**Annex 2**

**Technology Declaration Scheme for the Technology Pool of Green "Belt and Road Initiative” in 2020**

The content of the notice on Technology Collection Activity for the Technology Pool of Green "Belt and Road Initiative" in 2020 is as follows:

**I. Time for technology declaration**

From December 30, 2019 to March 10, 2020

**II. Major fields to be collected**

 (I) Prevention and control of atmospheric pollution

Desulfurization, denitration and dust removal technologies, administrative and control technologies against motor vehicle pollution, VOCs emission control technologies, and administrative and control technologies against dust pollution.

 (II) Prevention and control of water pollution

Technologies for supplying safe drinking water, treating industrial wastewater (including industrial parks), controlling non-point source pollution, treating urban sewage, prevention and control of black-colored and odorous water pollution.

 (III) Prevention and control of soil pollution

Technologies for soil investigation and survey, risk assessment, remediation of industrial contaminated sites (soil and groundwater), restoration of mine ecology, and treatment and improvement of farmland soil.

 (IV) Solid waste disposal

Technologies for domestic waste classification and recycling, treatment of kitchen waste, recycling of industrial and mining solid waste, treatment of landfill leachate, treatment of oily sludge.

 (V) Environmental monitoring

On-line monitoring equipment for characteristic pollutants, monitoring technology for soil (including soil gas) and groundwater, monitoring technology for volatile organic compounds from waste gas pollution sources, monitoring technology for atmospheric volatile organic compounds, environmental monitoring and traceability technology for industrial parks, and smart water platform related technologies.

**III. Declaration requirements**

 (I) Requirements for a technology declaration:

1. It shall conform to China's environmental and technological policies.

2. It shall have a clear ownership of intellectual properties or proprietary technologies.

3. Its process shall be proven, technology cutting-edge and economy reasonable.

4. It has been used in more than 3 large-scale applications, including those in China, in countries along "the belt and road" or other countries/regions.

5. The technology has strong adaptability and can be widely popularized and applied.

6. Its system architecture, process flow, process unit or equipment/ material/ medicament shall be proven.

 (II) Requirements for an enterprise submitting a technology declaration:

1. The applicant enterprise shall hold the ownership of the technology, i.e. the patent certificate or appraisal certificate of the technology shall be titled the name of the enterprise.

2. It shall have the corresponding research, development, design, production and promotion capabilities.

 (III) Materials for declaration:

1. *Technology Declaration Form for the Technology Pool of Green "Belt and Road Initiative” in 2020* (Annex 2-1);

2. *Technical Report* of the declared technology (see Annex 2-2 for the preparation requirements);

3. Introduction to *Typical Cases* of Technical Engineering Application (see Annex 2-3 for preparation requirements);

4. The project acceptance report, acceptance monitoring report or performance test (evaluation) report issued by a qualified third party institution of each typical case;

5. Enterprise Information Form (Annex 2-4);

6. Others: photocopies of corporate business license, patent certificate, award-winning (or technical appraisal, evaluation, recommendation) certificate, qualification certificate, etc.

**IV. Evaluation process**

The evaluation process of this collection activity includes the following: review of declaration materials, experts’ technical inquiry by letter, experts’ consultation, case review and technology publicly announced for opinion.

**V. Submission methods**

The technology holding unit shall fill in the *Technology Declaration Form for the Technology Pool of Green “Belt and Road Initiative” in 2020* and the *Enterprise Information Form*, prepare *Technical Report* and *Typical Cases* as per the requirements for the declaration materials, and directly deliver or mail the paper-based materials (bound in quadruplicate) and the electronic documents of the materials (in a CD, compressed into one file, named as "technical field + technology name + name of declaring unit", all in word format) to Foreign Environmental Cooperation Center before March 10, 2020. In case of mailing, please send it by express before the deadline for application.

Please log on the BRI Environmental Big Data Platform (website: http://greenbr.org.cn/) or the 3iPET International Platform for Environmental Technology (website: http://www.3ipet.cn) to download relevant annexes.

**VI. Contact information**

Foreign Environmental Cooperation Center

Kong De, Fei Weiliang, Division for Technology Cooperation

Telephone: 86-10-82268942/8791

Fax: 86-10-82200586

Mail box: kong.de@fecomee.org.cn

Mailing address: Room 315, No.5 Houyingfang Hutong, Xicheng District, Beijing, 100035

Annexes:

1. Technology Declaration Form for the Technology Pool of Green "Belt and Road Initiative” in 2020

2. Outline for Preparation of Technical Report

3. Outline for Preparation of Typical Cases

4. Enterprise Information Form

Annex 2-1

**Technology Declaration Form for the Technology Pool of Green "Belt and Road Initiative” in 2020**

|  |  |
| --- | --- |
| Technology |  |
| Declaring Unit 1 |  |
| Contact |  | Telephone |  |
| Fax |  | E-mail |  |
| Mailing address and Zip code |  |
| Technical field |  **-Prevention and control of atmospheric pollution□*** Desulfurization, denitration and dust removal technology□
* Administrative and control technology against motor vehicle pollution□
* VOCs emission control technology□
* Administrative and control technology against dust pollution□
* Other □

**-Prevention and control of water pollution□*** Safe drinking water supply technology□
* Treatment technology of industrial wastewater (including industrial park) □
* Non-point source pollution control technology □
* Urban sewage treatment technology□
* Prevention and control technology against black-colored and odorous water pollution □
* Other □

**-Prevention and control of soil pollution □*** Soil investigation and survey technology□
* Risk assessment technology□
* Remediation technology for industrial contaminated sites (soil and groundwater) □
* Mine ecological restoration technologic□
* Farmland soil treatment and improvement technology □
* Other □

**-Solid waste disposal□*** Domestic waste classification and recycling technology□
* Kitchen waste disposal technology □
* Industrial and mining solid waste recycling technology □
* Landfill leachate treatment technology □
* Hazardous waste disposal and recycling technology □
* Other □

**-Environmental monitoring □*** On-line monitoring equipment for characteristic pollutants □
* Monitoring technology for soil (including soil gas) and groundwater □
* Monitoring technology for volatile organic compounds from waste gas pollution sources □
* Monitoring technology for atmospheric volatile organic compounds □
* Environmental monitoring and traceability technology for industrial parks □
* Smart water platform related technology □
* Other □
 |
| Technical principle | Clearly explain the physics, chemistry, chemical industry or biology principles utilized by the technology, with a limit of 500 words.  |
| Technological innovation | Explain the innovation of this technology, with a limit of 500 words  |
| Advantages of domestic application | Explain the advantages of this technology in domestic application compared with other technologies in the industry, with a limit of 500 words.  |
| Advantages of application in countries along "the belt and road" | Explain the advantages of this technology in the application of countries along "the belt and road" compared with other technologies in the industry, with a limit of 500 words.  |
| Process and operation control parameters | Explain the process for applying the technology by text, describe the specific methods and effects of each link, and indicate the names of main processes and control parameters and their value ranges. For any diagram, the flow details in the diagram shall be explained in detail under the diagram. Limit to 500 words. |
| Main pollutants controlled and pollution control effect | Select and list the characteristic pollutants targeted by the process. List the import (or initial), export (or final) concentration index and removal rate of each major pollutant item for an object under certain conditions before and after the application of the technology, as well as the recovery and utilization rate of energy and resources in the process. List the pollutant emission standards that can be achieved by applying this technology. Note: All major pollutant items shall be consistent with the characteristic pollutant items listed above. The concentration index data of each major pollutant item shall be consistent with the monitoring/testing report in the application materials. The corresponding treatment technology must be consistent with the "process routing". |
| Secondary pollution and its control | List the types, quantity and hazard rating of secondary pollution in the application of the system, and their control technologies and effects, for instance, the generation and control information of waste water, solid waste, etc. |
| Main economic indicators, advantages and disadvantages | List the main economic indicators such as investment cost per unit, operation cost per unit, pollutant treatment cost per unit, product recovery cost per unit, etc., of which the operation cost can be subdivided according to actual conditions, e.g. subdivided into water consumption, electricity consumption, medicine consumption, etc. Analyze advantages and disadvantages compared with other technical and economic indicators in the industry. |
| Scope and conditions of application | Region: Industry: Scope of application:  (fill in based on the existing engineering application, specify the applicable objects of the technology, including the applicable industry, process, etc., and also explain the special requirements for environment, scale, etc. during the application of the technology, for example, "oil mist recovery of aluminum foil roughing mill at normal temperature", limited to 100 words) |
| Intellectual property rights of the technology  | Explain the ownership, authorized use, patent acquisition and application information of the intellectual property rights of the technology. |
| Technical appraisal | Fill in the organizing unit, appraisal time and appraisal conclusion. |
| Technical awards | Fill in the award time, award grade and award name. |
| Promotion information | Limit to 200 words. |
| Potential demand | Describe the potential demand of the enterprise, such as whether financing, marketing along the "belt and road", domestic marketing, etc. are needed |
| Typical case | Name of the typical case: (e.g. Desulfurization, Denitrification and Dust Removal Reconstruction Project for \* \* Coal-fired Power Plant, Cambodia)Place of implementation of the project: within China □; countries along "the belt and road" □ (fill in the name of specific country/region); Other countries/regions □. (Fill in according to the submitted *Typical Cases* of technical engineering applications) |
| Main usersDirectory 2 | Unit name | Project Name | Project operation time and effect | Contact | Tel |
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|  |  |  |  |  |
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|  |  |  |  |  |
|  |  |  |  |  |
| **Comments from Recommending Unit:** (Seal)Date: yyyy-mm-dd |
| **Commitment of the Declaring Unit:**The contents of the declaration materials are true and accurate. The intellectual property rights of the technology are clear. In case of intellectual property disputes, we will bear all legal responsibilities.Sincerely,  (Seal)Date: yyyy-mm-dd |

Instructions for filling the form:

1. For “Declaring Unit", the full name of the unit with independent legal person qualification shall be filled. If two or more units jointly research and develop, the primary unit should be filled in the front.

2. If the technology is jointly developed by two or more units, the legal representative of the primary unit shall be filled in.

3. The words in brackets in the right column of the declaration form are instructions for filling in. Please clear them before filling in.

4. The Declaring Unit shall truthfully fill in the form and be responsible for the authenticity of the contents. The official seal shall be stamped at the "Commitment of the Declaring Unit". The name on the official seal shall be consistent with that of the Declaring Unit. The official seal shall not be copied.

5. After the Declaring Unit has prepared the application materials, it should ask the Recommending Unit to fill in the "Comments from Recommending Unit" and stamp its official seal. The name on official seal must be consistent with that of the Recommending Unit, and the official seal must not be copied.

6. If the declaration materials are short of key materials or the introduction of technical contents is unclear, they cannot enter the review process. The Declaring Unit shall fill in the materials strictly according to the requirements to ensure the objectivity, accuracy and consistency of the contents.

7. Please fill in the information of not less than 3 main users.

Annex 2-2

**Outline for the Preparation of Technical Report**

Abstract (within 300 words)

I. Sources of technology

II. Domestic and foreign research and development status and technology comparison

III. Main technical and economic indicators

Main design, technical & performance parameters, resources and environmental effect indicators, economic parameters (investment, operating costs, profitability, etc.) shall be involved.

IV. Key technologies and innovation points

V. Application and promotion situation and prospect analysis

Describe the current application and promotion of this technology in detail, and analyze the application and promotion prospects of this technology in China and the countries along "the belt and road" respectively.

Annex 2-3

**Outline for Preparation of Typical Cases**

**I. Name of case**

**II. Project overview**

Explain the processing object, processing capacity, construction, and commissioning and normal operation time of the project, with a limit of 500 words.

**III. Brief Introduction of process**

 (I) Process flow

Briefly introduce the process principle, process flow, key process parameters, special properties, etc. of the project. Process drawings or facility photos can be attached. Limit to 500 words.

 (II) Key technologies or design features

Briefly introduce the key technology, process arrangement features, special design or devices, new materials, new systems, etc. of the project. Limit to 500 words.

**IV. Technical criteria**

Introduce the main pollutants targeted by the project, the removal efficiency, the applicable emission standards and conformity status, the annual reduction amount of main pollutants, the yield of main by-products, the operation and maintenance parameters of key equipment/ facilities (e.g. fillers, catalysts, etc.), the secondary pollution emission index, the water and energy saving, etc. Limit to 500 words.

**V. Investment costs**

Explain the basic composition of the project's investment, the total investment cost and calculate the investment cost per unit of processing capacity. Limit to 200 words,

**VI. Operating costs**

Explain the annual consumption of main raw materials and their energy consumption, as well as raw material consumption and energy consumption per unit of treatment capacity. Calculate the annual operating cost of the project and the operating cost per unit of processing capacity. If the implementation of the project can contribute to useful by-products or obvious water-saving and energy-saving effects, its economic benefits shall be demonstrated by data. Limit to 200 words.

**VII. Comments from User**

User’s evaluation of the technology, indicating the characteristics, effects, existing problems and promotion opinions of the technology. Limit to 200 words.

**VIII. Contact information**

Name, contact person, telephone number, address, zip code and email address of the technology information consulting unit.

 (Note: Please refer to the "Example" format to write no more than 2 typical cases)

**Example**

**I. Name of case**

XXX Project to Improve UCT Process (XXX Sewage Treatment Plant)

**II. Project overview**

XXX Sewage Treatment Plant is designed to have a daily treated water volume of XXX m 3/d. The sewage comes from urban domestic and production sewage and industrial wastewater from XXX industrial park. The plant was started in construction in mm-yy. It was put into operation after completion of commissioning in mm-yy. This project won the XXX Award on mm-dd-yy.

**III. Brief Introduction of process**

 (I) Process flow

This project applies a technology improving the UCT process, which can achieve the result of denitrification and phosphorus removal. The process flow is as follows: ×××××—×××××—the improved UCT segmented influent biological reaction tank - secondary sedimentation tank - XXX-XXX-XXX - effluent.

This project adopts a segmented influent biological denitrification process, which consists of three segments of hypoxia /aerobic process in sequence. Raw water enters each hypoxia zone segment by segment, and the returned sludge flows back to the starting end of the system. In the hypoxia zone of the first segment, NO X-N in the returned sludge is denitrified by using the carbon source in sewage Q1 entering the zone. Then the mixed liquid flows into the aerobic zone of the first segment for nitration reaction. The mixed sewage after the reaction flows into the hypoxia zone of the second segment, where denitrification is carried out by using the carbon source in sewage Q2 entering the zone. Then the mixed liquid enters the aerobic zone of the second segment for nitrification. And so on and so forth in the subsequent segments.

 (II) Key technologies or design features

 The process adopts a water influent mode of ××××××××× and is assisted by process control, and the carbon source in the raw water is mainly consumed during denitrification and phosphorus removal, thus improving the removal rate of total nitrogen and total phosphorus.

 The XXX, XXX, XXX control system, etc. are established to improve the level of automatic control.

 By adopting new segmented inflow technologies such as ×××××, ×××××, and ××××, the effluent can satisfy the requirements of standards stably.

 If additional carbon source is supplemented, deep nitrogen removal can be realized.



Figure X-X Process diagram of improved UCT technology (or facility photo)

**IV. Technical criteria**

According to the acceptance report issued by XXX, the effluent of the project meets the requirements of Grade A Class I specified in GB18918-2002 *Discharge Standard of Pollutants for Municipal Wastewater Treatment Plant*. In case of calculating based on the average influent TN of xx mg/l and TP ≦ xx mg/l, the sewage plant will reduce the total nitrogen emission by xx tons and the total phosphorus emission by xx tons every year. If appropriate amount of additional carbon source is supplemented, deep nitrogen and phosphorus removal (TN ≦ x mg/L, NH4 +-N ≦ x mg/L, TP ≦ x mg/L) can be realized by this process. This technology has obvious energy-saving effect. The electricity consumption per ton of water is reduced by ×%, saving electricity of ××Kwh annually.

**V. Investment costs**

The total investment of this project is about ×× yuan, including equipment investment of ×× yuan, infrastructure investment of ×× yuan, other investment of ×× yuan, and the investment cost per ton of water is ×××× yuan.

**VI. Operating costs**

According to the actual operation from mm-yy to mm-yy, the annual sewage treatment amount achieved xx tons, the annual operation cost was xx yuan, and the operation cost per ton of water was xx yuan. By using this process plus appropriate additional amount of carbon source and coagulant, advanced treatment can be realized. In case of adding ×× (carbon source) of ×× tons and coagulant of ×× tons, the annual operation cost will increase by ×× yuan and the operation cost per ton of water by × yuan.

**VII. Comments from user**

This project has brought remarkable economic and environmental benefits to our company and is worth popularizing. Since it was put into operation, various technical indexes have been excellent, and the effluent quality has reached the design requirements stably, which has greatly promoted XXX. The XXX of the technology is expected to be improved to enhance XXX so as to further improve XXX.

**VIII. Contact information**

Technical consulting unit: x x x x x x x

Contact person: x x x x x x x

Telephone: x x x x x x x

Address: x x x x x x x

Zip code: x x x x x x

Annex 2-4

**Enterprise Information Form**

|  |  |  |  |
| --- | --- | --- | --- |
| Enterprise name |  | Legal representative |  |
| Address |  | Contact |  |
| Tel |  | E-mail |  |
| Registered capital |  | Annual taxable sales in recent three years |  |
| Listed or not? (Planning to be listed or not) |  |
| Credit rating |  |
| Main business |  |
| Financial situation | Operating income and operating profit in the past three years |
| Market competitiveness | Introduce the market competitiveness of the enterprise, including environmental protection qualification, research and development capability, technical level, main achievements, the highest scientific and technological awards obtained in the past three years, the honors obtained, and the representative projects undertaken by the enterprise, etc.) |