

TECHNICAL ARRANGEMENT

On

“Technical Support for Refining the Plan of Comprehensive Remediation of the Daqing River Basin (Beijing Segment)”

Among

BEIJING MUNICIPAL ECOLOGY AND ENVIRONMENT BUREAU(BEE)

and

THE DIRECTORATE FOR SUSTAINABLE DEVELOPMENT,
ENVIRONMENTAL DAMAGE, EUROPEAN UNION AND
INTERNATIONAL AFFAIRS
OF THE ~~MINISTRY~~ FOR THE ENVIRONMENT, LAND AND SEA OF
THE ITALIAN REPUBLIC
(IMELS)

(Hereinafter referred to as the Parties)

Recalling that since 2002, IMELS has launched continued cooperation with the People’s Government of Beijing Municipality under the framework of Sino-Italian bilateral environmental protection cooperation. The cooperation has proved to be a win-win fruitful cooperation on supporting Beijing’s efforts to fulfill “Green Olympics Commitment” and improve environmental quality.

Taking into account the “Agreement IMELS-Beijing Municipality for the Establishment of a Sino-Italian Environmental Cooperation for Sustainable Beijing Fund (SIEC-SUB)” signed on the 14th of May 2005, between the IMELS and BEE, to financially contribute for projects’ implementation by the IMELS and BEE.

Recognising that the cooperation between IMELS and BEE is framed in a mutually beneficial partnership as an important opportunity to create value for a fruitful business exchange and *taking into account* that IMELS and BEE intend to define a working program based on the agreement signed on the 15th of November 2013.

Based on the existing cooperation, IMELS and BEE signed on 16th of June 2017 a Memorandum of Understanding (MoU), with the objective to strengthen their joint

work for building a more sustainable Beijing through supporting Beijing to implement strategic research and technical projects.

Taking into account the recent institutional reform in Beijing Municipality that BEE integrated new responsibility of comprehensive water quality management with both superficial and ground water pollution monitoring and pollution prevention and control, this project is of importance for Beijing Municipality safeguarding the water quality of the Daqing River basin and promoting the coordinated development of the Beijing-Tianjin-Hebei Area.

Acknowledging the positive results of Tongzhou Water Environment Evaluation and Strategy TWEES project, aimed at supporting Chinese Authorities in assessing the effectiveness of the Beijing Water pollution Prevention and Control Work Plan in reaching its targets and processing a methodological approach for water quality assessment protection restoration, monitoring and control, carried out by SOGESID Srl as the Technical Team Leader, in 2016-2017.

It is hereby agreed as follows

Art.1 – General Provisions

IMELS and BEE agree on developing the project “Technical support for Refining the Plan of Comprehensive Remediation of the Daqing River Basin (Beijing Segment)” (“the Project”), in order to enhance capabilities of BEE in water resource management

Art.2 – Objectives and Activities

The Project aims at assisting BEE to develop a refined plan for comprehensive water environmental remediation of the Daqing River basin (Beijing segment), drawing key lessons from the European Union's experiences, mainly on remediation of nonpoint pollution sources and on monitoring of sewage outlets, based on the assessment of target achievability and on the research of key control technologies and management models.

The activities will be implemented according to the structure, content, and schedule described in the Annex 1 to this Technical Arrangement.

Flexibility will be given to the Parties of the service contract for future changes in the working plan. The Parties shall jointly agree upon modifications.

Art. 3 - Cooperation Method

IMELS and BEE will be responsible for project management and coordination.

In order to guarantee a productive and effective expertise, BEE identifies Beijing Municipal Research Institute of Environmental Protection (BMRIEP) as Chinese technical supporting agency for the Project.

For the same reason, IMELS identifies SOGESID S.p.A. as the Technical Team Leader and as the Project implementing entity, in supporting and engaging relevant appropriate agencies such as environmental protection agencies at region level or the Italian Institute for Environmental Protection and Research.

Art. 4-Financial Resources

The Parties will all make necessary financial contribution for a successful implementation of the Project. The share of IMELS contribution and Beijing Municipality contributions on the Project total investment would be around 42% and 58% respectively.

The Project total budget is estimated 1.285.560,00 Euro.

The breakdown of Project budget is described in Annex 2 to this Technical Arrangement.

Any financial resources regarding project's activities under this Technical Arrangement will be borne by the available budgeted resources of the Parties and will not, in any event, create additional expenditures for the State budgets of the Italian Republic and of the People's Republic of China.

IMELS will contribute 540.560,00 Euro, to cover activities of Italian implementing agency and logistics costs in Italy for Beijing participates.. The above mentioned amount has been already transferred by IMELS to SIEC-SUB fund according to the agreement signed on the 15th of November 2013.

BEE will contribute h 745.000,00 Euro to cover the activities of Chinese implementing agency and local logistics costs in Beijing for Italian implementing agencies.

Art. 5 - Accounts and auditing

Accounts, directly comparable to the budget, shall be submitted to the Steering Committee, established under the MoU between IMELS and BEE signed on 16th of June 2017, along with the relative report for approval.

The accounts shall be endorsed by a qualified accountant and the person responsible for the projects, who, by their endorsement, confirm that the accounts are presented in accordance to the agreement. Notwithstanding, IMELS reserves the right to demand third party auditing.

Art.6 - Law in force

This arrangement will be implemented in conformity with international law principles, international Conventions and Protocols signed by the Parties, national legislation of China and Italy, as well as, as for Italy, with any other obligations arising from the membership of the Italian Republic in the European Union.

Art. 7- Settlement of Disputes

Any dispute arising from the interpretation and implementation of this Technical Arrangement shall be settled through consultation among the Parties.

Art. 8 - Duration

This Technical Arrangement shall enter into force on the date of signature and it will remain effective until the end of 2021, in accordance with the provision of article 1 of the present Technical Arrangement, unless one of the Parties notifies the other in writing, at least three(3) months in advance, of its intention to terminate it. The Technical Arrangement may be extended by written agreement between the Parties at least three (3) months in advance.

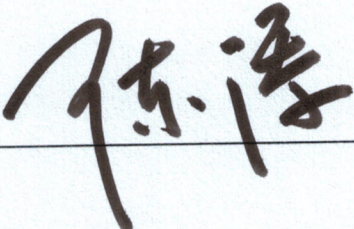
The following annexes are integral part of this Technical Arrangement:

- Annex 1 - Project Proposal
- Annex 2 - Break down of project budget.

Signed for acknowledgement and acceptance on 19 March, 2019 in Beijing, in 2 copies of English.

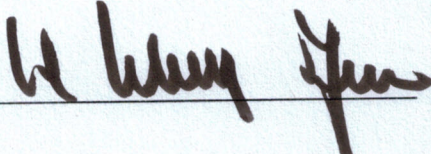
For Beijing Municipal Ecology and
Environment Bureau
(BEE)

Mr. Chen Tian
Director General



For the Directorate for Sustainable
Development, Environmental Damage and
European Union and International Affairs
of the Ministry for the Environment, Land
and Sea of The Italian Republic
(IMELS)

Mr. Francesco La Camera
Director General



ANNEX 1 Project Proposal

**Technical support for refining the Plan of
Comprehensive Remediation of the Daqing
River Basin (Beijing Segment)**

March 2019

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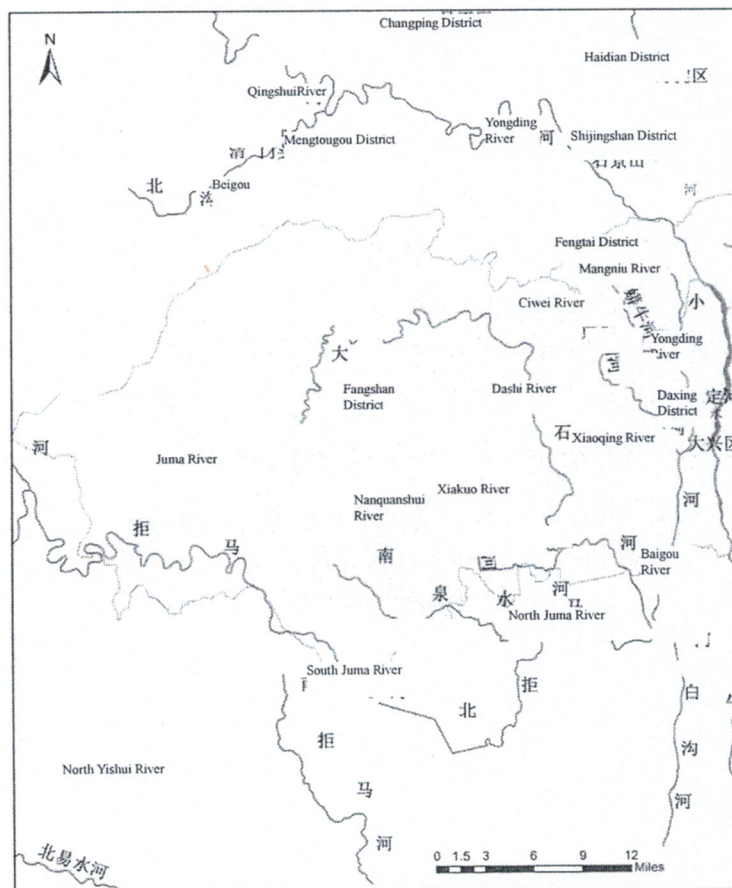
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I. Project Background

The Daqing River basin includes the Dashi River basin in Fangshan District and the west bank of Yongding River in Fengtai District. It encompasses seven rivers, namely Xiaoqing River, Ciwei River, Mangniu River, Dashi River, Xiakuo River, Juma River and Nanquanshui River, of which the Xiaoqing River, Dashi River, Juma River and Nanquanshui River empty into the North Juma River and Baigou River in Hebei Province. At present, there is no water throughout the year in the segment from the upper Dashi River to the Manshui Bridge, and the annual average water quality at Zucun section of the Dashi River is inferior to Grade V.

Dashi River and Xiaoqing River are the outbound rivers of Beijing. At present, the water quality of Dashi River is inferior to class V, while that of Xiaoqing River is class V. None of them meet the requirements of class IV for water body function. Therefore, it is urgent to carry out the optimization study on comprehensive water environment remediation of the Daqing River Basin (Beijing segment), to provide decisive support for water environment remediation of Daqing River Basin (Beijing segment). It is of great significance for promoting the coordinated protection and governance of the Beijing-Hebei Region.

Figure 1 Distribution of water system in Fangshan District and the west bank of Yongding River in Fengtai District



II. Project Objectives

This project is expected to explore, identify and apply effective watershed quality management strategies in the Daqing River basin (Beijing segment), with particular attention to sewage outlets and non-point source pollution, assisting the Beijing Municipal Ecology and Environment Bureau in developing a refined plan for Comprehensive Water Environment Remediation of the Daqing River Basin (Beijing Segment)

1. Analysis of non-point source pollution load in the Daqing River basin (Beijing segment) and research on the system of control technologies

The contribution of non-point sources to the pollution of major water bodies in the Daqing River basin (Beijing segment) will be analyzed, and a monitoring system for non-point sources in the basin will be implemented, including where appropriate water treatment technologies based on a comprehensive survey on suitable technologies such as rainwater source control, intermediate interception and end-of-pipe treatment.

2. Overview of policies and regulation on sewage outlets management

Exchanges and research will be carried out on regulatory techniques and management mechanisms for different types of sewage outlets, so as to fully incorporate the European Union's advanced experiences (including deployment approaches, tracing techniques and regulatory means) into the scientific regulation of sewage outlets in the Daqing River basin (Beijing segment).

3. Study on ecological management technologies for management of non-point sources

The research on key technologies for riparian biological absorption will be conducted to screen crops with high nitrogen (N) and phosphorus (P) uptake rates, and a system of key technologies for riparian buffer, interception and biological absorption will be constructed.

4. Assessment of target achievability for Dashi River (Zucun)

Using appropriate models, the feasibility of achieving targets for Dashi River (Zucun) will be analyzed and assessed in different scenarios, based on the current water quality at investigated sections of Dashi River (Zucun) and the prospective plan and structural measures for comprehensive water environmental remediation.

5. Refined plan for comprehensive water environment remediation of the Daqing River basin (Beijing segment)

Based on the assessment of target achievability and the research of key control technologies and management models, the refined plan for comprehensive water environment remediation of the Daqing River basin (Beijing segment) will be proposed, which draws on the European Union's successful experiences.

III. Project Implementation Plan

1. Investigation into the study area

Technical personnel organized by the Chinese side will analyze the natural, economic and social profile of the Daqing River basin (Beijing segment) through data collection. Specifically, the natural profile includes hydrological conditions and water resources, meteorological and climatic conditions, vegetation cover and soil characteristics, and the economic and social profile covers administrative divisions, population distribution and density, industrial structure, economic indicators and land use characteristics.

2. Analysis of water environment protection situation

Through a combination of data collection, field investigation and departmental discussions, technical personnel from the Chinese side will systematically analyze the situation and composition of emissions from different sources, and examine and evaluate the situation and changes of water quality in the Daqing River basin (Beijing segment). After probing into the main problems and causes of the non-attainment of water quality standards, requirements will be proposed for addressing the pressing problems that are identified to urgently need solution.

3. Research on key technologies for water environment remediation and management in the Daqing River basin (Beijing segment)

The European Union has a wealth of successful experiences in water environment management as the urban development has witnessed water environment degradation, water quality improvement, attainment of water quality standards, aquatic ecological improvement and perfection. Therefore, focusing on the attainment of water quality standards at sections beyond Beijing, the study will examine key problems to be urgently addressed in current water environment remediation of the Daqing River basin (Beijing segment). It will take sewage outfall regulation as an important means to control point source pollution and riparian ecological remediation as an effective way to control non-point source pollution, while fully drawing on the European Union's successful technologies. The study will lay a good foundation for enriching the water environment remediation and management system for the Daqing River basin (Beijing segment).

(1) Research and demonstration of regulatory techniques and management models for sewage outlets

With the adjustment of institutional functions, the renovation and regulation of sewage outlets becomes an important component of municipal water environment protection in a changing situation. Practical technical requirements should be clarified for the regulation of sewage outlets, and scientific guidelines provided for classified and graded management of sewage outlets in the Daqing River basin (Beijing segment) and even the whole city, so as to standardize the renovation of sewage outlets. Such work is of great significance for promoting the comprehensive attainment of water quality standards in the basin (Beijing segment).

Technical personnel from the Chinese side will put forward technical requirements and management needs for the regulation of sewage outlets in the Daqing River basin (Beijing segment).

Technical personnel from the Italian side will, according to the requirements raised by the Chinese side, propose the European Union's advanced methods and successful practices, covering the approaches of outlet deployment, standardized transformation of outlets, and traceability technologies for upstream sources of pollution.

On this basis, the Chinese side will conduct exchanges with the Italian side on regulatory techniques and management mechanisms for different types of sewage outlets to fully draw on the European Union's advanced experiences in regulation and management. Through demonstration in the Dashi River basin, the European Union's advanced experiences will be applied into the scientific regulation of sewage outlets in the Daqing River basin (Beijing segment) and even the whole city.

At the same time, the Chinese side will learn, through exchanges, the regulatory measures and management & charging policies for the main pathways of pollutants from non-point sources in the city, i.e. urban rainwater outfalls.

(2) Research on ecological management technologies for riparian non-point sources

Technical personnel from the Chinese side will make clear technical needs for non-point source pollution control in the Daqing River basin (Beijing segment) for communication with Italian technical personnel.

Technical personnel from the Italian side will study and propose the European Union's successful practices and advanced experiences in non-point source pollution control based on the needs of the Chinese side.

Technical personnel from the Chinese side will carry out experimental research. The selected plants with strong N and P enrichment capacity will be cultivated in riparian buffers to screen crops with high N and P uptake rates. According to the orthogonal design of experiments, these cultivated species are combined on a flexible basis to investigate the N and P interception effect, so as to identify the best combination. Further, a system of key technologies for riparian buffer, interception and biological absorption will be suggested.

4. Assessment of target achievability for Dashi River (Zucun)

Technical personnel from the Chinese side will propose a water quality model for assessing the feasibility of achieving targets for Dashi River (Zucun) in different scenarios based on current water quality at investigated sections of Dashi River (Zucun) and prospective plan and structural measures for comprehensive water environmental remediation.

- Scenario 1: The water quality of Dashi River (Zucun) meets the requirements for water environment functional zones, i.e. Grade IV standards.
- Scenario 2: The water quality of Dashi River (Zucun) is further improved on the basis of water environment functional zones to reach Grade III.
- Scenario 3: The water quality of Dashi River (Zucun) reaches Grade III standards for main indicators and Grade IV standards for certain indicators.

Based on in-depth exchanges and discussions with the Chinese side, the Italian side will

suggest measures for refining the proposed water quality model.

5. Refined plan for comprehensive water environment remediation of the Daqing River basin (Beijing segment)

Based on the assessment of target achievability and the research and demonstration of key control technologies and management models, technical personnel from the Chinese side will propose the refined plan for comprehensive water environment remediation of the Daqing River basin (Beijing segment) that reflects the European Union's successful experiences.

6. Sino-Italian exchanges

During project implementation, the Italian side will organize experts and technical personnel to provide technical training in China upon the request of the Chinese side. Technical and management personnel from relevant Chinese departments will be organized to participate in the training, including Beijing Municipal Bureau of Environmental Protection, People's Government of Fangshan District, Environmental Protection Department of Fengtai District, Beijing Municipal Research Institute of Environmental Protection, Water Affairs Department of Fangshan District, and Water Affairs Department of Fengtai District.

The Chinese side will organize technical and management personnel from departments concerned to carry out more in-depth technical exchanges, field investigation and case study in the European Union, including Beijing Municipal Ecology and Environment Bureau and environment agencies of Fangshan District and Fengtai District, as well as and Beijing Municipal Research Institute of Environmental Protection.

IV. Project Outputs and Outcomes

1. Report on assessment of target achievability for Dashi River (Zucun);
2. Research Report on the Refined Plan for Comprehensive Water Environment Remediation of the Daqing River Basin (Beijing Segment);
3. Technical demonstration at two to three selected sites.

V. Project Schedule

The project will span from March 2019 to December 2021, with the schedule as shown in Table 1.

Table 1 Project schedule

Year	Month	Description
2019	2-5	Technical personnel from the Chinese side will systematically analyze the situation and composition of emissions from different sources in the Daqing River basin (Beijing segment). They will examine and evaluate the situation and changes of

Year	Month	Description
		water quality in the Daqing River basin (Beijing segment), probe into the main problems and causes of the non-attainment of water quality standards, and propose key demands for addressing the pressing problems.
	6-7	The Chinese side will put forward technical requirements and management needs for the regulation of sewage outlets in the Daqing River basin (Beijing segment), as well as technical needs for NPS pollution control. The Italian side will develop its implementation plan according to the needs of the Chinese side.
	8-12	<p>The Chinese side will conduct deeply exchanges with the Italian side on regulatory techniques and management mechanisms for different types of sewage outlets to fully draw on the European Union's advanced experiences for the scientific regulation of sewage outlets in the Daqing River basin (Beijing segment) and even the whole city and carry out demonstration in the Dashi River basin.</p> <p>At the same time, the Chinese side will learn, through exchanges, urban rainwater management and charging policies.</p>
2020	1-4	The Chinese side will organize technical personnel, together with the Italian side, to establish water quality models. According to different scenarios, analyze and evaluate the goal accessibility of Dashi River (Zucun section).
	5-12	<p>The Italian side will organize technical personnel to study and propose successful practices and advanced experience of NPS pollution control in the EU.</p> <p>The Chinese side will organize technical personnel to exchange with the Italian technical personnel.</p> <p>The Chinese side will carry out experiments on key technologies of biological absorption on river banks.</p>
2021	1-8	<p>The Chinese side will finish the research on key technologies of biological absorption on river banks.</p> <p>The Chinese side will organize technical and management personnel from departments concerned to go to EU for technical exchanges, field investigation and case study, including Beijing Municipal Ecological Environment Bureau, Environmental Protection Department of Fangshan District, Environmental Protection Department of Fengtai</p>

Year	Month	Description
		District, and Beijing Municipal Research Institute of Environmental Protection.
	9-11	Project outputs will be summarized and reports prepared.
	12	The project will be completed.

Annex 2 – Breakdown of project's budget

WPs	Content		Leader	Assistant	IMELS	BEE	Total
WP1	Basic Data Collection, Research and Analysis	Investigation of natural, economic and social profile of the Daqing River basin (Beijing segment) through data collection	Chinese Side	Italian side			
			Chinese Side	Italian side	€ 140.000	€ 80.000	€ 220.000
			Italian side	Chinese Side			
			Italian side	Chinese Side			
WP2	Implement the assessment and develop refined plan	Assessment of achievability of target for Dashi River (Zucun)	Chinese Side	Italian side			
			Chinese Side	Italian side	€ 44.000	€ 125.000	€ 169.000
			Chinese Side	Italian side			
WP3	Technical demonstration at two to three places	Identification of suitable techniques/ equipment	Italian side	Chinese side	€ 120.000	€ 480.000	€ 600.000
			Italian side	Chinese Side			
			Preparation of detailed plan for demonstrations scheme		Chinese		

		Chinese sides	Italian sides	Side				
WP4	Implementation of demonstration projects at selected sites	Chinese Side						
		Italian side						
		Italian side				€150.000	€ 35.000	€ 185.000
		Chinese Side						
		Italian side						
	A middle term report and a final report, incouding technical recommendations	Italian side						
	Preparation of project reports	Chinese Side						
		Subtotal			€ 454.000	€ 720.000	€ 1.174.000	
WP5	Project Management	Chinese Side			€ 26.560	€ 10.000	€ 36.560	
Travels and Translations		Italian side			€ 60.000	€ 15.000	€ 75.000	
		Total			€ 540.560	€ 745.000	€ 1.285.560	
					(42%)	(58%)		

