



Danish Water Technology Group China Newsletter August 2019

[Upcoming Event](#) | [Case Story](#) | [China Water Dynamics](#) | [Water Market Analysis](#) | [Our Members](#)

Upcoming Event



中丹可持续水技术峰会暨格兰富“水美中国”白皮书发布会 **Sino-Danish Sustainable Water Technology Summit and Grundfos Whitepaper Launch**

17th September 2019, at 10.00 – 14.00

Royal Danish Embassy Beijing

* Free participation for DWTG China members

Leveraging both the Danish Export Association and Grundfos' network, the summit will bring together key experts and players to discuss challenges, trends and new innovations across China's water and environment industry.

During the summit, Grundfos will launch its 2019 whitepaper titled: "Water and Energy in China: the foundations of a sustainable future". Meanwhile, the U-S-E Water Project will also be introduced, the case stories of Danish water solution will be presented by the members of DWTG China.

The invitation including the detailed agenda will be distributed by separate mails.

U-S-E 项目丹麦代表团访华 U-S-E Water Delegation Roadshow (TBC)

16th-20th September 2019

Beijing, Tianjin & Shanghai

Participation fee: DKK 10,500 per company (2 persons max.)

Supported by the U-S-E Water Project, Danish Export – Water China invites Danish water technology companies to take part in an excellent 5-day road trip to Beijing, Tianjin and Shanghai.

- Seminars with presentations of the strengths of the Danish participants to key stakeholders in China within the sector.
- Site visits to WWTP and other water utilities
- Business matching activities incl. individual meetings with local partners.
- Networking events with top level water companies.

The 5-day-trip includes the visit as follows:

- 北控水务 Beijing Enterprises Water Group Co., Ltd.
- 碧水源 Beijing OriginWater Technology Co., Ltd.
- 天津创业环保 Tianjin Capital Environmental Protection Co., Ltd.
- 上海市政院 Shanghai Municipal Engineering Design Institute (Group) Co., Ltd.
- 上海城投水务 Shanghai Chengtou Water Group Co., Ltd.
- 上海白龙岗污水处理厂 Shanghai Bailonggang WWTP

The invitation including the detailed agenda will be distributed by separate mail.

Case Story

日益增长的清洁和清洁废水的需求

Increasing demand for clean and clear wastewater

在中东和远东地区，对更好的水和废水管理的需求正在上升。在香港，霍尔电机为大型表面曝气机供电，帮助城市和工业废水的细菌清洁。

In both the Middle East and Far East, demand for better water and wastewater management is on the rise. In Hong Kong, Hoyer electric motors power large surface aerators, which help bacteria clean the municipal and industrial wastewater.

在孟买、利雅得和香港等城市，未经过滤的城市污水直接流入受污染的河流、下水道和运河，时间紧迫，越来越多的国家的政府和企业都在推动更好的废水管理。

Time is running out for scenes of unfiltered urban wastewater flowing directly into polluted rivers, sewers and canals in cities like Mumbai, Riyadh and Hong Kong. Both governments and corporations in an increasing number of countries are pushing for better wastewater management.

从荷兰到香港

From the Netherlands to Hong Kong

Hubert B.V 是受益于关注清洁水的公司之一。在荷兰 Stavoren 市的工厂，Hubert 向全球出口水净化处理系统。最近，Hubert 在香港安装了一系列表面曝气机，用于净化城市的废水。

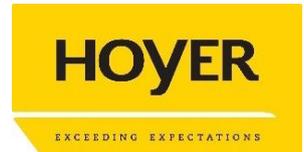
One of the companies to benefit from the increased interest in clean water is Hubert B.V. From their factory in the Dutch city Stavoren, Hubert exports water purification and treatment systems worldwide. Recently, Hubert installed a series of surface aerators in Hong Kong, where they will help purify the city's wastewater.

废水通过特殊的细菌来净化，这些细菌可以吸收污染物，但需要氧气才能生存。这是由使用一个 1700 毫米宽的桨轮的曝气器提供的，它由一个高效率的 22 千瓦霍尔电机驱动，配有匹配的变速箱，将水面溅起，从而与氧气混合。

The wastewater is cleaned by special bacteria that eat the pollutants, but require oxygen to live. This is provided by the aerators, which use a 1700 mm wide paddle wheel, powered by a high efficiency 22 kW Hoyer motor with matching gearbox to splash the surface of the water, thus mixing it with oxygen.

- 我们专注于这种类型的立式轴表面曝气机。搅拌轮的直径在 1.7 至 3.5 米之间，重达 3000 公斤。它以每分钟 50 到 60 转的慢速度转动。为了达到这个目的，你需要产生很大的力量，所以你经常需要高达 3-4 千瓦的电机。“但是您还需要使用可靠的变速箱来降低速度，” Hubert B.V. 废水处理销售经理 Piet Demmer 说。

- We specialize in this type of vertical shaft surface aerators. The mixing wheels have a diameter of between 1.7 to 3.5 meters and weigh up to 3000 kilos. It turns at a slow speed of around 50 to 60 revolutions per minute. To achieve this, you need to generate a lot of force,



so you often need motors up to 3-400 kW. But you also need to keep the speed down with a reliable gearbox that is up to the task, says Piet Demmer, sales manager for wastewater treatment with Hubert B.V.

设备和技术的出口

Export of equipment and know-how

虽然荷兰几百年来一直在处理水，并以其成功的水资源管理行业而闻名，但其他国家最近才将废水管理作为优先事项。为了确保干净清澈的河流和泻湖，加大了对专业知识和高质量水处理设备的需求。

While the Netherlands have been handling water for hundreds of years and are renowned for their successful water management industry, other nations have only recently made wastewater management a priority. This increased effort to secure clean and clear rivers and lagoons is driving demand for both expertise and high-quality water treatment equipment.

- 在荷兰，99%的家庭有连接到污水处理厂，在洪水和极端天气情况下，水处理设施产能过剩。但是新的市场正在开放，特别是在中东和远东地区。在这些领域，我们现在看到政府愿意大力投资于废水管理。Piet Demmer 说，最近 Hubert 与沙特阿拉伯和中国建立了新的联系。

- In the Netherlands, 99 percent of all households are connected to a wastewater plant and there is an overcapacity of water management facilities in case of flooding and extreme weather. But new markets are opening, especially in the Middle East and Far East. In these areas, we are now seeing governments who are willing to invest heavily in wastewater management. Hubert has recently made new contacts in Saudi Arabia and China, says Piet Demmer.

竞争激烈的市场

A highly competitive market

尽管 Hubert 这样的水管理公司的专业技术和技术解决方案目前需求旺盛，但竞争依然激烈。这使得挑选合适的供应商至关重要，尤其是在向新市场交付产品的时候。

While both the know-how and technical solutions of water management companies like Hubert are currently in high demand, the competition is still strong. This makes picking the right suppliers crucial, especially when delivering to new markets.

- 越来越注重成本，不仅仅是废水项目，还有总体的技术解决方案。这意味着公司需要能够无延迟地交付高质量的产品，同时降低成本。霍尔电机公司的大客户经理埃里 Erik Dees 表示，高交付性能，良好的客户支持以及大量的电机库存是我们在与 Huvert 合作开展香港项目的关键要素。

- There is an increasing focus on costs, not just for wastewater projects, but for technical solutions in general. This means that companies needs to be able to deliver high quality products without delays, and keep their costs down at the same time. High delivery performance, good customer support and an extensive stock of motors were some of the key elements we contributed with while working with Hubert on the Hong Kong project, says Key Account Manager Erik Dees from Hoyer Motors.

关于香港设施

About the Hong Kong facility

- Hubert B.V.提供的表面曝气器是香港城市和工业废水的水处理设施的一部分。
The surface aerators delivered by Hubert B.V. are part of a water treatment facility that processes municipal and industrial wastewater from the city of Hong Kong.
- 到目前为止，霍尔已经交付了 16 台带有防雨罩 22kW V1 电机。另有 12 件订单正在进行中。
So far, Hoyer has delivered 16 22kW V1 electric motors with rain covers. An additional order of 12 pieces is underway.
- 电机适合在外部环境中运行。
The motors are suited for operation in an outside environment.

关于霍尔电机

About Hoyer Motors

- 成立于 1974 年
Established 1974
- 工业用途的低压及中压电机
Low- and medium voltage motors for industrial applications
- 行业: 水务, 海事, HVAC, HPU, 油气, 风能
Segments: Water, Marine, HVAC, HPU, Oil & Gas, Wind
- 200 多名员工
200+ employees
- 总部在中国宁波
Asian HQ in Ningbo, China.

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Source from Hoyer Motors



China Water Dynamics

Outstanding Rural Wastewater Treatment Cases (Part.1)

中国村镇地区“美丽乡村”建设逐渐深入，正成为未来农村环境发展的主要政策方向。与接近饱和状态的市政污水处理领域相比较，村镇污水处理存在巨大的市场刚需。E20环境平台组织的“2018年度中国村镇污水处理评选”，评选出了以下村镇污水处理的优秀案例。

The “beautiful countryside” agenda has been continuously promoted in the China’s rural area, which is becoming the main policy orientation of future rural development. Comparing to a nearly saturated market of urban wastewater treatment, rural wastewater treatment market has a promising potential with its rigid demand. The 2018 Annual Rural Wastewater Treatment Contest of China organized by E20 Platform has selected ten outstanding cases as following.

桑德集团-湖南省长沙县18个乡镇污水处理工程

Sound Group – 18 rural wastewater treatment projects in Changsha County, Hunan Province

桑德集团设计建造的湖南长沙县18个乡镇污水项目采用SMART-HRBC高效生物转盘技术，以黄花镇污水处理厂为例，坚持“一个房子、一个池子、一套装备”的理念，具有小型、多功能、模块化、自动化和快速化的特点，系统核心为“生物转盘+高效滤池”，该技术成熟可靠，运营成本低，易实现智慧运维，能够满足乡镇污水处理要求。

The 18 rural wastewater treatment projects in Changsha County, Hunan Province, designed and constructed by Sound Group adopt SMART-HRBC biological rotating disc technology. Taking Huanghua Town WWTP as an example, the design concept sticks to “one house – one sewage basin – one set of equipment”. It has multiple characteristics including miniaturization, multi-functionalization, modularization, automation and high efficiency etc. The core technology – “biological rotating disc + high efficiency filter” is mature and reliable to operate with low operation costs, which is also accessible for “smart operation”.



黄花镇位于长沙东郊，全镇总面积 169km²，黄花镇污水处理厂位于镇西南侧，扩建后总处理规模为12200 m³/d。黄花镇污水处理厂是全县乡镇污水处理的中心厂，也是全县所有乡镇污水处理厂的综合控制中心。在这里，通过自控和远程数据通讯，可以实现所有乡镇污水处理的在线监控。

Huanghua Town locates at north Changsha covering 169 km² area. The WWTP was built at the southwest of the town with total capacity of 12200 m³/d after expanding. Huanghua Town WWTP is the central plant as well as the integrated control center of the county’s wastewater treatment system. It can conduct remote control and communication in order to operate and monitor all the treatment stations in the county.

北京安力斯环境科技-南京栖霞区九乡河以西污水处理项目

Beijing Onyx Environment – West Jiuxianghe River WWT Project, Xixia District, Nanjing

北京安力斯环境科技参与的南京栖霞区九乡河以西污水处理项目总处理水量按照2500m³/d设计，共12个单项工程，出水一级A标准，本项目主体工艺采用安力斯赛博工艺，采用格栅井+调节池+SATBR一体化设备+深度处理及消毒工艺技术。系统核心为SATBR自曝气三项生物膜反应器工艺，采用双泥法，活性污泥法+生物膜法。具有抗冲击负荷能力强，传氧效率高，更好的除磷脱氮功能，能耗低，充氧效率高，占地面积小等特点。

Participated by Beijing Onyx Environment, West Jiuxianghe River WWT Project has a total designed capacity of 2500m³/d with 12 sub-projects for A level discharge standard. Onyx SATBR technology will be adopted as primary technology, the processes include grille, regulating tank, SATBR Integrated Treatment Equipment and deep treatment/disinfection etc. The core system is SATBR aeration tank, integrating activated sludge process and bio-membrane process. This technique has a number of advantages such as strong robustness, high oxygen-transfer efficiency, better P/N removal capacity, low energy consumption and low floor space etc.

安徽华骐环保科技-石杨镇绰庙污水处理站

Huaqi Tech – Chuomiao Wastewater Treatment Station in Shiyang County, Ma’anshan

马鞍山市和县石杨镇绰庙污水处理站为安徽华骐环保科技股份有限公司建设的PPP项目。该项目于2017年3月开工建设，同年7月建成通车，由华骐环保公司特许经营28年。采用泥膜法高效脱氮除磷工艺，强化了微生物载体性能，形成不断自我更新的生物膜。具有极大的气、液传质面积，系统内各处理单元结构均采用水力学流态模拟，有效减少死区等无效容积，最大限度地提高了处理效率，降低能耗。

Chuomiao Wastewater Treatment Station was a PPP project delivered by Huaqi Tech. The project was constructed from March 2017 to July 2017. Huaqi Tech has been provided a 28-year operation license. The treatment station adopts a high efficient N/P-removal biomembrane technology, which



strengthens the microbial function to form a sustainable biomembrane. The treatment units were designed by calculating with hydraulic dynamics simulation system, in order to reduce dead zone and invalid volume, improving treatment efficiency and energy efficiency.

➤ **北京中斯水灵水处理技术-北流村污水处理站**
Beijing VFL Tech -Beiliu Village Wastewater Treatment Station

北京中斯水灵水处理技术承担的北流村污水处理厂，处理规模500吨/天，占地面积500m²，出水达到《水污染物综合排放标准》(DB11-307-2013)村庄生活污水处理站排入地表水体的水污染物排放限值 A 排放限值标准，污水来源为村镇生活污水。采用Vertical Flow Labyrinth (VFL)工艺，从结构上大大延长了厌氧区和缺氧区的流程，消除回流活性污泥对厌氧区和缺氧区的不利影响，并大幅度地提高其脱氮效率，同时有利于除磷，控制和适应厌氧区、缺氧区对碳源的利用。设备结构布置简单，并能经受长期运行的考验。

Covering 500m² area, the Beiliu Village Wastewater Treatment Station constructed by Beijing VFL Tech has a treatment capacity of 500ton/d for rural sewage. The outlet reaches A level discharge standard of DB11-307-2013. Using Vertical Flow Labyrinth (VFL) technology, its structure significantly decreased the process in anaerobic zone and anoxic zone, eliminating the negative effect of returned activated sludge, so as to improve the nitrogen removal efficiency as well as phosphorus. The constructed structure is easy to conduct and the facilities can stand for a long period operation.

➤ **海天水务集团-江油市新安镇村镇污水处理及配套管网工程**
Haitian Group-Wastewater Treatment and Pipeline Network Project in Xin'an County, Jianguyou

江油市新安镇村镇污水处理及配套管网工程建设地点江油市新安镇，主要收集该乡镇生活污水，处理规模300m³/d，配套污水收集干管998m，采用A2/O+硅藻精土工艺，主体处理构筑物采用使用年限长混凝土结构，整体结构布局紧凑，出水执行一级A排放标准，利用硅藻精土纳米级微孔的自然特性，通过中和、絮凝、吸附、过滤等作用进行水处理，可以用于生活污水和工业废水的处理。

Xin'an County developed the wastewater treatment station and supporting pipeline systems to collect and treat rural sewage. The treatment capacity is 300m³/d and pipelines are 998m long in total. Constructed with a compact concrete structure, the station adopts A2/O and refined diatomite technology and aims at A level discharge standard. By using the features of refined diatomite, the station can treat domestic wastewater and industrial water through a few processes, including neutralization, flocculation, adsorption and filtration, etc.

Water Policies

成都高新区出台2019年水污染防治方案
Chengdu Hi-tech District established 2019 Action Plan on Water Pollution Prevention and Control

July 22, 2019

成都高新区出台了《2019年水污染防治方案》(以下简称《方案》)。根据《方案》，今年，成都高新区将以流域污染整治、污水收集处理设施建设、农村污染综合治理、工业企业治污减排等6大行动为重点。为加强城乡雨污水管网体系建设，全区将新建污水管网16.92公里；全区20户以上的农民集中居住区，生活污水处理设施覆盖率要达到30%，同时，全区将持续推进工业园区的污水处理设施提标改造。

Chengdu Hi-tech District has issued 2019 Action Plan on Water Pollution Prevention and Control. According to plan, Chengdu Hi-tech District will focus on 6 major tasks, including river basin pollution treatment, wastewater collection construction, integrated rural pollution management and industrial pollution treatment and reduction, etc.

辽宁省出台城镇污水处理提质增效三年行动方案
Liaoning published the Three-year Action Plan for Improving the Quality and Efficiency of Urban Sewage Treatment

July 22, 2019

辽宁省住建厅、省生态环境厅等部门出台《城镇污水处理提质增效三年行动方案》，要求加快补齐城镇污水收集处理设施短板，推动解决污水直排、雨污水错接混接、外水入渗、溢流污染、工业废水不达标纳管等问题，进一步提升辽宁省城市污水处理系统收集、处理效能。到2021年底，全省14个市生活污水集中收集率基本达到70%以上，县级市城市生活污水集中收集率不低于50%。

Liaoning's Department of Housing and Urban Development and Department of Ecological Environment issued the Three-year Action Plan for Improving the Quality and Efficiency of Urban Sewage Treatment, which required to improve urban wastewater collection and solve issues such as wastewater discharge without treatment, mix or wrong connection of rain water pipeline and wastewater pipeline, infiltration pollution, overflow pollution and substandard industrial wastewater collection etc. The plan intends to further improve Liaoning's wastewater collection and treatment capacity. By the end of 2021, urban wastewater collection rate should grow up to more than 70% in 14 cities of Liaoning and collection rate of county-level cities should be more than 50%.

江苏省印发城镇生活污水处理提质增效三年行动实施方案



Jiangsu Province issued the Three-year Action Plan for Improving the Quality and Efficiency of Urban Sewage Treatment

July 12, 2019

江苏省住建厅联合省生态环境厅等部门近日印发《江苏省城镇生活污水处理提质增效三年行动实施方案(2019—2021年)》，将通过加快补齐城镇生活污水收集处理设施短板，推进污水管网排查和检测、城市污水管网改造和建设等一系列重点工作，尽快实现污水管网全覆盖、全收集、全处理，在3年内显著提升城镇污水处理效率和效益。

Department of Housing and Urban Development together with Department of Ecological Environment of Jiangsu recently published the Three-year Action Plan for Improving the Quality and Efficiency of Urban Sewage Treatment, which targets to achieve "the full coverage of water pipeline network, all collection and all treatment of wastewater" and significantly improve urban wastewater treatment efficiency and performance in 3 years through improving urban sewage facilities and promoting wastewater pipeline network examination, reconstruction and construction.

九部门印发《关于推进农村生活污水治理的指导意见》

Nine government departments jointly published the Guidance on Promoting the Rural Sewage Treatment

July 12, 2019

中央农办、农业农村部、生态环境部、住房城乡建设部、水利部、科技部、国家发展改革委、财政部、银保监会等九部门联合印发了《关于推进农村生活污水治理的指导意见》。《意见》提出，到2020年东部地区、中西部城市近郊区等有基础、有条件的地区，农村生活污水治理率明显提高，村庄内污水横流、乱排乱放情况基本消除，运维管护机制基本建立;中西部有较好基础、基本具备条件的地区，农村生活污水乱排乱放得到有效管控，治理初见成效;地处偏远、经济欠发达等地区，农村生活污水乱排乱放现象明显减少。

The Guidance on Promoting the Rural Sewage Treatment has been jointly published by 9 government departments, including the Office of Rural Work Leading Group of Central Government, Ministry of Agriculture and Rural Affairs, Ministry of Ecological Environment, Ministry of Housing and Urban-Rural Development, Ministry of Water Resources, Ministry of Science and Technology, National Development and Reform Commission, Ministry of Finance and China Banking Regulatory Commission. This document requires to improve rural wastewater treatment conditions with regards to local development situations by 2020.

《广东省城镇生活污水处理厂污泥处理处置管理办法(暂行)》公布

Guangdong Administration Measures for the Sludge Treatment of Urban Sewage Treatment Plant was issued

July 10, 2019

广东省住房和城乡建设厅已正式发布《广东省城镇生活污水处理厂污泥处理处置管理办法(暂行)》的通知，将进一步规范全省各地生活污水污泥产生、运输、处理和处置的全过程管理，提高全省城镇生活污水处理厂污泥处理处置设施的运营管理水平，防止违法倾倒生活污水等现象发生，确保生活污水得到规范安全处置。《广东省城镇生活污水处理厂污泥处理处置管理办法(暂行)》于2019年7月1日起施行。

Guangdong Province Department of Housing and Urban-Rural Development has released Guangdong Administration Measures for the Sludge Treatment of Urban Sewage Treatment Plant (Temporary) was issued, which targets to further regulate the production, transportation, treatment and management process of sludge and improve the operation and management of urban WWTP's sludge treatment facilities. This regulation has been put into force from 1st July 2019.

《城市管网及污水处理补助资金管理办法》实施

Administrative Measures on Subsidy Funds of Urban Pipeline Network and Wastewater Treatment has been published

July 2, 2019

财政部、住建部印发《城市管网及污水处理补助资金管理办法》。《管理办法》明确，补助资金用于支持以下事项：海绵城市建设试点;地下综合管廊建设试点;城市黑臭水体治理示范;中西部地区城镇污水处理提质增效。

Ministry of Finance and Ministry of Housing and Urban-Rural Development has established the Administrative Measures on Subsidy Funds of Urban Pipeline Network and Wastewater Treatment. The regulation clarifies that the subsidy will be used in pilot project of sponge city construction, pilot project of underground integrated pipeline system construction, demonstration project of urban black and odor water body treatment and upgrading of urban wastewater treatment in central and western regions.

Water Market

中环环保中标泰安市岱岳新兴产业园供排水一体化PPP项目

Zhonghuan Environmental Protection won the bidding of Daiyue New Industrial Park Integrated Water supply and Discharge PPP Project

July 22, 2019



中环环保和山东黄河工程集团有限公司联合体为泰安市岱岳新兴产业园供排水一体化PPP项目选取社会资本方采购项目中标单位项目公司负责投资、建设、运营和维护本项目。其中建设内容包括：泰安岱岳新兴产业园污水处理厂及配套管网工程、泰安岱岳新兴产业园供水工程、泰安岱岳新兴产业园污水处理厂下游人工湿地水质净化工程、水务综合控制中心工程，本项目总投资约 29646.63 万元。

Together with Shandong Huanghe Engineering Group, Zhonghuan Environmental Protection won the bidding of Daiyue New Industrial Park Integrated Water supply and Discharge PPP Project in Taian. The contract company is responsible for the investment, construction, operation and maintenance of the project. The subprojects include Daiyue New Industrial Park WWTP and pipeline networks project, Daiyue New Industrial Park water supply project, constructed wetlands tail water treatment project and integrated control center project. The total investment of this project is about RMB 296.5 million.

中铁一局联合体中标山东泰城水生态环境治理工程PPP项目

China Railway First Group won the bid of water ecological management PPP project in Taicheng, Shandong Province

July 22, 2019

中铁一局接到泰城水生态环境治理工程PPP项目中标通知书，将作为中国中铁联合体成员之一参与该项目的建设及运营管理工作。山东泰城水生态环境治理工程项目采用“BOT+TOT”模式，合作期限15年，其中建设期1年，运营期14年，总投资57.8亿元；项目内容包括污水处理工程、供水工程、清淤工程及防洪工程、生态驳岸工程、景观工程、桥梁工程、雨污分流工程、水库及输水等工程。

The consortium led by China Rail Way First Group Co., Ltd. received the notice of award for the water ecological management PPP project in Taicheng, Shandong Province. The project will adopt a “BOT+TOT” mode for 15 years of cooperation period, including construction period for 1 year. The total investment is about RMB 5.78 billion. The project includes sewage treatment works, water supply works, dredging works and flood control works, ecological revetment works, landscape works, bridge works, rain and sewage diversion works, reservoirs and water transmission work etc.

洪城水业联合体中标1.08亿元污水处理厂PPP项目

The consortium led by Hongcheng Water Industry won the bidding of a PPP project with RMB 108 million

July 12, 2019



辽宁省盖州市双台镇污水处理厂及配套管网工程PPP项目发布中标公告，江西洪城水业股份有限公司与南昌市自来水工程有限责任公司组成的联合体中标。处理量近期(2020年)15000吨/日，远期规模(2030年)30000吨/日，污水处理工艺采用改良型A2O工艺。配套管网依地势沿沙河自西向东布置截流干管9000米。采用BOT的运作方式，本项目的总投资估算金额约1.08亿元，合作期限设定为26年(含建设期1年)。

It is reported that the consortium consists of Jiangxi Hongcheng Water Industry and Nanchang Water Supply Engineering Co., Ltd. has won the bidding of Shuangtai WWTP and Pipeline Networks PPP Project in Gaizhou, Liaoning. The treatment capacity will be 15,000 ton/day in 2020 and 30,000 ton/day in 2030 with modified A2/O technology. The pipeline network will be about 9,000 meters. This project adapts a BOT operation mode for 26 years (1 year for construction) and invested by RMB 108 million.

中铁四局中标3.16亿浙江污水处理厂项目

China Tiesiju Civil Engineering Group Co., Ltd. won the bidding of a WWTP project in Zhejiang

July 11, 2019

7月11日，中铁四局集团有限公司中标浙江衢州市城东污水处理厂(三期)施工总承包+运营工程，中标金额约为3.16亿元。该项目包括项目设计污水处理规模10万m³/天的厂区建筑物、构筑物、室外配套等的建设，运营规模5万m³/天机电设备安装、运行调试等的工程施工。项目运营招标范围为工程项目建设完成后由招标人委托承包人运营服务三年。

The China Tiesiju Civil Engineering Group Co., Ltd. won the East Civil WWTP (Phase III) projects in Quzhou, Zhejiang with RMB 316 million. The project includes the construction of the 100,000 m³/d WWTP and Mechanical and electrical equipment installation. The project operation is 3 years.

光大水务签署三个水处理项目

China Everbright Water has signed three water projects

July 4, 2019



光大水务宣布公司近日分别签署辽宁大连普兰店中水回用项目、内蒙古通辽开发区污水处理项目提标改造及扩建工程以及山东德州陵城区污水管网PPP项目续建工程，涉及总投资约人民币3.40亿元。

China Everbright Water announced that it has signed the Pulandian Reclaimed Water Recycling Project in Dalian, Liaoning, WWTP Upgrading and Expanding Project in Tongliao Development Zone, Inner Mongolia, and Lincheng Sewage Pipeline Network PPP Project in Dezhou, Shandong. The total investment is up to RMB 340 million.

国祯环保联合中标3.12亿安徽宿州市埇桥区农村污水治理工程 PPP 项目

Consortium led by Guozhen Environment won the bid of rural wastewater treatment PPP project in Suzhou, Anhui

July 2, 2019



安徽国祯环保节能科技股份有限公司组成的联合体中标安徽宿州市埇桥区农村污水治理工程 PPP 项目，项目总投资约为3.12亿元。建设内容包含两个部分，第一部分共包含蕲县镇和芦岭镇的2座污水处理厂，第二部分包含宿州市埇桥区蕲县镇徐桥村、蒿沟乡赵楼村、朱仙庄镇朱庙村等17个污水处理站。

Guozhen Environment and its consortium won the bid of rural wastewater treatment PPP project in Yongqiao District, Suzhou, Anhui Province. The total investment will be approximately RMB 312 million. The project includes two parts, which are 2 wastewater treatment plants in Qixian Town and Luling Town, and 17 wastewater treatment stations in Xuqiao village, Zhaolou village, etc.

Water Market Analysis

中国农村污水处理行业市场现状及发展前景

Rural wastewater treatment industry and development prospect in China

2018年，全国农村污水排放量大约为230亿吨，同比增长7.5%。农村污水污染已成为农村环境污染的主要表现，对农村地区的水体、土地等自然环境产生严重影响，为确保农村水源安全和农民身体健康，农村污水治理刻不容缓。

In 2018, about 23 billion tons of wastewater were discharged in rural areas of China, with a year-on-year increase of 7.5%. Rural sewage pollution has become the main manifestation of rural environmental pollution, which has a serious impact on rural water bodies, land and other natural environments. In order to ensure the safety of rural water sources and the health of rural residents, it is of high urgency to manage rural wastewater.

农村污水具有两大特点，一是农村污水主要为生活污水和以农产品为原料的加工污水的混合物，基本上不含重金属和有毒有害物质，含有一定量的氮和磷，可生化性好，但水质水量变化较大；农村地区人口居住分散，大部分没有排水管网，污水集中收集处理难度较大。

There are two major features of rural wastewater in China. Firstly, rural wastewater is mainly a mixture of domestic sewage and processing wastewater with agricultural products as raw materials. It contains a certain amount of nitrogen and phosphorus with little heavy metals and other toxic or harmful substances, leading to a good biodegradability. Secondly, the population in rural areas is scattered and most of them have no drainage network, so it is difficult to collect and treat sewage centrally.

项目 Items	建制镇 Designated Town	乡 Township	镇乡级特殊区域 镇乡级特殊区域 Other areas at township level
污水处理厂个数 (个) Number of WWTP	3,409	441	135
污水处理厂处理能力 (立方米/日) WWTP Treatment capacity (m ³ /day)	14.23 million	260,000	250,000
污水处理装置个数 Number of treatment devices	12,421	2,093	162
污水处理装置处理能力 Treatment devices capacity (m ³ /day)	10.41 million	380,000	180,000
排水管道长度 (公里) Drainage pipeline (km)	166,305	17,912	6,498
排水暗渠长度 (公里) Drainage culvert	83,154	12,513	1,501
污水处置率 Wastewater treatment rate	53%	11%	59%
污水处理厂集中处理率 Centralized treatment rate by WWTP	42%	6%	49%

目前我国建制镇和乡级行政区域污水处理厂个数分别为3409个、441个，污水处理厂处理能力分别为1423万立方米/日，26万立方米/日，污水处理率分别为53%、11%，污水处理厂集中处理率分别为42%、6%。可见，农村污水治理市场则存在着巨大的短板，未来可提升空间巨大。

At present, there are 3,409 wastewater treatment plants in designated town and 441 wastewater treatment plants in the township administration level. The wastewater treatment plants have treatment capacity of 14.23 million cubic meters per day and 260,000 cubic meters per day respectively. The wastewater treatment rates are 53% and 11% respectively, and the centralized treatment rates of wastewater treatment plants are 42% and 6% respectively. Obviously, the rural wastewater treatment market has huge shortcomings and there is a large space to improve in the future.

➤ **利好政策加大力度补足短板**

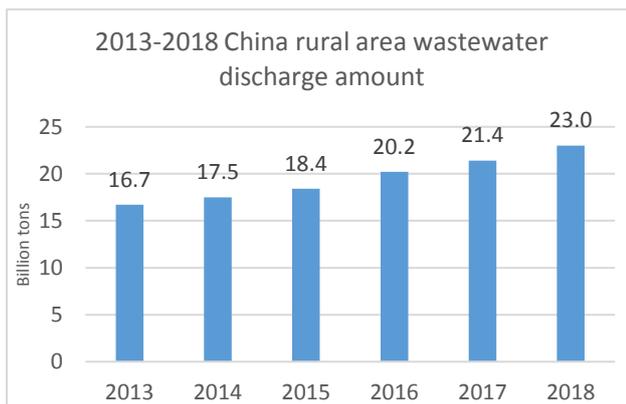
Favorable policies facilitates remediation

对此，我国政府正加大力度补足短板。2017年2月，环保部、财政部联合印发的《全国农村环境综合整治“十三五”规划》提出，到2020年我国农村污水处理率要达到30%以上；2018年2月，《农村人居环境整治三年行动方案》同样提出，要积极推广低成本、低能耗、易维护、高效率的污水处理技术，鼓励采用生态处理工艺；加强生活污水源头减量和尾水回收利用。将农村水环境治理纳入河长制、湖长制管理。

In order to solve this issue, the government strives to fix shortcomings. In February 2017, the Thirteenth Five-Year-Plan on the Rural Environment Integrated Management jointly established by Ministry of Environment Protection and Ministry of Finance put forward that the wastewater treatment rate in rural area should be improved to more than 30%. In February 2018, the Three-Year Action Plan on Rural Human Settlement Management also indicated that the wastewater treatment technologies of low cost, low energy consumption, easy maintenance and high efficiency should be actively promoted. It also encourages ecological treatment measures and enhances water use reduction and tail water recycling. Rural water environmental management is also involved in the River (Lake) Chief System.

➤ **中国农村污水处理投资规模有望扩大**

The investment scale on rural wastewater treatment would expand



鉴于农村污水处理仍有较大缺口，管网等配套设施仍不齐全，未来投资有望扩大。据《中国农村污水处理行业发展前景预测与投资战略规划分析报告》统计数据显示，2013年我国农村污水处理投资规模已达32.5亿元，之后我国对于农村污水处理投资便在不断增加。截止至2017年我国农村污水处理投资规模增长至144.2亿元，同比增长46.10%，2018年我国农村污水处理投资规模达到164亿元左右，同比增长13.77%。总体而言，我国污水治理市场潜在需求巨大，随着国家对农村生态环境的高度重视，农村污水市场有望全面实现覆盖和达标。

Due to a huge gap of rural wastewater treatment capacity and incomplete pipeline network systems, the investment to rural wastewater treatment is expected to expand. It is reported that the rural wastewater treatment investment had risen to RMB 3.25 billion in 2013, and this number has kept growing since then. By 2017, the investment was RMB 14.42 billion, with a 46.10% increase year-on-year. The investment increased to RMB 16.4 billion with a 13.77%

increase year-on-year. In general, China's wastewater treatment market has a huge potential and now with the state's great attention to the rural ecological environment, the rural sewage market is expected to achieve a next level.

➤ **中国农村污水处理展望**

Rural wastewater treatment forecast

由于我国农村供水安全堪忧、污染物排放逐年增加、污水处理覆盖率远低于城镇，而农村在我国二元城乡经济结构中占有重要战略地位，国家将下大力气推动农村水务事业发展，农村污水处理市场将迎来历史性发展机遇。

Given serious rural water supply safety issue, increasing sewage discharge, low wastewater treatment capacity and the critically strategic position of China's Urban-Rural dualistic economic structure, the state will make great effort on rural wastewater treatment development and the market will embrace a historical opportunity.



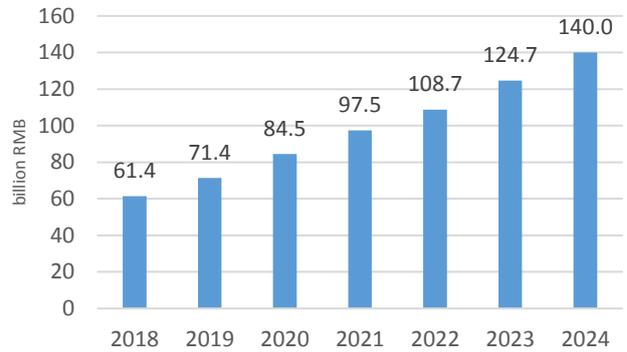
目前我国有250万个自然村、6.7亿农村人口，污水处理率不到10%，潜在需求巨大。2018年中国农村污水处理行业大约形成了614亿元产值，预测2019年中国农村污水处理行业总产值将达714亿元。2022年中国农村污水处理行业总产值将突破千亿元。随着市场需求释放，预测到2024年中国农村污水处理行业总产值将增长至1400亿元。

At present, China has 2.5 million villages and 670 million rural population, but the rural wastewater treatment rate is less than 10%, which has a huge demand potential. In 2018, China's rural sewage treatment industry generated an output value of RMB 61.4 billion. And it is estimated that the total output value of China's rural sewage treatment industry will reach RMB 71.4 billion in 2019. The total output value of China's rural sewage treatment industry will exceed RMB 100 billion by 2022. With the release of market demand, it is predicted that the total output value of China's rural sewage treatment industry will increase to RMB 140 billion by 2024.

不过，与国际技术相比，我国在农村污水处理方面开展研究较晚，技术实力有待进一步提升。2014年以来，上市企业为了更好的占领农村污水治理市场，加大了收购步伐，国中水务收购丹麦BioKube公司和四川亿思通环保、国祯环保收购挪威GEAS公司、双良节能收购浙江商达环保。

However, comparing to international technologies, studies on rural wastewater treatment in China is lagged behind and technologies are relatively weak. Since 2014, in order to take up rural wastewater treatment market, many listed companies speed up the pace of acquisitions. INTERCHINA Water purchased BioKube from Denmark; Guozhen Environment acquired Goodtech Environment A/S from Norway; Shuangliang Eco-Energy Systems purchased Zhejiang Shangda Environment.

2018-2024 General output estimation of rural wastewater treatment industry in China



Source from China Daily, Beijixing.com & h2O-China.com



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