附件1

**Norwegian Companies of Wastewater Treatment Technology**

**13-17 April 2023**

**Shandong Province**

1. **Doscon AS 道斯康** 
	1. **Company introduction企业简介**

Doscon is a Norwegian company providing a state-of-the-art toolbox for process surveillance and control in your water and wastewater treatment plant and transport systems. Founded in 2008, DOSCON is the brainchild of internationally renowned water scientist Prof. Harsha Ratnaweera. With 10 employees in Oslo, Norway, and an operational subsidiary office in Qingdao, China, DOSCON is looking to expand with several Chinese partners and treatment plants. We intend to expand our operations heavily in the Shandong province.

挪威公司Doscon 可为自来水废水处理厂以及运输系统，提供最先进的过程监视和控制工具箱。 DOSCON 成立于 2008 年，是国际知名水科学家 Harsha Ratnaweera 教授的心血结晶。 DOSCON 在挪威奥斯陆拥有 10 名员工，在中国青岛设有运营子公司，目前正寻求与中国合作伙伴和处理厂一起开拓业务，并希望大力扩展在山东省的业务。

* 1. **The organizations (or types) that wish to cooperate, the need for cooperation希望合作的机构（或类型）、合作需求**

At present, DOSCON is providing three products;

* **DOSBOX** provides process control in real-time, driven by a multi-parameter dosing algorithm developed and designed by Doscon. It can save 10-30% of chemicals with satisfied removal efficiency, using multiple water quality parameters in real time.
* **DOSMON** provides cloud-based real-time surveillance and monitoring of all your raw data, and we design real-time KPI analytics (key performance indicators such as P, N, COD, and micropollutants) relevant to your treatment plants in highly visualized and modular dashboards accessible across all computational devices (PC, tablets, phones).
* **DOSPROBE** is the market leading solution for those seeking no-maintenance, low investment cost, highly accurate real-time sensor data for hard-to-measure values- in sewers and treatment plants. Soft sensors (virtual and hybrid solutions) provide real-time and predictive insight into your inlet and treated water, for less than 20% of competitors’ products.

DOSCON提供三种产品；

* DOSBOX 提供实时过程控制，由Doscon 开发和设计的多参数剂量算法驱动。该技术实时使用多种水质参数，去除效率可以节约10-30%的化学药剂。
* DOSMON 提供基于云的实时监控和监控您的所有原始数据，并可以设计与您的处理厂相关的实时KPI分析（关键绩效指标，如P，N，COD和微污染物），在高度可视化和模块化的仪表板中，可访问所有计算设备（PC，平板电脑，手机）。
* DOSPROBE是市场领先的解决方案，水道和处理厂中难以测量的值适用于寻求免维护，低投资成本，高精度实时传感器数据的用户。软传感器（虚拟和混合解决方案）可为您的进水和处理水提供实时和预测性洞察，所需成本不到同类竞争对手产品的20%。

We provide consultation services for optimal design and improvement of already operational treatment plants with chemical treatment steps. Doscon is able to provide remote sensor suites, from sewers (battery operated), on mobile units (mains and battery powered), and in treatment plants. We are experts in remote data transfer within and outside China, cloud data analytics and storage, and real-time visualization of remote sensor data. Prof Ratnaweera and our core staff are published leaders in academia and industry within the fields of water and digitalization, internet 4.0, IoT solutions, process control and chemical processes.

我们为带有化学处理步骤的水处理厂提供咨询服务，优化设计和改进运行。 Doscon 能够提供使用于下水道（电池供电）、移动设备（电源和电池供电）和处理厂的远程传感器套件。 我们是国内外远程数据传输、云数据分析和存储、遥感数据实时可视化的专家。Ratnaweera 教授和我们的核心员工是水和数字化、互联网 4.0、物联网解决方案、过程控制和化学过程领域的学术界和工业界的领导者。

* 1. **Contact联系人**

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* 1. **The organizations (or types) that wish to cooperate, the need for cooperation希望合作的机构（或类型）、合作需求**

DOSCON seeks contracts and collaboration with municipal and industrial wastewater treatment plants, design institutes and industrial partners. We want to install our web-SCADA dashboard to improve your monitoring and surveillance options. We are able to develop analytics and real-time soft sensors for your hard-to-measure critical performance parameters, such as P, N, COD at inlet and outlet points. We want to predict future pollution loads in your inlet water, using DOSPROBE state-of-the-art AI (Artificial Intelligence) and ML (Machine Learning) methods.

DOSCON 寻求与市政和工业废水处理厂、设计院和工业合作伙伴的合同和合作。用我们的网络 SCADA 仪表器来改进您的监控和监测选项。我们能够为您难以测量的关键性能参数（如入口和出口点的 P、N、COD）开发分析和实时软传感器。 使用DOSPROBE 最先进的 AI（人工智能）和 ML（机器学习）方法可以预测您进水的未来污染负荷。

* 1. **Name of candidates in mind, if available希望合作的企业（如有）**

山东省投资发展集团、山东环保集团、青岛水务集团、山东省环科院、山东水发集团、山东高速生态环境集团、山东国环、山东发展投资集团和山东高速环保集团

1. **Cambi AS 康碧**
	1. **Company introduction企业简介**

Cambi is a world leading provider of advanced anaerobic digestion (AAD) as sustainable technology solutions to turn wastewater sludge and biowaste into valuable energy and resources. Cambi was founded in 1989 and listed in Euronext Growth market in 2021. Cambi serves about 104 million people in cities from 26 countries. Successful references include Beijing, Chongqing, and Hong Kong in China, and big international cities, e.g.Washington DC, San Francisco, Singapore, London, Manchester Oslo, and so on. Cambi devotes to work with utilities and partners to contribute to achieve “Two Carbon” targets.

康碧是一家世界领先的高级厌氧消化（AAD）技术供应商，以可持续发展的技术将污水污泥和生物废弃物转化为宝贵的能源和资源。康碧成立于1989年，并于2021年在泛欧交易所成功上市。康碧为26个国家多个城市约1.04亿人提供服务。成功案例包括中国的北京、重庆和香港，以及国际大城市，如华盛顿特区、旧金山、新加坡、伦敦、曼彻斯特、奥斯陆等。康碧致力于与的水司和合作伙伴合作，为实现 "两碳 "目标作出贡献。

* 1. **技术项目/产品介绍**

Cambi AAD with thermal hydrolysis process (THP) and high solids digestion as the core, the sludge and biowaste facility has significant benefits to increase treatment capacity and efficiency, to save footprint with compact facilities, to improve bioenergy production and mass & energy balance, high quality of pathogen-free biosolids for ecological utilization, to reduce the cake volume for disposal, etc. Cambi AAD provides the lowest carbon footprint solution. With EU’s ambition of bio-methane 3.5 billion cubic meters in the future, biogas from sewage sludge, biowaste, and manure becomes critical. Cambi AAD is to play an increasingly important role.

康碧高级厌氧消化以热水解工艺和高含固消化为核心，为污泥和生物废弃物的处理带来显著的优势：提高处理能力和效率，设施紧凑节省占地，提高沼气生产和改善物料与能量平衡，为生态利用提供高质量的无病原体生物碳土，减少处置量等。康碧高级厌氧消化提供碳足迹最低的解决方案。随着欧盟对未来实现生物甲烷35亿立方米目标的雄伟目标，从污水污泥、生物废弃物和畜禽粪便中获取沼气变得至关重要。康碧高级厌氧消化将发挥越来越重要的作用。

* 1. **Contact联系人**

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* 1. **The organizations (or types) that wish to cooperate, the need for cooperation希望合作的机构（或类型）、合作需求**

Cambi wish to work with local municipal wastewater utilities and design institutes, to share our experiences and ideas by technical seminars, for driving the water industry in a low-carbon direction.

康碧希望与当地的市政污水处理和运营公司、设计院等对接，并以技术交流的形式分享我们的经验和想法，推动水务行业朝着低碳的方向发展。

* 1. **Name of candidates in mind, if available希望合作的企业（如有）**

光大水务、青岛水务。

1. **WAI Environmental Solutions AS** 
	1. **Company introduction企业/技术简介**

WAI Environmental Solutions AS (WAI) is a green technology company with headquarter in Tønsberg, Norway. Founded in 2017, WAI has been focusing on development of biogenic carbon materials, pyrolysis and carbonization technologies, and biocarbon/heat/electricity co-production facilities under our brand name of CarbonWorks. We design, build, own and operate CarbonWorks plants, where sawmill by-products and waste wood are processed with WAI pyrolysis and converted into biocarbon, heat (hot water and steam) and electricity. WAI promotes applying biocarbon in metallurgical industries as reductants for fossil carbon replacement and helps metallurgical industries to meet their decarbonization goals. Meantime, WAI is leading several sizable development projects for biogenic carbon materials production including production of advanced anode materials for sodium-ion battery and production of single-cell-protein (SCP) for aquafeed industry. WAI has a fully owned subsidiary located in Suzhou, China.

WAI Environmental Solutions AS（挪唯环境）是一家绿色科技公司，总部位于挪威滕斯贝格市。 挪唯环境成立于2017年，始终致力于开发CarbonWorks品牌的生物碳材料、热解碳化技术以及碳电热联产生产装备。 我们设计、建造、拥有和运营生物碳工厂，使用WAI热解技术处理锯木厂副产品和其他废木料，并转化为生物碳、热能（热水和蒸汽）以及电力。挪唯环境将生物碳应用于冶金行业，作为化石碳替代的还原剂，帮助冶金行业实现碳减排目标。 同时，挪唯环境正主导运行多个以开发高端生物基炭材料为目标的科研项目，包括生产用于钠离子电池的炭阳极材料以及用于水产养殖饲料行业的单细胞蛋白质（Single Cell Protein, SCP）。 挪唯环境在中国苏州高新区设有一家全资子公司。

* 1. **The organizations (or types) that wish to cooperate, the need for cooperation希望合作的机构（或类型）、合作需求**

We are interested in joint developing large scale biocarbon production facilities in China. Our counterpart should be able to secure feedstocks and production sites, raising equity and loans from local banks, and providing construction and operation services. WAI will provide the business model and core technologies to the biocarbon production facilities.

我们有兴趣在中国寻求联合开发大型生物碳生产设施项目。我们希望寻找的合作伙伴可以长期提供原料和生产场地，有能力在当地从银行筹集股权和贷款，并能够提供建设和运营服务。 挪唯环境将为生物炭生产项目提供商业模式和核心技术。

* 1. **Contact联系人**

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挪威公司网址：[www.waies.no](http://www.waies.no)； 苏州公司网址：[www.waies.com.cn](http://www.waies.com.cn)

* 1. **Name of candidates in mind, if available希望合作的企业（如有）**

固废经营管理企业，山东环保集团

1. **Scandinavian Water Technology AS** 
	1. **Company introduction企业/技术简介**

Scandinavian Water Technology AS (Scanwater) has been a supplier to the water and wastewater sector since 1985 and has extensive experience, excellent references and an established position in the sector. With highly experienced engineers in our team, we provide bespoke products and

systems in a professional manner to our customers and partners.

自 1985 年以来，Scandinavian Water Technology AS (Scanwater) 一直是自来水和污水处理行业的供应商，拥有丰富的经验、卓越的业绩和在该行业的稳固地位。我们的团队拥有经验丰富的工程师，以专业的方式为客户和合作伙伴提供定制产品和系统。

Our water and wastewater products and solutions fulfil needs within the following markets:

• Water solution (turnkey projects);

• Humanitarian & aid; and

• Municipal preparedness.

我们的自来水和污水处理产品及解决方案可满足以下市场的需求：

• 水处理解决方案（交钥匙工程）；

• 人道主义援助; 和

• 市政准备。

ScanWater is a reliable and trustful partner, with a focus on Norwegian technology with high quality and proven components. We also provide great service and support including training, all at competitive prices.

For larger infrastructure projects, ScanWater can access multiple sources of financing with favorable conditions. We also have close ties to Norwegian Universities and other governmental institutes, allowing us to provide extended training and exchange programs to our partners, in

addition to R&D.

ScanWater 是可靠且值得信赖的合作伙伴，专注于挪威技术，拥有高质量和经过验证的组件。 我们还以具有竞争力的价格提供优质服务和技术支持，包括培训。

对于大型基础设施项目，ScanWater 可在有利条件下获得多种融资来源。 我们还与挪威各大学和其他政府机构保持密切联系，使我们能够为合作伙伴提供扩展培训和交流计划以及研发。

* 1. **Contact联系人**

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* 1. **The organizations (or types) that wish to cooperate, the need for cooperation希望合作的机构（或类型）、合作需求**

Scanwater is seeking project collaboration within the water and wastewater sector, safe drinking water supply (FHI project set up as an example, membrane-based drinking water treatment system with intelligent real-time monitoring and analysis system)

Scanwater寻求自来水和废水处理领域的项目合作，安全饮用水供应（以FHI项目为例，采用智能实时监测和分析系统的膜基饮用水处理系统）

Decentralized water, wastewater and sanitation system, recycling of nutrient/energy/water from black and grey water from householders. It can be the rural area or semi-rural area or new city in the city.

分散式供水、废水和卫生系统，从住户的黑水和灰水中回收营养/能量/水。可以在农村地区或城乡结合地区或城市中的新城区。

Not limited, but Companies active in projects in rural or semi-rural areas will be relevant for us as starting points. Looking for some new collaboration.

对合作伙伴不设限，但在农村或城乡结合地区项目上比较活跃的公司将与我们业务领域相关，可作为交流起点。寻求新合作。

1. **CSDI Water Tech AS** 
	1. **Company introduction企业/技术简介**

Foundation CSDI WaterTech was established in 2015, operating also as a Centre for Sustainable and Innovative Development of Water Technologies. Our goal is to contribute to societal safety and better quality of life through development and dissemination of water-related technologies, including stormwater management, flood simulation and protection, solutions to climate adaptation and mitigation, water pollution control and Environment protection, hydropower and renewable energy, and new material.

CSDI WaterTech成立于 2015 年，是水技术可持续和创新发展中心。公司立志于通过可持续和创新发展、传播和推广水资源综合管理技术，从而更好的保护环境和提高生活质量。我们的目标是通过开发和传播与水相关的技术，包括雨水管理、洪水模拟和保护、气候适应和缓解解决方案、水污染控制和环境保护、水电和可再生能源以及新材料，为社会安全和提高生活质量做出贡献。

* 1. **Main areas and activities (主要工作领域)**
* Urban water management
* Hydrological and hydraulic modelling, flood risk management
* Water pollution control & real time monitoring
* Rehabilitation and repairing hydraulic concrete structures
* Sustainable hydropower and renewable energies

**CSDI主要服务领域:**

* 城市水资源综合管理
* 水文、水力学模拟和水灾害的风险分析与管理
* 水污染控制和实时监测
* 水工混凝土建筑物防渗、抗冻和抗冲刷防护处理和缺陷修补新材料
* 水利发电与清洁新能源
	1. **Contact联系人**
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* Pingju Li, Communication Director, Pingju.li@csdi.no. +47 4630 0367.
* Webpage: https://csdi.no/
	1. **The organizations (or types) that wish to cooperate, the need for cooperation希望合作的机构（或类型）、合作需求**

CSDI is looking for RD project collaboration (EU or bilateral); long-term intensive training combined with technical visiting. I hope that we should discuss this and further to achieve a dialogue of the training with Shandong provincial or city governments, organizations or company associations of the topics, e.g. relevant legislations, directives in EU & those in China, identified technical topics, and potential financial resources, which could enable us to follow-up, and make a long term planning of the collaboration.

CSDI 寻找研发项目合作（欧盟或双边）； 长期强化培训与技术访问相结合。我希望我们就此进行讨论，并进一步与山东省或地方市政府、机构或企业协会就各种话题进行培训对话，比如欧盟和中国的相关立法、指令、确定的技术主题和潜在的财政资源，这可以使我们能够跟进并制定长期的合作规划。

Not limited to Universities or research institutes. Organizations including companies, public or private that are interested in engaging in RD, need for new knowledges, new software tools or technical exchanges are welcome to talk to us.

We collaborate with other companies in Norway, if applicable.

合作对象不限于大学或研究机构。欢迎有兴趣从事研发、需要新知识、新软件工具或技术交流的公司、公营或私营机构与我们洽谈。

在适用的情况下与挪威的其他公司或大学合作。

We are interested in meetings with textile industry or factories in Shandong on smart WWTP technologies and wastewater reuse. Date and time must be discussed prior to the meeting engage the right experts.

我们有兴趣与山东的纺织行业或企业就污水处理和再利用进行会谈。会议讨论日期和时间提前沟通，并邀请合适的专家参加会议。