: …………………………………………………………
2. Starting point: ………………………………………………………….
3. Termination point: ……………………………………………………..
4. Right of Way in meters:.………………………………………………………
5. Type of drain:.…………………………………………………………………
6. Blasting requirement: ☐Yes ☐No
* If yes, mention type of blasting, timing, frequency per day, and method of storage:………………………………………………...................................................................................................................................................................
1. Methods of storing materials (to minimize fugitive emissions and spillages):…………………………………………………………………………………………………………………………………………………………
2. Does the proposed road pass through:
3. Terrestrial fauna migratory routes ☐Yes ☐No
4. Heritage or religious site ☐Yes ☐No
5. Wetland and catchment area ☐Yes ☐No
6. If yes for any of the above, provide alternatives……………………………………………………………...………………………………………………………………………….………………………………………………………………………….
7. Briefly describe the terrain characteristics along the proposed road alignment focusing on geotechnical and geomorphology information…………………….

…………………………………………………………………………………...……………………………………………………………………………….......…………………………………………………………………………………

* + 1. Powerline
1. Voltage level in kV:…………………………………………………………….
2. Length of transmission /distribution line in km: ……………………………….
3. Starting point: …………………………………………………………..
4. Termination point:.……………………………………………………..
5. Right of Way in meters:.………………………………………………………..
6. Tower types and numbers: ……………………………………………………..
7. Methods of storing materials: ………………………………………………….
8. Does the proposed transmission/distribution line passes through:
	1. Avi-fauna migratory routes ☐Yes ☐No
	2. Heritage or religious site ☐Yes ☐No
	3. Wetland and catchment area ☐Yes ☐No
	4. If yes for any of the above, provide alternatives………………………..

………………………………………………………………………..…………………………………………………………………………..……………………………………………………………………………..

1. If construction/installation of substation is required, provide the following information:
2. Type of substation:……………………………………………………...
3. Primary and Secondary Voltage level in kV:…………………………..
	* 1. Crushing/Asphalt/Concrete batching plant
4. Final products:…………………………………………………………………
5. Installed capacity:……………………………………………………………...
6. Provide brief information on process mechanism from use of raw material to the final product:…………………………………………………....................

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. List of major materials and quantity to be used:

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **List of raw materials (major)** | **Quantity required per day** | **Storage (fully enclosed/partially enclosed/open)** |
|  |  |  |  |
|  |  |  |  |

1. **Impact Assessment and Environmental Management Plan**

Identify and list both positive and negative impacts covering construction and operation phases of the project including the associated activities and describe mitigation measures and monitoring plan for all adverse impacts identified.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sl. No** | **Environmental Component** | **Potential Source of Impacts** | **Potential Impacts**  | **Mitigation Plan** | **Monitoring Plan** |
|  | Air Quality |  | Construction: |  |  |
| Operation: |  |  |
| 2. | Water Quality |  | Construction: |  |  |
| Operation: |  |  |
| 3. | Noise Environment |  | Construction: |  |  |
| Operation: |  |  |
| 4. | Land Environment |  | Construction: |  |  |
| Operation: |  |  |
| 5.  | Socio-economic environment |  | Construction: |  |  |
| Operation: |  |  |

* Also, provide the following information:
	1. For point source emission and effluent generation, provide treatment system and pollution concentration after treatment…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………
	2. Also provide the following information:

|  |  |
| --- | --- |
| Stack Height (meters) |  |
| Stack Diameter (meters) |  |
| Dimension of measurement platform and port (m x m) |  |
| Volumetric flow rate of flue gas (Nm3/hr) |  |
| Temperature (o celsius) of flue gas |  |
| Pressure of flue gas (mmWC) |  |

* 1. Information of wastes:

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl.no.** | **Type of wastes**  | **Quantity per annum** | **Mitigation Measures** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

* 1. Provide maximum noise level at the project boundary. Should the noise level exceed maximum permissible limit, provide mitigation measures…………………………………………………………………………………………………………………….
	2. Provide mitigation measures for odor…………………………………………………………………………………………………..
1. **Annexure (List of documents to be attached with this form)**

|  |  |
| --- | --- |
|  | Company brochures of the technology under section 5.2 |
|  | Material safety data as required under section 5.4.2 |
|  | Detailed description on the operation of pollution control equipment/pollution abatement equipment inclusive of fume extraction system to be applied along with technical diagram under section 6.1 |
|  | Records of public consultation signed by member (s) of the concerned local authority present during the consultation (*If the proposed project is within approved Industrial Estates/Parks, public consultation record is not required*) |
|  | Written consent from individual or juristic person if activity has direct impact on a property authenticated by the concerned local authority (*If the proposed project is within approved Industrial Estates/Parks, it is not applicable*) |
|  | KMZ file specifying the location/zonation, settlements, existing infrastructures, location/alignment ancillary facilities, sampling locations, and water bodies of the proposed project |
|  | The layout map of the plant showing the production unit, storage of raw materials/products, stacks, wastewater treatment plant, administrative buildings, canteen, proposed green belt, transportation route, roads, parking spaces and infrastructure including all utilities such as fuel-filling station, power supply, water supply, etc. |

1. **Declaration:**

This is to certify that all the information and communication in this form are accurate and complete to the best of my knowledge.

Name and signature of the Project Applicant:
CID No:
Date:
Seal of the company:

Affix Legal Stamp here