

TECHNICAL ARRANGEMENT

on

**“Research on Soil Pollution Prevention and Risk Control Technology for
Industrial Enterprises in Beijing”**

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 Soil Law came into force on January 1, 2019. Although Beijing started the soil pollution prevention and control earlier than other areas, it is still weak compared to the state of art of the air and water pollution control and prevention with regards to the previous industrial enterprise sites' soil and underground water pollution.

Considering Italy and EU started the environmental pollution prevention and control on the soils and underground water of industrial enterprise and had over 20 years experiences, this study is of importance to upgrade the current management level related to this issue.

It is hereby agreed as follows

Art.1 – General Provisions

IMELS and BEE agree on developing the project “Research on Soil Pollution Prevention and Risk Control Technology for Industrial Enterprises in Beijing” (“the Project”), in order to upgrade the capabilities of BEE in industrial enterprise sites pollution prevention and control management.

Art.2 – Objectives and Activities

The Project aims at assisting BEE to improve industrial enterprise sites pollution prevention and control management level related to soils and underground water pollution, based on EU and Italy management experiences, technologies and methods.

The activities will be implemented according to the structure, content, and schedule described in the Annex 1 to this Technical Arrangement. The Project's duration is 21 months.

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

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

In order to guarantee a productive and effective expertise, BEE identifies Beijing Municipal Research Institute for 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 Signatories 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 41% and 59% respectively.

The Project total budget is 1.142.680,00 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 with 472.680,00Euro, to cover activities of Italian implementing agency and local logistics costs in Italy for Beijing participants. 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 with 670.000,00Euro 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, IMELS and BEE 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 2020, 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 Signatories 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.

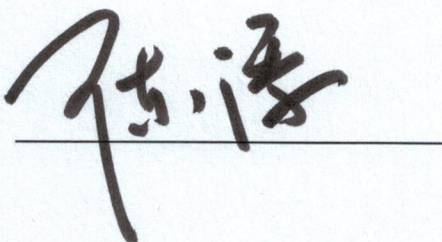
Signed for acknowledgement and acceptance on 19 March 2019 in Beijing, in 2 copies of English.

For Beijing Municipal Ecology and
Environment Bureau (BEE)

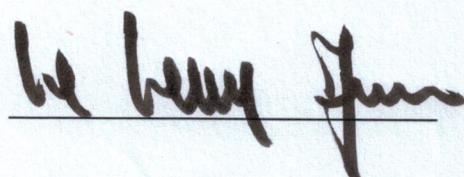
For the Directorate for Sustainable
Development, Environmental Damage and
European Union and International Affairs
of the Ministry for the Environment, Land
and Sea of The Italian Republic
(IMELS)

Mr. Chen Tian
Director General

Mr. Francesco La Camera
Director General



Handwritten signature of Mr. Chen Tian in Chinese characters, written over a horizontal line.



Handwritten signature of Mr. Francesco La Camera in English, written over a horizontal line.

ANNEX 1: Project Proposal

Research on soil pollution prevention and risk control technology for industrial enterprises in Beijing

I. Project Background

The Law of the People's Republic of China on the Prevention and Control of Soil Pollution (hereinafter referred to as the Soil Law), which came into force on January 1, 2019, provides strong legal support for the management of soil environment and requires a multi-pronged effort to tackle soil pollution, as well as Soil Action Plan for Pollution Prevention and Control (briefly "Soil Ten") required strictly on pollution sources monitoring and contaminated soil remediation. In recent years, Beijing has put extensive efforts into the prevention and control of soil pollution, and achieved certain results by formulating and implementing the Beijing Plan for Prevention and Control of Soil Pollution. Nevertheless, it is imperative to push the work forward as the prevention and control of soil pollution, compared with air and water pollution, started late on weak foundations. Also the costs for remediation on contaminated sites are supremely high, it is necessary to prevent and implement risk management for soil and underground water pollution.

In order to better prevent and control soil pollution and improve municipal environmental management pursuant to with the Soil Law and to thoroughly implement the major decisions and plans of the 19th CPC National Congress regarding the tough battle against pollution and strengthened soil pollution control and soil remediation, as well as the Soil Law, it is necessary to learn from foreign advanced management experience and techniques in order to better prevent and control soil pollution and improve municipal environmental management with the requirements by Soil Law and Soil Action Plan. Beijing require to formulate guidelines for the potential risk screening for soil and underground water pollution, pollution prevention and early warning system for in-process industrial sites, risk management for remediation process and long-term monitoring and post risk management.

II. Project Objectives

The Project aims at assisting Beijing BEE to strengthening comprehensive soil and underground water pollution prevention and control over industrial enterprisessites, based on EU and Italy management experiences, technologies and methodologies.

1. Propose the methodologies with general applicability for soil and groundwater hidden trouble investigation for industrial sites in Beijing.
2. Set up a technical scheme for soil and underground water pollution prevention and emergency response for industrial enterprises
3. Propose procedures and key technologies for risk management of contaminated sites.
4. Propose the technologies of risk management after the restoration of contaminated sites.

5. Promote technical exchange and organize workshops.

III. Implementation Plan

1. Methodology for hidden danger investigation of soil and groundwater in industrial enterprises

The Chinese side shall organize technical personnel to sort out the pollution risks of various links of industrial enterprises' production, combine the local environmental supervision and monitoring requirements in Beijing to prepare measures for investigating hidden dangers of industrial enterprises.

The Italian side shall organize technical personnel to, according to the requirements of the Chinese side, utilizing its experience as an EU member, and through discussions with the Chinese Party, give its opinions and recommendations on how to revise the hidden danger checking methods of industrial enterprises.

2. Set up a scheme for soil and ground water pollution prevention and emergency response for industrial enterprises

The Chinese side shall organize technical personnel to make analysis based on the different soil and groundwater pollution scenarios of industrial enterprises, study the approaches to predict and prevent the pollution in question, so as to propose the methods to predict and control the pollutant diffusion from soil and groundwater. Based on the pollution prevention management requirements, they shall also lay down a system of early warning ratings, indicators and emergency disposal measures.

The Italian side shall organize technical personnel, making use its experience in pollution prevention and emergency response as an EU member, engage itself in the investigation of international case studies on soil and underground water pollution early warning and emergency response technologies and on prevention and control technologies. Starting from this investigation, the Italian side will thus prepare the technical guidelines for industrial enterprises' soil and underground water pollution prevention, control, early warning and emergency response.

3. Key technology researches on the pollution land block risk management of industrial enterprises

The Chinese side shall organize technical personnel to sort out the management and technical conditions necessary for implementing the pollution land block risk management, build a technical framework for pollution land block risk management of Beijing. At the same time, the characteristics of contaminated land blocks in Beijing (including types of pollutants, spatial distribution of overall pollution, hydro-geological conditions, typical development models, etc.) need to be systematized and potential effective risk control technology catalogs need to be selected. A management platform integrated with risk control data management, query, monitoring, early warning and control scheme optimization is also planned to be developed based on GIS data management and analysis software.

The Italian side shall organize technical personnel, making use its experience in pollution

land block risk management system construction, advanced risk control technologies and information system management platform establishing.

The above-mentioned achievements are to be demonstrated in the project for controlling the risk of contaminated soil and groundwater in the former Beijing Eastern Chemical Plant.

4. Technical Research on Risk Management of Contaminated Land Blocks of Industrial Enterprises

The Chinese side shall systematize and analyzes the restoration and re-development of the contaminated land blocks in Beijing, probe the classification management approaches of contaminated land blocks in Beijing. Final-period management measures are proposed together with detailed management techniques of the restored land blocks in terms of different types of land blocks.

Italian side organizes technical personnel to assist Chinese technical personnel in analyzing crucial problems and technological difficulties in management of contaminated land blocks after restoration as well as in proposing main demands for solving the issues.

IV. Outputs and assignment

1. A set of specifications for technical system for prevention of soil and groundwater pollution of industrial enterprises in Beijing will be developed, including:

- ① Technical Guidelines for the identification of the potential polluted risks of Soil and Groundwater of Industrial Enterprises;
- ② Technical Guidelines for Alert System and Emergency Response for Prevention of Soil and Groundwater Pollution of Industrial Enterprises.

2. A set of specifications for Risk Control Technology for Contaminated Land Blocks of Industrial Enterprises in Beijing will be developed, including:

- ① Study and Demonstration Report on Key Technologies of Risk Control for Contaminated sites
- ② Technical Guideline on Technical guideline on risk management options(Draft);
- ③ Technical Guideline on Monitored Natural Attenuation (Draft);
- ④ Risk management technology guideline on post-remediation sites (Draft).
- ⑤ Platform for to manage and monitor risk the implementation of risk control measures.

ANNEX 2 (breakdown of project's costs)

Tasks	Outputs	Leader	Assistant	IMEIS contribution	Beijing Municipality contribution	In total
1. Methodology for hidden danger investigation of soil and groundwater in industrial enterprises						
1.1 Review of Italian and EU methodology for investigation of the potential polluted risks of soil and groundwater in the industrial sites	Review report	Italian Side	Chinese Side	€72.000	€ 140.000	€ 212.000
1.2 Technical guidelines of the potential polluted risks of soil and groundwater in the industrial sites	Technical guide of the potential polluted risks of soil and groundwater in the industrial enterprise (Draft)	Chinese Side	Italian Side			
1.3 Case study of the potential polluted risks of soil and groundwater in the industrial site in Beijing	Case study report	Chinese Side	Italian Side			
2. Set up a scheme for soil and groundwater pollution prevention and emergency response for industrial sites aspect						
2.1 Review of the Italian and EU industrial enterprises' technological systems for preventing soil and groundwater pollution and emergency response	Review report	Italian Side	Chinese Side	€ 48.000	€ 95.000	€ 143.000
2.2 Identification of preventing technologies of soil and groundwater pollution and emergency response		Italian Side	Chinese Side			
2.3 Technical guide for alert system and emergency response for prevention of soil and groundwater pollution of industrial enterprises	Technical guide for early warning and emergency response for prevention of soil and groundwater pollution of industrial enterprises (Draft)	Chinese Side	Italian Side			
3. Study on risk control technologies for contaminated sites						
3.1 Review on regulations, technical guidelines on risk control of contaminated sites	Review reports	Italian Side	Chinese Side	€ 90.000	€ 185.000	€ 275.000

Tasks	Outputs	Leader	Assistant	IMEIS contribution	Beijing Municipality contribution	In total
3.2 Development of a risk management framework for contaminated sites	Technical guideline on risk management options(Draft)	Chinese Side	Italian Side			
3.3 List of risk control technics for contaminated sites	Technical guideline on Monitored Natural Attenuation at Contaminated Sites (Draft)	Chinese Side	Italian Side			
3.4 Study on applicability (desk research) of Monitored Natural Attenuation at Contaminated Sites (MNA)	Platform for monitoring the implementation of risk control measures	Chinese Side	Italian Side			
3.5 Study (desk research) on alternative management options						
3.7 Development of a platform to manage and monitor riskthe implementation of risk control measures						
4. Study on risk management technologies for contaminated site after remediation						
4.1 Review on regulations, technical guidelines on long term risk management of contaminated sites after remediation	Review reports	Italian Side	Chinese Side			
4.2 Study (desk research) on monitoring of contaminated sites after remediation	Technical guideline on Risk management on post-remediation site (draft)	Chinese Side	Italian Side			
4.3 Study on key elements of risk management of contaminated sites after remediation						
5.Training and capacity building						
5.1Workshop		Chinese Side	Italian Side			
5.2 Study tour		Italian Side	Chinese Side			
Project management fee				€ 29.680	€ 10.000	€ 39.680
				€ 88.000	€ 190.000	€ 278.000
				€ 85.000	€ 30.000	€ 115.000

Tasks	Outputs	Leader	Assistant	IMELS contribution	Beijing Municipality contribution	In total
Travels and translations				€ 60.000	€ 20.000	€ 80.000
Total				€ 472.680 (41%)	€ 670.000 (59%)	€ 1.142.680