



Environmentally Sustainable Development of the Iron and Steel Industry

Part I: Project Information

GEF ID

10564

Project Type

FSP

Type of Trust Fund

GET

CBIT/NGI

CBIT **No**

NGI **No**

Project Title

Environmentally Sustainable Development of the Iron and Steel Industry

Countries

China

Agency(ies)

World Bank

Other Executing Partner(s)

Foreign Environmental Cooperation Center, Ministry of Ecology and Environment

Executing Partner Type

Government

GEF Focal Area

Chemicals and Waste

Taxonomy

Influencing models, Strengthen institutional capacity and decision-making, Demonstrate innovative approaches, Transform policy and regulatory environments, Stakeholders, Beneficiaries, Private Sector, Large

corporations, Capital providers, Civil Society, Academia, Trade Unions and Workers Unions, Focal Areas, Chemicals and Waste, Emissions, Persistent Organic Pollutants, Unintentional Persistent Organic Pollutants, Sound Management of chemicals and waste, Best Available Technology / Best Environmental Practices, Industrial Emissions, Type of Engagement, Information Dissemination, Consultation, Gender Equality, Gender Mainstreaming, Gender-sensitive indicators, Capacity, Knowledge and Research, Innovation, Knowledge Generation, Training, Learning, Theory of change, Knowledge Exchange, Capacity Development

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 1

Submission Date

3/23/2020

Expected Implementation Start

9/1/2022

Expected Completion Date

8/31/2028

Duration

72In Months

Agency Fee(\$)

2,250,000.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

| Objectives/Programs | Focal Area Outcomes | Trust Fund | GEF Amount(\$) | Co-Fin Amount(\$) |
|-------------------------------|--|-------------------|-----------------------|--------------------------|
| CW-1-1 | Eliminate or significantly reduce industrial chemicals subject to better management from the Stockholm Convention on Persistent Pollutants | GET | 25,000,000.00 | 175,000,000.00 |
| Total Project Cost(\$) | | | 25,000,000.00 | 175,000,000.00 |

B. Project description summary

Project Objective

To demonstrate best available techniques and best environmental practices for the reduction of unintentionally produced persistent organic pollutants in selected iron and steel plants in a sustainable way, and promote these techniques/practices in the Chinese iron and steel industry

| Project Component | Component Type | Expected Outcomes | Expected Outputs | Trust Fund | GEF Project Financing(\$) | Confirmed Co-Financing(\$) |
|--|----------------|--|---|------------|---------------------------|----------------------------|
| 1. BAT/BEP Demonstration in Select Enterprises | Investment | Reduction of PCDD/Fs through demonstration of BAT/BEP in iron and steel sector | <p>- Demonstration of BAT/BEP technologies for PCDD/Fs reduction in at least three iron ore sintering lines and one EAF, to achieve the <0.05-0.2 ng TEQ/m³ and <0.1ng TEQ/m³ emission standards, respectively, while minimizing climate impact</p> <p>- Emissions of conventional pollutants reach the ultra-low level</p> | GET | 16,000,000.00 | 112,000,000.00 |

| Project Component | Component Type | Expected Outcomes | Expected Outputs | Trust Fund | GEF Project Financing(\$) | Confirmed Co-Financing(\$) |
|--|----------------------|---|---|------------|---------------------------|----------------------------|
| Technical Assistance and Capacity Strengthening for Promotion of BAT/BEP | Technical Assistance | Strengthened framework for sustainable UPOPs reduction in the iron and steel industry | <ul style="list-style-type: none"> - Analysis and proposals for revision of relevant regulations, standards and guidelines - Identification of advanced and green and low-carbon dioxins reduction technologies - Development of novel methods for monitoring of UPOPs emissions - Strengthened capacity for monitoring and enforcement at national/local level - Development of training material and training of industry and regulators | GET | 7,810,000.00 | 61,500,000.00 |

| Project Component | Component Type | Expected Outcomes | Expected Outputs | Trust Fund | GEF Project Financing(\$) | Confirmed Co-Financing(\$) |
|-------------------------------|----------------|-------------------|------------------|------------|---------------------------|----------------------------|
| Sub Total (\$) | | | | | 23,810,000.00 | 173,500,000.00 |
| Project Management Cost (PMC) | | | | | | |
| GET | | 1,190,000.00 | | | 1,500,000.00 | |
| Sub Total(\$) | | 1,190,000.00 | | | 1,500,000.00 | |
| Total Project Cost(\$) | | 25,000,000.00 | | | 175,000,000.00 | |

C. Sources of Co-financing for the Project by name and by type

| Sources of Co-financing | Name of Co-financier | Type of Co-financing | Investment Mobilized | Amount(\$) |
|--------------------------------|--|-----------------------------|-----------------------------|-----------------------|
| Beneficiaries | Pilot participating enterprises under Component 1 | Other | Investment mobilized | 112,000,000.00 |
| Beneficiaries | Replication enterprises under Component 2 | Other | Investment mobilized | 60,000,000.00 |
| Recipient Country Government | Central government | In-kind | Recurrent expenditures | 1,500,000.00 |
| Recipient Country Government | Local governments in provinces with high concentration of industry | In-kind | Recurrent expenditures | 1,500,000.00 |
| Total Co-Financing(\$) | | | | 175,000,000.00 |

Describe how any "Investment Mobilized" was identified

The estimate of investment mobilized from the participating enterprises is based on the review of the baseline and investment plans of the pilot identified during project preparation.

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

| Agency | Trust Fund | Country | Focal Area | Programming of Funds | Amount(\$) | Fee(\$) |
|---------------------------|------------|---------|---------------------|----------------------|---------------|--------------|
| World Bank | GET | China | Chemicals and Waste | POPs | 25,000,000 | 2,250,000 |
| Total Grant Resources(\$) | | | | | 25,000,000.00 | 2,250,000.00 |

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)
PPG Required **true**

PPG Amount (\$)
300,000

PPG Agency Fee (\$)
27,000

| Agenc y | Trust Fund | Country | Focal Area | Programmin g of Funds | Amount(\$) | Fee(\$) |
|-------------------------|---------------|---------|----------------------------|--------------------------|------------|-----------|
| World Bank | GET | China | Chemical s and Waste | POPs | 300,000 | 27,000 |
| Total Project Costs(\$) | | | | | 300,000.00 | 27,000.00 |

Core Indicators

Indicator 10 Reduction, avoidance of emissions of POP to air from point and non-point sources
(grams of toxic equivalent gTEQ)

| Grams of toxic equivalent gTEQ (Expected at PIF) | Grams of toxic equivalent gTEQ (Expected at CEO Endorsement) | Grams of toxic equivalent gTEQ (Achieved at MTR) | Grams of toxic equivalent gTEQ (Achieved at TE) |
|--|--|--|---|
| 318.00 | 240.00 | | |

Indicator 10.1 Number of countries with legislation and policy implemented to control emissions of POPs to air (Use this sub-indicator in addition to Core Indicator 10 if applicable)

| Number (Expected at PIF) | Number (Expected at CEO Endorsement) | Number (Achieved at MTR) | Number (Achieved at TE) |
|--------------------------|--------------------------------------|--------------------------|-------------------------|
| 1 | 1 | | |

Indicator 10.2 Number of emission control technologies/practices implemented (Use this sub-indicator in addition to Core Indicator 10 if applicable)

| Number (Expected at PIF) | Number (Expected at CEO Endorsement) | Number (Achieved at MTR) | Number (Achieved at TE) |
|--------------------------|--------------------------------------|--------------------------|-------------------------|
| 3 | 3 | | |

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

| | Number (Expected at PIF) | Number (Expected at CEO Endorsement) | Number (Achieved at MTR) | Number (Achieved at TE) |
|---------------|--------------------------|--------------------------------------|--------------------------|-------------------------|
| Female | 6,900 | 4,500 | | |
| Male | 39,100 | 25,500 | | |
| Total | 46000 | 30000 | 0 | 0 |

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Part II. Project Justification

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

Map to be provided.

2. Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

A Stakeholder Engagement Framework for the project is attached.

The SEF plans the stakeholder engagement for two types of activities (physical and technical assistance), which analyses and identifies the needs of major stakeholders (including vulnerable groups), develops an information disclosure and consultation plan, defines resource arrangements, and develops a GRM. The following key stakeholders are identified.

Project Workers:

Direct workers: Direct workers refer to personnel who are directly employed by the project proponent and the project implementing agency who specialize in project-related work. Direct workers mainly include workers during the operation period of the subproject. Workers may be affected by the OHS caused by the project, especially the technical changes and equipment changes brought about by the transformation of the steel production line.

Contracted workers: Contract workers refer to workers who are hired by a third party to perform core functions related to the project, regardless of their working location. Contract workers include contract workers during the construction period of investment subprojects, and workers dispatched by third-party companies during the operation period. The normal work of contractor workers can ensure the smooth construction of the project; the normal work of dispatched workers during the operation period can ensure the smooth operation of the project. However, contractor workers and third-party dispatched workers may be affected by the working conditions, OHS brought about by the project.

Primary supply workers: Primary supply workers refer to personnel employed by the main suppliers of the borrowing country. Primary supply workers include suppliers of materials and equipment, their normal work guarantees the supply of core raw materials or equipment for the project. However, these workers may be exposed to the potential risks of serious safety issues brought about by the project.

Civil society and the public:

Residents of surrounding communities: Residents in the surrounding communities of the subproject, including residents of ethnic minority communities. Their support is the basis for the smooth progress of the project. However, the construction and operation process may be affected by noise, dust, waste

gas, wastewater, construction camps, etc., as well as fire, explosion, chemical leakage, and road traffic safety.

The public: The public is the beneficiary of the project. This project is expected to bring multiple benefits to the global environment. The project will contribute to the reduction of Dioxins Emission in China's steel industry and can reduce human health problems caused by UPOPs. It is not only beneficial to the workers in the industry, but also has positive benefits to the people living around the industry's production facilities.

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

The key Citizen Engagement tool under this project is through the establishment of a project level grievance redress mechanism (GRM) at FECO, as well as separate functioning GRMs to be established at each participating pilot enterprises under Component 1, targeted to workers. Satisfactorily response to any grievance received through these GRMs is being tracked as an intermediary results indicator under the project's results framework. Moreover, although this would take place outside the scope of the project as part of the MEE approval process following submission of proposals for revision by the project, China has an established mechanism to seek feedback and inputs from the public at large in the development of standards and technical specifications, including from other departments, the public at large, universities, and enterprises. Drafts are issued for public comments, and individual submissions are discussed as to whether they can be accepted or rejected before the final draft is put to approval.

Government departments:

Ministry of Ecology and Environment (MEE): a) Ongoing management of implementation of the NIP; b) issue national policy and standards to regulate environmental performance of China's iron and steel production sector; c) supervise enforcement of environmental policies. The Foreign Environmental Cooperation Center (FECO) under MEE will be the main executing agency of the project.

The Foreign Environmental Cooperation Center (FECO): FECO is mainly responsible for the daily affairs of the office of the National Coordination Group for the Stockholm Convention that brings together the key Departments relevant to the implementation of the SC, and carries out all activities related to POPs emission reduction in China under the guidance of the Ministry of Ecology and Environment. FECO is responsible for completing the preparation of this project and will continue to be responsible for the management and implementation of the project.

Ministry of Finance (MOF): The Ministry of Finance is the liaison unit of the GEF in China and is responsible for the review, approval and supervision of all activities funded by the Fund in China. In addition to being a member of the national coordination team, the Ministry of Finance will also manage the designated accounts of this project and supervise various payments.

Ministry of Industry and Information Technology (MIIT): As the competent authority of the steel industry, formulate and implement industry plans, industrial policies, and standards; monitor the daily operation of the industry; promote the development of major technical equipment and independent innovation, and guide the development of the industry.

National Development and Reform Commission (NDRC): Plan for industrial reconstruction in iron and steel sector; maintain Catalogue of Industrial Reform.

These line ministries will be consulted and involved through the Stockholm Convention Implementation National Steering Group that meets yearly under the chairmanship of MEE.

Local Governments: Local governments are mandated to enforce regulations and compulsory standards under the technical guidance issued by the line ministries. Local/provincial governments will be involved to identify gaps and needs for capacity building for increased oversight and enforcement.

Social groups

Community neighbourhood committee: Responsible for the organization and coordination of community work, etc. During the construction and operation of the project, assist the project management party to hold meetings for community residents, and act as a bridge to communicate the concerns and demands of community residents to the project management party or relevant government departments in a timely manner.

Women's Federation: The Women's Federation is mainly responsible for publicizing relevant laws and regulations; promote legal education in the community; safeguarding the legal rights of women and children in accordance with the law; strengthen the construction of women's organizations in the community; carefully listen to the suggestions and requirements of organizations at all levels on the work of the women's federation, and improve women's work; receive and accept letters and visits from women and help with psychological guidance. During the construction and operation of the project, the Women's Federation pays attention to the project's impact on women and protects women's rights and interests through investigations and seminars.

Disabled Persons' Federation: Protect the rights and interests of the disabled. During the construction and operation of the project, the Disabled Persons' Federation pays attention to the impact of the project on the disabled through investigations and seminars, and protects the rights and interests of the disabled.

Design & consulting firms and contractors

Design & consulting firms: Carry out the overall design for the sub-projects before the implementation of the project. In the design of the project, it is necessary to consider the needs of various stakeholders, and pay attention to the risks and impacts of the environment and society. The design firm understands the needs of various stakeholders through various forms of participation activities such as surveys, seminars, seminars, interviews, etc., and optimizes the project design on this basis.

Contractors: This project does not involve civil engineering. Therefore, the contractor is mainly an equipment installation contractor who is mainly responsible for the installation of project equipment. The contractor shall implement policies and systems in terms of labour management, working conditions, and OHS in accordance with the requirements of the enterprise and project operator.

Vulnerable groups

Vulnerable groups of the project may include:

- ? Contracted workers and primary supply workers involved in the construction and operation of the project;
- ? Vulnerable groups among residents in the surrounding communities;
- ? Ethnic minority communities.

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor;

Other (Please explain) Yes

Please see above.

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

During project preparation, and as part of the environmental and social analysis, a project gender assessment was carried out, as well as a gender assessment at the site of the first pilot already identified. This concluded that the proportion of women employees in the industry in general was low, and showing a downward trend from 22.5% in 2010 to 17% in 2019. The situation at the identified pilot is similar, with a very slightly higher ratio of women. The report also concludes that the rights and interest of women are generally protected, but that the proportion of women should be increased in management departments.

Component 2 which consists of technical assistance managed by FECO with a majority of consulting assignments was identified as the most promising to enhance women participation in the project. FECO has committed to taking steps towards gender-responsive procurement and to promote gender balance in consulting teams through expressing a preference on women representation in the assignment team and/or team leader. This responds to the second priority for closing gender gaps identified in the East Asia and Pacific Region Regional Action Plan 2017-23 "Empowering women in the workplace through appropriate education and labor market policies", and the project results framework includes an intermediate results indicator accordingly. Moreover, gender disaggregated data will be reported where possible, including regarding the number and percentage of women that participate in the various workshops and training activities supported by the project to ensure that women receive equal training opportunities. Given the narrow focus of the project on dioxins reduction from industrial facilities, no specific interventions could be identified under Component 1 that would contribute to enhancing the dioxins reduction objective of the PDO.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women

Does the project's results framework or logical framework include gender-sensitive indicators?

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

The project is centered on the engagement of the iron and steel industry for dioxins emissions reduction. The demonstration enterprises selection is based on open, transparent and competitive calls for proposal and evaluation by FECO against a set of criteria agreed with the World Bank. One enterprise was selected before CEO endorsement. The participating enterprises have to demonstrate good environmental and social management practices. The focus of the project is wholly to deliver global public goods in the form of global environmental benefits from dioxins abatement, additional to the ultra-low emissions that the enterprises have to meet that already bring dioxins reduction co-benefits; the dioxins reduction benefit that would accrue is very large and the overall cost to the GEF relatively modest; the enterprises are expected to provide cofinancing in the order of nearly three times the size of the grant they receive (1:2.6) towards the delivery of the global benefits that the project seeks to achieve, in addition to their baseline financing; and the participating enterprises agree to independent verification of their performance and collection and dissemination of lessons learned. The project is not expected therefore to confer any direct competitive advantage to the participating enterprises, and in particular would not lead to increased product market price.

5. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification *

| PIF | CEO Endorsement/Approval | MTR | TE |
|-----------------|-----------------------------|-----|----|
| Medium/Moderate | | | |

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

ESRS for project attached. COVID risk assessment and Climate and Disaster Risk Screening for the Project are also provided.

The environmental risk is rated as moderate. The enterprise-based activities will lead to the upgrade and improvement of existing facilities? production processes and pollution control equipment in industrial and developed areas, which are likely to be away from areas of high value or sensitivity due to the nature of the industry. The project would have moderate social risk, mainly pertinent to labor and working conditions. The project interventions will not increase the footprint of the existing enterprises, nor will it lead to additional land acquisition and resettlement. Generally, the project social impacts are site-specific, moderate in magnitude, and can be readily managed by applying a mitigation hierarchy.

Supporting Documents

Upload available ESS supporting documents.

| Title | Module | Submitted |
|-------|--------|-----------|
|-------|--------|-----------|

| Title | Module | Submitted |
|--|----------------------------|-----------|
| ESRS_DRAFT-China Iron and Steel GEF (P173461)_Nov14_CEO end | CEO Endorsement ESS | |

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Results Framework

COUNTRY: China

Environmentally Sustainable Development of the Iron and Steel Industry

Project Development Objectives(s)

] The project development objective is to demonstrate best available techniques and best environmental practices for the reduction of unintentionally produced persistent organic pollutants in selected iron and steel plants in a sustainable way, and promote these techniques/practices in the Chinese iron and steel industry.

Project Development Objective Indicators

RESULT_FRAME_TBL_PDO

| Indicator Name | PBC | Baseline | Intermediate Targets | | | | End Target |
|---|-----|--|----------------------|---|---|---|--|
| | | | 1 | 2 | 3 | 4 | |
| Dioxin emissions reduced from participating demonstration enterprises | | | | | | | |
| Dioxin emissions reduced from participating demonstration enterprises (g TEQ/year) (Text) | | the measuring unit is g TEQ/year which is not available in current data. OPCS advised team to use text from time being until the next upcoming release by end of January 2022. The baseline is 0. | | | | | the measuring unit is g TEQ/year which is not available in current data. OPCS advised team to use text from time being until the next upcoming release by the end of January 2022. The end-target is 3.7. |

RESULT_FRAME_TBL_PDO

| Indicator Name | PBC | Baseline | Intermediate Targets | | | | End Target |
|--|-----|--|----------------------|----------|-----------|-----------|--|
| | | | 1 | 2 | 3 | 4 | |
| Lessons learned from pilot enterprises disseminated (number of "lessons learned") (Number) | | 0.00 | 0.00 | 1.00 | 2.00 | 3.00 | 3.00 |
| Dioxin emissions reduced through replication during the project lifetime (g TEQ/year) (Text) | | the measuring unit is g TEQ/year which is not available in current data. OPCS advised team to use text from time being until the next upcoming release by the end of January 2022. The baseline is 0. | | | | | the measuring unit is g TEQ/year which is not available in current data. OPCS advised team to use text from time being until the next upcoming release by the end of January 2022 The end-target is 66. |
| Submission to MEE of proposals for revision to key emission standards for the sector to meet Stockholm Convention requirements submitted to MEE (Number) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 |
| Provinces or local authorities with enhanced capacity for monitoring and enforcement (Number) | | 0.00 | 0.00 | 0.00 | 1.00 | 3.00 | 3.00 |
| Project beneficiaries (Number) | | 0.00 | 0.00 | 4,500.00 | 15,000.00 | 30,000.00 | 30,000.00 |
| Women beneficiaries (Number) | | 0.00 | 0.00 | 675.00 | 2,250.00 | 4,500.00 | 4,500.00 |

PDO Table SPACE

Intermediate Results Indicators by Components

RESULT_FRAME_TBL_IO

| Indicator Name | PBC | Baseline | End Target |
|---|-----|----------|------------|
| Component 1 - BAT/BEP Demonstration in Select Enterprises | | | |
| BAT/BEP demonstrated in pilots for iron ore sintering and electric arc furnace (Number) | | 0.00 | 3.00 |
| Enterprise-level BAT/BEP application manuals (Number) | | 0.00 | 3.00 |
| Enterprises with on-line sampling system installed and operationalized (Number) | | 0.00 | 4.00 |
| Synergized emission reduction co-benefit evaluated for GHG, conventional pollutants, and other pollutants including mercury, PCBs, HCBs and PeCB (Yes/No) | | No | Yes |
| Financing mobilized for demonstration projects from enterprises (\$m) (Amount(USD)) | | 0.00 | 172.00 |
| Number of enterprises identifying energy savings opportunities through conducting Resource Efficiency and Cleaner Production audits (Number) | | 0.00 | 3.00 |
| Component 2 - Technical Assistance and Capacity Strengthening for Promotion of BAT/BEP | | | |
| Independent verification of dioxins reduction at participating enterprises (Number) | | 0.00 | 10.00 |
| Assessment and documentation of achievements and lessons learned under the pilot enterprises (Number) | | 0.00 | 3.00 |
| Technical guidelines and emission standard recommendations for dioxin reductions in iron and steel industry proposed (Number? (Number) | | 0.00 | 7.00 |

RESULT_FRAME_TBL_IO

| Indicator Name | PBC | Baseline | End Target |
|--|-----|----------|------------|
| Training materials developed (Number) | | 0.00 | 2.00 |
| Number of enterprises receiving training to facilitate BAT/BEP adoption (Number) | | 0.00 | 10.00 |
| Number of participants in enterprise-level trainings (Number) | | 0.00 | 100.00 |
| number (or %) of women (Percentage) | | 0.00 | 15.00 |
| Number of training workshops for industry (Number) | | 0.00 | 3.00 |
| Number of participants in industry-wide training activities (Number) | | 0.00 | 500.00 |
| number (or %) of women (Percentage) | | 0.00 | 15.00 |
| Number of training workshops for regulators (Number) | | 0.00 | 5.00 |
| Number of participants in training activities for regulators (Number) | | 0.00 | 40.00 |
| number (or %) of women (Percentage) | | 0.00 | 50.00 |
| Development of local-level enforcement action plans (Number) | | 0.00 | 3.00 |
| Percentage of terms of reference issued by FECO that put a preference on women representation in the assignment team and/or team leader (%) (Percentage) | | 0.00 | 90.00 |
| Grievances recorded through project level-grievance redress mechanisms are resolved satisfactorily (Yes/No) | | No | Yes |

IO Table SPACE

| Monitoring & Evaluation Plan: PDO Indicators | | | | | |
|--|--|--|--|---|------------------------------------|
| Indicator Name | Definition/Description | Frequency | Data source | Methodology for Data Collection | Responsibility for Data Collection |
| Dioxin emissions reduced from participating demonstration enterprises (g TEQ/year) | This indicator measures progress towards reduction of dioxins from demonstration enterprises. Target corresponds to an assumption of at least three demonstrations with at least two sintering lines and at least 1 EAF line; baseline emission level are at 0.3 ng TEQ/m ³ for all three lines and target emission level are at 0.05 ng TEQ/m ³ for sintering and 0.1 ng TEQ/m ³ for EAF. An average flow rate of 3,000 m ³ /t as reported in the 194530-CS-CQS Global environmental benefit analysis project preparation report. | Before, immediately after and six months after the demonstration | Baseline monitoring report; monitoring report at completion and six-month after completing | Sampling and Lab Analysis by Accredited Lab | FECO |
| Lessons learned from pilot enterprises disseminated (number of "lessons learned") | This indicator measures progress towards dissemination of lessons learned from demonstration enterprises. | Semi-annual | project progress report; training plan, training materials, and training records | | FECO |

| | | | | | |
|---|---|-------------|--|---|---------------------------|
| Dioxin emissions reduced through replication during the project lifetime (g TEQ/year) | This indicator measures progress towards reduction of dioxins from 20 production lines that receive technical assistance support by the project. Target corresponds to an assumption of 20 lines with baseline and target emission levels at 0.4 ng TEQ/m3 and 0.1 ng TEQ/m3 for EAF respectively. At least 26 lines are listed by the China Iron & Steel Association as on their way to ultra-low emissions control. | Semi-annual | Baseline monitoring report; monitoring report at completion and six-month after completing | Sampling and Lab Analysis by Accredited Lab | Sampling and Lab Analysis |
| Submission to MEE of proposals for revision to key emission standards for the sector to meet Stockholm Convention requirements submitted to MEE | This indicator measures strengthening of regulatory instruments. The two national standards proposed for revision are GB28662-2012 and GB28664-2012. | Semi-annual | project progress report; proposed revision of the standards | | FECO |
| Provinces or local authorities with enhanced capacity for monitoring and enforcement | | | | | |

| | | | | | |
|-----------------------|--|-------------|--|--|------|
| Project beneficiaries | This indicator measures the population directly benefited from the project, defined as the number of workers at enterprises directly engaged in the project, either as participating enterprises through Component 1, or as target of technical assistance through Component 2. Assuming at least 15 beneficiary enterprises, each with 2,000 workers leads to a total of 30,000 direct beneficiaries, of which 15% are estimated to be women, or 4,500. | Semi-annual | project progress report; training plan, training materials, and training records | | FECO |
| Women beneficiaries | Derives from the definition of beneficiaries. | Semi-annual | project progress report; training plan, training materials, and training records (with female % specified) | | FECO |

ME PDO Table SPACE

Monitoring & Evaluation Plan: Intermediate Results Indicators

| Indicator Name | Definition/Description | Frequency | Datasource | Methodology for Data Collection | Responsibility for Data Collection |
|--|---|-------------|--|---------------------------------|------------------------------------|
| BAT/BEP demonstrated in pilots for iron ore sintering and electric arc furnace | This indicator measures the number of production lines participating in BAT/BEP demonstration. Minimum is 3. | Semi-annual | project progress report; signed sub-agreements | | FECO |
| Enterprise-level BAT/BEP application manuals | This indicator measures the development of materials to disseminate lessons learned. | Semi-annual | project progress report; completed BAT/BEP application manuals | | FECO |
| Enterprises with on-line sampling system installed and operationalized | The indicator measures the advancement of knowledge and capability on dioxin sampling and monitoring. One demonstration enterprise will install sampling system and activity 2.3.4 will support installation at at least three enterprises. | Semi-annual | project progress report | | FECO |
| Synergized emission reduction co-benefit evaluated for GHG, conventional pollutants, and other pollutants including mercury, PCBs, HCBs and PeCB | This indicator measures the progress toward knowledge advancement on synergistic emission reduction. Because a numeric baseline cannot be established, a Yes/No indicator is set up. | Semi-annual | project progress report | | FECO |

| | | | | | |
|---|--|-------------|-------------------------|--|------|
| Financing mobilized for demonstration projects from enterprises (\$m) | The explanation could be corrected to "This indicator measures the amount of financing mobilized by the project; including US\$31.36 million of pilot enterprise cofinancing of subprojects under Component 1 and reflected in project financing table, and complemented by BAT/BEP relevant baseline investments to the tune of US\$70.64 million; and US\$60 million from enterprises targeted under Component 2 and that will adopt BAT/BEP measures during the course of the project. The total of US\$172 million represents cofinancing for the project under GEF definitions of incremental costs and co-financing. | Semi-annual | project progress report | | FECO |
| Number of enterprises identifying energy savings opportunities through conducting Resource Efficiency and Cleaner Production audits | This indicator measures the progress toward knowledge advancement on further energy savings in support of identifying low-carbon technologies for dioxin reductions | Semi-annual | project progress report | | FECO |

| | | | | | |
|--|--|--------------------------------------|--|---|------|
| Independent verification of dioxins reduction at participating enterprises | This indicator measures the level of compliance with BAT/BEP emission requirements among the enterprises supported by Component 2. 10 enterprises will be selected for independent verification while other participating enterprises will submit self-monitoring report | Before and after the BAT/BEP upgrade | Monitoring report | Sampling and Lab Analysis by Accredited Lab | FECO |
| Assessment and documentation of achievements and lessons learned under the pilot enterprises | This indicator measures progress towards dissemination of lessons learned from demonstration enterprises. | Semi-annual | project progress report; training plan, training materials, and training records | | FECO |

| | | | | | |
|---|--|-------------|--|--|------|
| Technical guidelines and emission standard recommendations for dioxin reductions in iron and steel industry proposed (Number? | This indicator measures strengthening of regulatory instruments and improvement of technical and management capacity. The two national standards proposed for revision are GB28662-2012 and GB28664-2012. At least one provincial level emission standard will be proposed for revision. At least four technical guidelines are proposed to be revised (see Detailed Project Description Annex for List) | Semi-annual | project progress report; proposed revision of the standards and technical guidelines | | FECO |
| Training materials developed | This indicator measures progress towards capacity strengthening for both regulators and industry. Assume two sets of training materials to be developed, one for regulators and one for industry. | | project progress report; training materials | | FECO |
| Number of enterprises receiving training to facilitate BAT/BEP adoption | This indicator measures progress towards capacity strengthening for industry. Currently at least 26 production lines with eleven enterprises are listed by the Association as on their way to ultra-low emissions control. | | project progress report; training plans, and training records | | FECO |

| | | | | | |
|--|---|--|---|--|------|
| Number of participants in enterprise-level trainings | This indicator measures progress towards capacity strengthening for industry. Assume 10 staff from each enterprise will receive training | | project progress report; training plans, and training records | | FECO |
| number (or %) of women | | | | | |
| Number of training workshops for industry | This indicator measures progress towards capacity strengthening for industry. At least one workshop will be held in each province selected for capacity improvement | | project progress report; training plans, and training records | | FECO |
| Number of participants in industry-wide training activities | This indicator measures progress towards capacity strengthening for industry to promote sector-wide adoption. Assume among 25% of the 400 enterprises with smelting capacity , 5 staff from each enterprise will attend training. | | project progress report; training plans, and training records | | FECO |
| number (or %) of women | | | | | |
| Number of training workshops for regulators | | | | | |
| Number of participants in training activities for regulators | This indicator measures progress towards capacity strengthening for regulators. Assume 10 participants for each workshop | | project progress report; training plans, and training records | | FECO |

| | | | | | |
|---|--|--|---|--|------|
| number (or %) of women | | | | | |
| Development of local-level enforcement action plans | This indicator measures progress towards capacity strengthening for regulators on enforcement. Assume plan will be developed for each province selected for capacity improvement. | | project progress report; training plans; and training records | | FECO |
| Percentage of terms of reference issued by FECO that put a preference on women representation in the assignment team and/or team leader (%) | This indicator incorporates gender consideration in the project | | TA contract signed with core team member listed | | FECO |
| Grievances recorded through project level-grievance redress mechanisms are resolved satisfactorily | This indicator will monitor citizen engagement in project activities. Newly established education base is expected to include such services as provision of information on project and benefit | | project progress report and grievance redress records | | FECO |

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

STAP comments : Minor issues to be considered during project design

STAP acknowledges that on scientific or technical grounds the concept has merit. The proponent is invited to approach STAP for advice at any time during the development of the project brief prior to submission for CEO endorsement.

| Reviewer | Comment | Team Response |
|------------------|---------|---------------|
| Theory of Change | | |

| | | |
|--------------------------|---|--|
| STAP | <p>Theory of change: On page 6 of the PID, the proponent provided a narrative description of the problem to be addressed and interventions ? as the theory of change. However, this analysis does not contain all the necessary information expected in a complete theory of change. It will also be useful if the theory of change can be presented in a diagram to clearly show the root cause and drivers of environmental degradation, key assumptions, planned interventions, causal and alternative pathways, and expected output and outcomes. Please see STAP's theory of change primer (https://stapgef.org/sites/default/files/publications/STAP%20ToC%20Primer_webposting.pdf) for further guidance on theory of change preparation.</p> | The PAD includes a full ToC diagram. |
| Baseline Scenario | | |
| STAP | <p>Current emission data is provided under institutional context. The baseline section does not provide a feasible basis for quantifying the project's benefits.</p> | <p>The methodology to estimate the project's dioxins abatement potential was shared with the Secretariat, and the results are summarized in the World Bank PID, Para 20 on incremental reasoning. The project document for CEO endorsement will detail the basis for quantification of project benefits in an annex.</p> |
| Barriers: | | |

| | | |
|------|---|---|
| STAP | <p>The PIF lists several barriers, the majority of which are addressed by the project components. However, the PIF is silent on the risks which could derail the project. For example, what if the private sector does not cooperate. The project developer should provide an analysis of potential risks and information on how they will be managed.</p> <p>There are possible interlinkages, including potential synergies and tradeoff between measures and technologies aimed at mitigating uPOPs, greenhouse gas, mercury emission, and air pollution control. This was recognized on page 5 of the PID. STAP recommends that an integrated approach that seeks to maximize benefits and reduce tradeoff or unintended consequences should be applied in deciding on the solutions to be adopted in the project.</p> <p>Further to the above, it is essential that all the possible global environmental benefits from the project are considered and reported. While the PID acknowledges the possibility of climate change mitigation benefits from the project, this was not accounted for in the expected global environmental benefits in the PIF. Only the chemicals and waste (uPOPs) benefit was noted. We recommended that the expected climate change benefits be analyzed and fully accounted for as the project is further developed.</p> | <p>The risk that not enough enterprises would be willing to participate with the necessary investments in pollution reduction due to various reasons, in particular the economic downturn from the COVID-19 crisis is rated as moderate. The risk is mitigated by the strong push by authorities for the industry to adopt stricter emission controls which is expected to remain a priority.</p> <p>Thank you, the Bank team and project proponents fully agree: as outlined in the PID, an integrated approach is central to the project approach.</p> <p>Expected climate change benefits were estimated during project preparation. As expected, they are fairly modest. See Climate Cobenefit section in the PID. Noting that typically pollution control devices consume energy (see for examples Bonilla et al., Technical</p> |
|------|---|---|

| Innovation | | |
|---------------------------------|---|---|
| STAP | <p>Innovation: The PIF states that the "innovativeness relies on the promotion of least-cost, applicable techniques dealing with UPOPs emissions, and on the integration of BAT/BEP for PCDD/Fs control with emission reduction of more conventional pollutants and energy-saving and greenhouse gases emission reduction." This statement does not provide adequate information on what is innovative about the project. Innovativeness may include project design, financing mechanism, technology, business model, policy, monitoring and evaluation, or learning model (https://www.stapgef.org/innovation-and-gef). STAP recommends that this section should be revisited at the PPG stage. Also scaling up is not clearly articulated.</p> | <p>The project document at CEO endorsement includes an analysis of innovation and potential for scaling-up. The innovative aspects of the proposed project relate chiefly to technology, policy coordination, and monitoring.</p> |
| Climate change impact and risks | | |
| STAP | <p>The PIF is silent about the potential effects of projected climate change on achieving the objectives of the project. STAP recommends that a detailed climate risk screening should be carried out to ascertain the vulnerability of the project to climate change and come up with risk management options, where necessary.</p> | <p>Climate screening of the project indicates a low risk of climate and geophysical hazards. This will be monitored during implementation.</p> |
| Project Design | | |

| | | |
|------|---|--|
| STAP | <p>Minor issues to be considered during project design:</p> <p>STAP has identified specific scientific /technical suggestions or opportunities that should be discussed with the project proponent as early as possible during development of the project brief. The proponent may wish to: (i) Open a dialogue with STAP regarding the technical and/or scientific issues raised; (ii) Set a review point at an early stage during project development, and possibly agreeing to terms of reference for an independent expert to be appointed to conduct this review. The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement.</p> | <p>The project was developed with the support of technical reviews implemented during the PPG of the technological and scientific aspects of the control of dioxins in the iron and steel sector. The project was further designed with a strong emphasis on TA studies to advance understanding of synergies and trade-offs between dioxins control, other pollutants, and GHG. Moreover, assessment of lessons learned with prominently feature technological aspects, and top domestic and international expertise will be recruited to ensure that the best scientific and technical advice can be available to the project during its implementation.</p> |
|------|---|--|

ANNEX C: Status of Utilization of Project Preparation Grant (PPG).
(Provide detailed funding amount of the PPG activities financing status in the table below:

| PPG Grant Approved at PIF: 300,00 | | | |
|---|-----------------------------------|-----------------------------|-------------------------|
| <i>Project Preparation Activities Implemented</i> | <i>GETF/LDCF/SCCF Amount (\$)</i> | | |
| | <i>Budgeted Amount</i> | <i>Amount Spent To date</i> | <i>Amount Committed</i> |
| Project preparation activities | 300,000 | 210,000 | 90,000 |
| Total | 300,000 | 210,000 | 90,000 |

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

ANNEX E: Project Budget Table

Please attach a project budget table.

| Appendix A: Indicative Project Budget Template | | | | | | | | | | | | |
|--|--|---------------------|--------------|--------------|--------------|-------------|-------------|---------------|------------|------------|-----------------|--|
| Expenditure Category | Detailed Description | Component (USD eq.) | | | | | | Sub-Total | M&E | PMC | Total (USD eq.) | Responsible Entity (Receiving Entity receiving funds from the GEF Agency) |
| | | Component 1 | Component 2 | | | | Component 3 | | | | | |
| | | Outcome 1.1 | Outcome 2.1 | Outcome 2.2 | Outcome 2.3 | Outcome 2.4 | Outcome 3.1 | | | | | |
| Works | | | | | | | | | | | | |
| Goods | Online doxins sampling system | | | | | 900,000.00 | | 900,000.00 | | | 900,000.00 | RECO |
| | Publicity materials | | | | | 100,000.00 | | 100,000.00 | | | 100,000.00 | RECO |
| Vehicles | | | | | | | | | | | | |
| Grants/ Sub-grants | BAT/BEP demonstration of at least 2 iron ore sintering production lines | 12,000,000.00 | | | | | | 12,000,000.00 | | | 12,000,000.00 | RECO |
| | BAT/BEP demonstration of at least 1 electric arc furnace steelmaking production line | 4,000,000.00 | | | | | | 4,000,000.00 | | | 4,000,000.00 | RECO |
| Revolving funds/ Seed funds/ Equity | | | | | | | | | | | | |
| Sub-contract to executing partner/ entity | | | | | | | | | | | | |
| Contractual Services- Individual | Recruitment of national experts on policies | | | | | 150,000.00 | | 150,000.00 | | | 150,000.00 | RECO |
| | Recruitment of national experts on technologies | | | | | 150,000.00 | | 150,000.00 | | | 150,000.00 | RECO |
| | Recruitment of experts on local safeguards | | | | | | | | 50,000.00 | | 50,000.00 | RECO |
| | Recruitment of experts on environmental safeguards | | | | | | | | 50,000.00 | | 50,000.00 | RECO |
| | Recruitment of other domestic experts | | | | | 160,000.00 | | 160,000.00 | | | 160,000.00 | RECO |
| Contractual Services- Company | Evaluation of the implementation and research on the update of the existing operations on the strengthening of disaster pollution prevention and control | | 100,000.00 | | | | | 100,000.00 | | | 100,000.00 | RECO |
| | Evaluation of the implementation and research on the update of the Policy on disaster pollution prevention and control technologies in key sectors | | 100,000.00 | | | | | 100,000.00 | | | 100,000.00 | RECO |
| | Research on pollutant discharge permit system and relevant supporting technology specifications in iron and steel industry | | 150,000.00 | | | | | 150,000.00 | | | 150,000.00 | RECO |
| | Research on management policy and disposal technology of solid waste from key process of iron and steel industry | | 100,000.00 | | | | | 100,000.00 | | | 100,000.00 | RECO |
| | Evaluation of the implementation of current available technology guidelines on pollution prevention and control in iron and steel industry and preliminary study on the proposed draft on the revision of the guidelines | | 150,000.00 | | | | | 150,000.00 | | | 150,000.00 | RECO |
| | Evaluation of the implementation of cleaner production system in iron and steel industry and preliminary study on the proposed draft on the revision of the assessment system | | 150,000.00 | | | | | 150,000.00 | | | 150,000.00 | RECO |
| | Evaluation of the implementation of pollutant discharge standards in iron and steel industry and the proposed draft on the revision of discharge standards | | 150,000.00 | | | | | 150,000.00 | | | 150,000.00 | RECO |
| | Preliminary study on the ambient air quality standards in iron and steel industry | | 150,000.00 | | | | | 150,000.00 | | | 150,000.00 | RECO |
| | Research on engineering technical specifications for ultra-low emission in iron and steel industry | | 200,000.00 | | | | | 200,000.00 | | | 200,000.00 | RECO |
| | Evaluation of the online doxins sampling system and preliminary research on technical specifications in iron and steel industry | | 200,000.00 | | | | | 200,000.00 | | | 200,000.00 | RECO |
| | Formulation and revision of relevant standards by local environmental departments | | 300,000.00 | | | | | 300,000.00 | | | 300,000.00 | RECO |
| | Research on other relevant policies, laws, regulations and national standards of iron and steel industry | | 200,000.00 | | | | | 200,000.00 | | | 200,000.00 | RECO |
| | Diagnosis emission status and evaluation of technology and method on discharge emission reduction control in iron ore sintering process | | | 200,000.00 | | | | 200,000.00 | | | 200,000.00 | RECO |
| | Diagnosis emission status and evaluation of technology and method on discharge emission reduction control in electric arc furnace | | | 150,000.00 | | | | 150,000.00 | | | 150,000.00 | RECO |
| | Evaluation of the effect on synergistic reduction of multiple pollutants emission in key process of iron and steel industry | | | 250,000.00 | | | | 250,000.00 | | | 250,000.00 | RECO |
| | Investigation, survey and evaluation of the implementation of ultra-low emission reconstruction in iron and steel industry | | | 250,000.00 | | | | 250,000.00 | | | 250,000.00 | RECO |
| | Comprehensive evaluation of energy conservation and pollution reduction technology in iron and steel industry | | | 250,000.00 | | | | 250,000.00 | | | 250,000.00 | RECO |
| | Evaluation of synergistic effects on reducing pollution and carbon emission in iron and steel industry | | | 200,000.00 | | | | 200,000.00 | | | 200,000.00 | RECO |
| | Development and evaluation of UPOD auxiliary diagnosis system in iron and steel industry | | | 200,000.00 | | | | 200,000.00 | | | 200,000.00 | RECO |
| | Conducting of investigation and survey, and formulation of local enforcement plans | | | | 150,000.00 | | | 150,000.00 | | | 150,000.00 | RECO |
| | Technical support for special enforcement actions of provincial and municipal relevant departments | | | | 300,000.00 | | | 300,000.00 | | | 300,000.00 | RECO |
| | Support to local environmental departments to conduct supervisory monitoring | | | | 500,000.00 | | | 500,000.00 | | | 500,000.00 | RECO |
| | Formulate training materials | | | | 100,000.00 | | | 100,000.00 | | | 100,000.00 | RECO |
| | Establishment of environmental education | | | | 100,000.00 | | | 100,000.00 | | | 100,000.00 | RECO |
| | Performance verification of project outcomes of demonstration activities | | | | | | | | 200,000.00 | | 200,000.00 | RECO |
| | Performance verification of project outcomes of replication activities | | | | | | | | 400,000.00 | | 400,000.00 | RECO |
| International Consultants | Recruitment of international experts | | | | | 150,000.00 | | 150,000.00 | | | 150,000.00 | RECO |
| Local Consultants | | | | | | | | | | | | |
| Salary and benefits/ Staff costs | Technical Coordinator | | | | | | | | | 500,000.00 | 500,000.00 | RECO |
| | Project Manager | | | | | | | | | 250,000.00 | 250,000.00 | RECO |
| Trainings, Workshops, Meetings | Local training | | | | 300,000.00 | | | 300,000.00 | | | 300,000.00 | RECO |
| | Central training | | | | 300,000.00 | | | 300,000.00 | | | 300,000.00 | RECO |
| | Meetings & Workshops | | | | | | | | | 120,000.00 | 120,000.00 | RECO |
| | Travel | | | | | | | | | 150,000.00 | 150,000.00 | RECO |
| | Study tour | | | | 300,000.00 | | | 300,000.00 | | | 300,000.00 | RECO |
| Office Supplies | | | | | | | | | | 20,000.00 | 20,000.00 | RECO |
| Other Operating Costs | | | | | | | | | | 150,000.00 | 150,000.00 | RECO |
| Grand Total | | 16,000,000.00 | 1,950,000.00 | 1,500,000.00 | 3,050,000.00 | 610,000.00 | | 23,110,000.00 | | | 23,000,000.00 | |

[1] In exceptional cases where GEF Agency receives funds for execution, Terms of Reference for specific activities are reviewed by GEF Secretariat

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

not applicable

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agency is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

not applicable

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).

not applicable