2019 ISSUE 06

SPACE

A PUBLICATION OF SUEZ NWS

suez NWS

《食之道》
PHILOSOPHY OF FOOD

“民以食为天”。食物对于中国人而言不仅是用以果腹的美味，更是一种渗透到我们社会生活方方面面的文化符号。三五好友聚会小酌、商务宴请推杯换盏、阖家团圆共享年饭，都离不开食物作为情感交流的粘和剂。酒足饭饱，尽欢而散，似乎没有人会理会那些剩下的残羹冷炙、厨房的边角余料都去了哪里。而这一切苏伊士新创建都看在眼里。作为专业的资源可持续管理者，我们让食物在带来美味和能量的同时，以另外一种形式延续它的价值。

“莫忘盘中餐，粒粒皆辛苦”，这就是我们的“食之道”。

'Bread is the stall of life'. For Chinese people, food not only fills the stomach but also has a cultural implication in our social life. It is an indispensable element that bonds people together during social gatherings, business banquets and family parties. At the end of the day, no one seems to care what happens to the leftovers on the table and in the kitchen. But SUEZ NWS takes note of it. As a professional player for sustainable resources management, we help extend the value of food to various forms, other than providing people with taste and energy only.

As what our food philosophy beholds, 'never forget that every grain of rice we eat is the fruit of pain and toil'.

《SPACE 杂志》*SPACE MAGAZINE*

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看到这张美食图片，你想到了什么？

美味大餐？风味小吃？不可能完成的减肥计划？

我们看到的是深深的隐忧和沉重的责任。

What comes to your mind when you look at this picture?

Delicious cuisine? Flavour snacks? Impossible weight loss plans?

What we perceive are deep worries and heavy responsibilities.

餐厨垃圾
城市里的资源宝藏
FOOD WASTE PRECIOUS URBAN RESOURCES

分钟前还是佳肴，一分钟后便成了垃圾。由于特有的饮食文化和聚餐习惯，中国的餐桌浪费惊人，每天会产生数量庞大的餐厨垃圾。据统计，中国城市每年产生的餐厨垃圾量至少有6,000 万吨。这不仅是对食物的浪费，也给城市的环境卫生和食品安全带来了巨大的挑战。餐厨垃圾通常含有较高的水分与有机物，如不妥善处理，极易腐坏，产生恶臭，并滋长病原微生物、霉菌毒素等有害物质。

但是换个角度，我们会看到餐厨垃圾事实上是一种错置的资源。正因为其营养丰富，有机物含量高，如经过妥善处理，完全可以转化为新的资源，以另一种形式延续食物的价值，为城市开辟一个崭新的资源宝藏。

Any delicious food can easily turn into waste. Due to unique dining habits and food culture in China, food is being wasted at an astonishing rate, and a great amount of food waste is produced every day. According to statistics, at least 60 million tonnes of food waste is generated in Chinese cities annually. This is not only a waste of food, but also a huge challenge to the city's environmental health and food safety. Food waste usually contains high levels of water and organic matter, so it can be highly perishable and malodorous and breed harmful substances such as pathogenic microorganisms and mycotoxins if not properly managed.

Yet, from another perspective, food waste is actually a kind of misplaced resource. Given its rich nutrition and high organic content, it can be transformed into new resources once properly managed, extending the value of food to other forms and developing new precious resources for the city.

随着中国环保事业的推进，餐厨垃圾的治理和综合利用日益提上许多城市的管理议程，其中有些城市已经开始了项目试点。

根据《2018—2022 年中国垃圾处理行业投资分析及前景预测报告》，“十三五”期间整个餐厨垃圾总体市场市值可达 1,000 亿—1,500 亿元。其中餐厨垃圾收运体系建设约 200 亿（收运体系包括：垃圾容器、车辆以及车辆和垃圾容器之间的衔接），处理处置工程市场市值约 500 亿—1,000 亿，日常运营市场约 300 亿，监管体系建设约 20 亿。从中，我们可以看出餐厨垃圾处理将在中国大规模展开。

苏伊士新创建无疑是这个领域的先行者。凭借苏伊士集团在欧洲丰富的有机垃圾处置经验和成熟全面的技术实力，我们致力于为中国提供创新的、循环的、务实的餐厨垃圾解决方案，帮助城市管理者们开发利用好这一独特的资源宝藏。我们在香港的有机资源回收中心一期项目（“有机资源回收中心”）将是这一切的起点。

新市场呼唤先行者
NEW MARKET CALL FOR FORERUNNERS

With the promotion of environmental protection in China, regulations for management and comprehensive utilisation of food waste have been set by many cities, some of which have initiated pilot projects.

According to the *Prospect Survey and Investment Potential Analysis Report of China's Waste Treatment Industry 2018-2022*, the value of the food waste market during the '13th Five-Year Plan' period can reach RMB 100 billion to 150 billion, which comprises RMB 20 billion for construction of a food waste collection and transportation system (which includes waste containers, vehicles and connection between vehicles and waste containers), RMB 50 billion to 100 billion for the value of treatment and disposal engineering market, RMB 30 billion for the value of daily operation market and RMB 2 billion for construction of a regulatory system. Therefore, food waste treatment projects will be extensively launched in China.

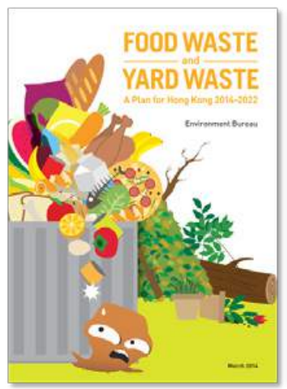
SUEZ NWS is undoubtedly the forerunner in this field. With SUEZ's extensive experience in organic waste disposal in Europe as well as mature and comprehensive technical strength, we are committed to providing innovative, circular and practical food waste solutions to help city administrators in China develop and utilise this precious resource. Phase I of the Organic Resources Recovery Centre in Hong Kong ('the ORRC1') will be the starting point.

运筹帷幄
香港特区政府的餐厨计划
HONG KONG SAR GOVERNMENT MAPS OUT FOOD WASTE PLAN

香港，亚洲最发达的商业和经济中心之一，素来享有“美食天堂”的美誉，世界各国的美味在这里汇聚。也正因为如此，香港的人均废弃物产量远高于亚洲其他发达城市，特别是餐厨垃圾，据统计香港每天产生约 3,600 多吨餐厨垃圾，绝大多数都以填埋的方式进行处理。

香港特区政府看到了这背后的隐忧，并下决心改善这一状况。2014 年 2 月 20 日，香港环境局发表《香港厨余及园林废物计划 2014 – 2022》，整合和更新了处理厨余的策略，目标是在 2022 年把人均弃置在填埋场的厨余量减少 40%。

香港特区政府环境局局长黄锦星对此表示，厨余计划以四个策略为主轴应对厨余挑战，包括：全民惜食、食物捐赠、厨余收集和转废为能。整体策略以源头减废为主导，至于未能避免的厨余，则尽量回收和循环再造。

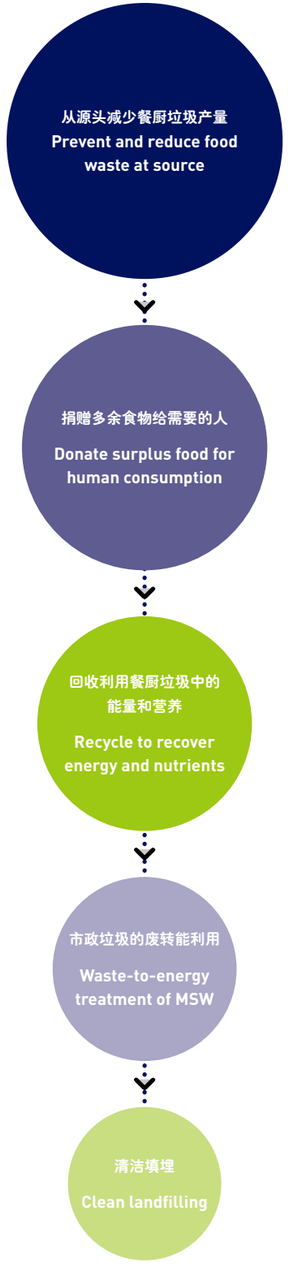


《香港厨余及园林废物计划 2014 – 2022》
Food Waste and Yard Waste: A Plan for Hong Kong 2014–2022

Hong Kong, one of Asia's most developed commercial and economic centres, is known as 'food paradise' for its wide variety of gourmet from across the world. As such, Hong Kong's per capita household waste output is much higher than that of other developed cities in Asia, especially food waste. Statistics show that more than 3,600 tonnes of food waste is produced in Hong Kong daily, most of which is disposed of by landfills.

The Hong Kong SAR Government is aware of the hidden dangers and is determined to improve the situation. On 20 February 2014, the Hong Kong Environment Bureau published *Food Waste and Yard Waste: A Plan for Hong Kong 2014–2022*, which integrated and updated the strategies for treating food waste, aiming to reduce the amount of food waste per person in landfills by 40% by 2022.

Wong Kam-sing, Secretary for the Environment of HKSAR, commented that under the food waste plan, four strategies would be adopted to address the food waste challenge, including Food Wise for all, food donation, food waste collection and waste-to-energy conversion. The overall strategy is dominated by waste reduction at the source. As for unavoidable food waste, it should be recycled as much as possible.



40%

2022 年人均弃置在填埋场的厨余量减少 40%
Reduce amount of food waste per person in landfills by 40% by 2022

香港首个餐厨垃圾综合利用项目有机资源回收中心

有机资源回收中心是香港厨余计划中的关键一环，其一期工程由苏伊士新创建负责设计、建造和运营。座落在大屿山的有机资源回收中心现已投运，它是香港首个餐厨垃圾发电项目，采用先进的厌氧消化技术，每天设计处理能力达 200 吨。

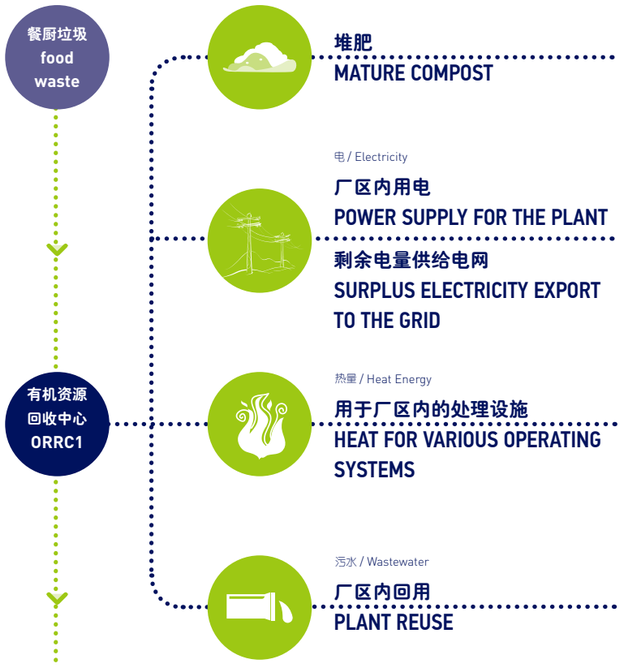
餐厨垃圾送到有机资源回收中心工厂后，会先投入储料坑，经过机械抓斗的充分混合后，运送至进料斗，准备进入预处理系统。在预处理过程中，餐厨垃圾被破碎，并与循环工艺水混合形成悬浮液，通过环形筛鼓去除其中的惰性材料和金属等杂质，以进行循环利用。随后，餐厨垃圾被送到厌氧消化罐进行厌氧消化。这是一种经过实践证明的高度可靠的厌氧消化技术，利用微生物将餐厨垃圾中的有机物转化成生物气体。最后，生物气体随后送至热电联产系统储存在储气罐中。

有机资源回收中心在运营过程中充分实现了能源的自给自足和废转能利用。通过热电联产单元燃烧处理过的生物气体发电，以满足厂区内的用电需求，并向公共电网输送剩余的电量，可每年满足约 3,000 个家庭的用电需求。

此外，系统中的热量回收后用于厂区内的处理设施。消化罐里的沼渣经脱水和与调理剂充分混合后，用来堆肥，熟肥可用于园林和农业生产。

作为香港有机资源回收中心，每年减少温室气体排放 2.5 万吨，为减缓气候变化贡献了一份力量。

有机资源回收中心的各种资源流向
Flow of different streams within the ORRC1



THE ORGANIC RESOURCES RECOVERY CENTRE HONG KONG'S FIRST FOOD WASTE-TO-ENERGY PROJECT

The Organic Resources Recovery Centre Phase 1 (ORRC1) designed, built and operated by SUEZ NWS is a key part of Hong Kong's Food Waste Plan. Located on Lantau Island, the ORRC1 has commenced operation. It is the first food waste-to-energy treatment facility in Hong Kong which adopts advanced anaerobic digestion technology and has a design capacity of 200 tonnes of treatable food waste per day.

When food waste is sent to the ORRC1, it is discharged to the bunker. A grab pre-mixes and transfers the food waste into hoppers, prior to entering the Pre-Treatment System.

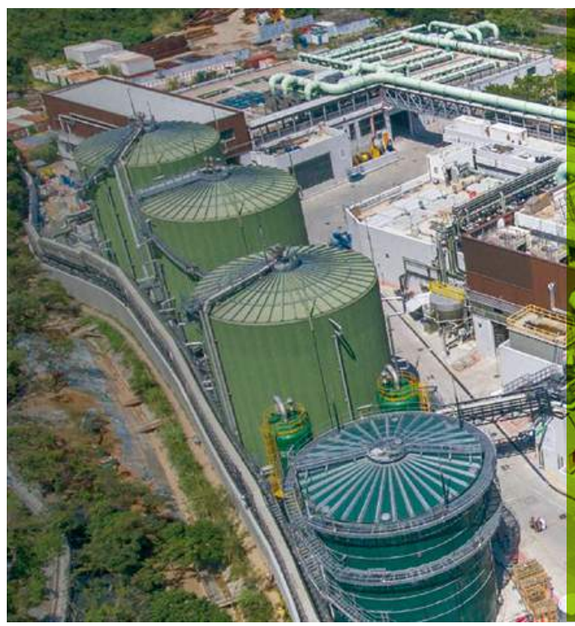
In the pre-treatment process, food waste is fragmented and mixed with recycled process water to form a suspension. Impurities, such as inert materials and metals, are removed in a Trommel Sieve Drum for recycling.

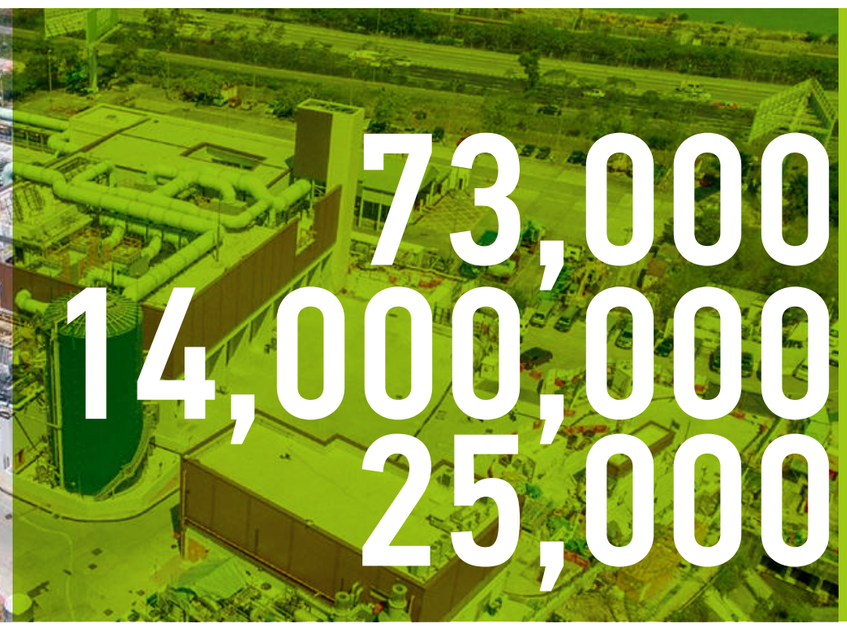
Following that, food waste is sent to anaerobic digestion tanks for anaerobic digestion. This is a proven and highly reliable anaerobic digestion technology, the organic matter in food waste will be converted into biogas using microorganism. Then the biogas is stored in a gasholder upon before being consumed into the combined heat and power engines.

The ORRC1 is a self-sustained and an advanced waste-to-energy facility. CHP generation units combust treated biogas to generate electricity to sustain the operation of the ORRC1 and export surplus electricity to the grid, which is sufficient for the power consumption of approximately 3,000 households per year.

In addition, heat is recovered from the system to satisfy the heating demand for the operation of systems like composting, digester, desulphurisation and ammonia stripping systems. Digestate from the digesters is dewatered and mixed with bulking agent for composting and maturation.The mature compost can be used for landscaping and agricultural applications.

As Hong Kong's first food waste recycling plant, the ORRC1 contributes to slowing down the rate of climate change by reducing greenhouse gas (GHG) emission by 25,000 tonnes every year.



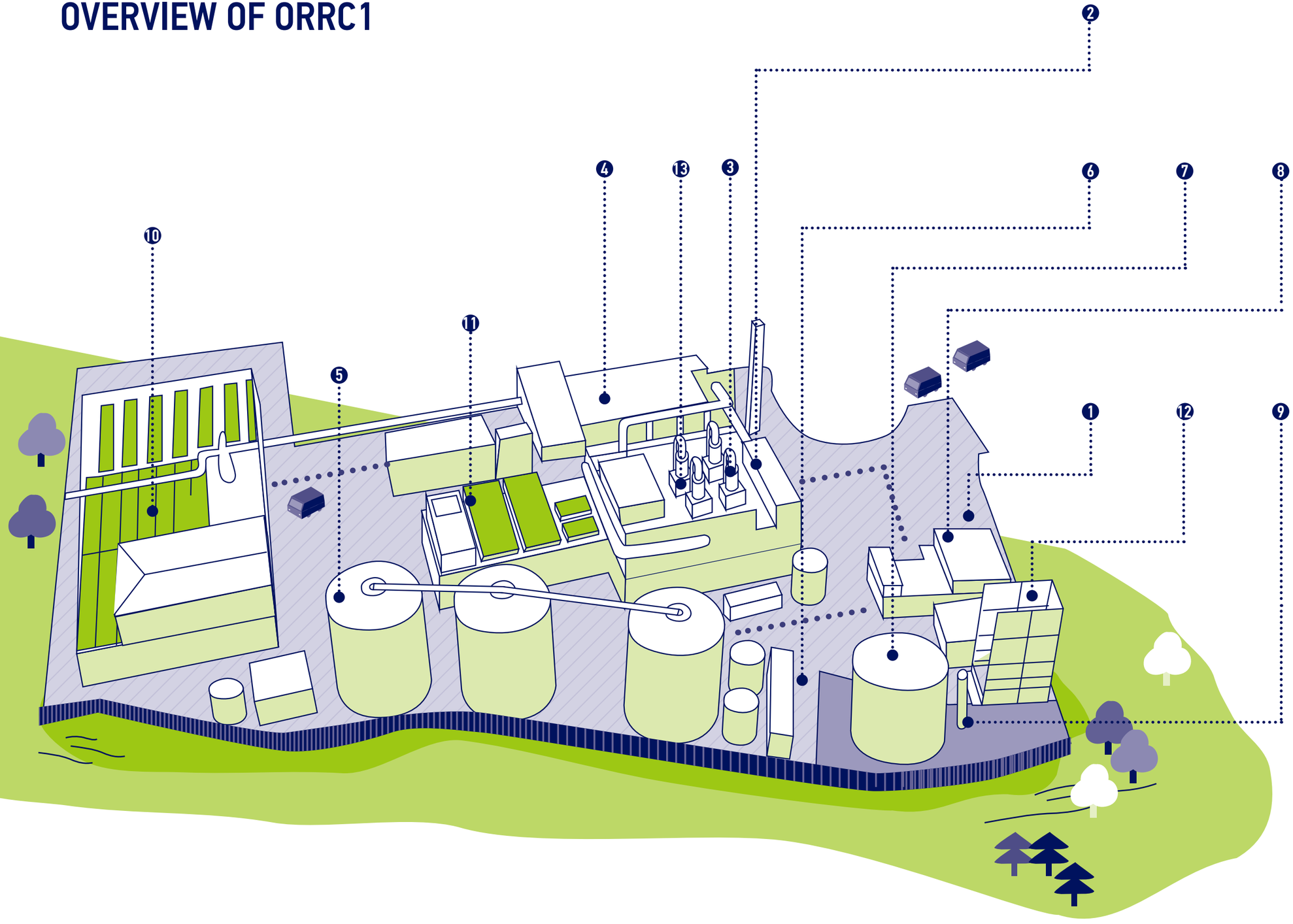


73,000
吨 / 年处理能力
TONNES/YEAR TREATMENT CAPACITY

14,000,000
千瓦时 / 年的发电量
KWH/YEAR ELECTRICITY GENERATED

25,000
吨 / 年温室气体减排量
TONNES/YEAR GHG EMISSION REDUCED

有机资源回收中心流程一览
OVERVIEW OF ORRC1



1. 地磅
   Weighbridge
2. 倾卸台
   Tipping Bays
3. 储料坑 & 抓斗起重机
   Waste Bunker & Grab Crane
4. 预处理线
   Pre-treatment Lines
5. 厌氧消化装置
   Anaerobic Digesters
6. 脱硫塔
   Desulphurisation Columns
7. 生物气体储罐
   Biogas Holder
8. 三条 1,500 千瓦热电联产装置
   3 x 1.5 MW combined heat and power generators
9. 火炬燃烧装置
   Flaring System
10. 沼渣脱水堆肥
    Digestate Dewatering and Composting
11. 污水处理系统
    Wastewater Treatment
12. 除氨装置
    Ammonia Stripping Station
13. 中央空气污染控制系统
    Centralised Air Pollution Control System

源头控制 全民参与
SOURCE CONTROL & CIVIC PARTICIPATION

餐厨垃圾的治理是一项综合性的工程，不仅需要专业的技术和处理设施，也需要全社会的参与和支持。从餐厨垃圾的产生单位，到物业保洁公司，再到垃圾收集转运单位，都在这个过程中扮演着重要的角色。

为了加强对餐厨垃圾的源头控制，香港特区政府特别实施了一项试点计划，由食物环境卫生署管理的水产市场和熟食中心，以及香港房屋管理局辖下的水产市场和购物中心，先行对餐厨垃圾进行源头分类和收集，并积极主动地从每个摊位老板那里收集餐厨垃圾，将其送到有机资源回收中心，以实现废转能利用。

The treatment of food waste is a comprehensive project that requires not only professional expertise and processing facilities but also full social participation and support. Food waste producers, property cleansing companies as well as waste collection and transfer units play key roles during the process.

To strengthen the management of food waste at source, the Hong Kong SAR Government has implemented a pilot project to separate and collect food waste from wet markets and cooked food centres managed by the Food and Environmental Hygiene Department, as well as wet markets and shopping malls managed by the Hong Kong Housing Authority. They also collect food waste from each stall operator pro-actively and send it to the ORRC1 to convert waste into energy.

每个利益相关方的责任和角色
ROLES & RESPONSIBILITIES OF STAKEHOLDERS

1 餐厨垃圾的产生者 FOOD WASTE PRODUCERS

- 从源头将餐厨垃圾分类；
- 提供足量的标示清晰的餐厨垃圾回收箱，和临时放置垃圾箱的地点；
- 定期清理和清空回收箱，预防异味和健康隐患；
- 支持和鼓励一线员工参加有关正确将餐厨垃圾进行源头分类的培训。
- Separate food waste from MSW at source;
- Provide adequate labelled food waste collection bins and temporary storage space for the bins;
- Empty and clean the bins regularly to prevent odour or health issues;
- Support and encourage frontline staff to attend training on good practices of food waste source separation.

2 物业管理公司或保洁公司 PROPERTY MANAGEMENT COMPANIES/CLEANSING CONTRACTORS

- 与有资质的餐厨垃圾收集单位联系、安排餐厨垃圾的收集运输；
- 提供足量的标示清晰的餐厨垃圾回收箱和指定的放置地点；
- 定期清理和清空回收箱，防止异味的产生。
- Liaise and arrange food waste collection services with registered food waste collectors;
- Provide adequate number of labelled food waste collection bins and designated loading areas;
- Clean food waste collection bins regularly to avoid potential odour.

3 有资质的餐厨垃圾收集单位 REGISTERED FOOD WASTE COLLECTORS

- 确保餐厨垃圾在收集和运输过程中没有产生异味和渗滤液泄露；
- 检查所收集餐厨垃圾的质量；
- 记录每个收集点餐厨垃圾的重量，填写和提交记录表格。
- Ensure no odour and leachate leakage during collection and transportation of food waste;
- Inspect quality of the collected food waste;
- Record the amount of food waste at each collection point, fill in and submit record form.

梁启超 先生
香港餐饮服务管理协会会长

MR. MICHAEL LEUNG
CHAIRMAN, ASSOCIATION FOR HK CATERING SERVICES MANAGEMENT

“许多顾客非常愿意（减少食物浪费），因为他们知道不应该浪费食物，食物本身是宝贵的。

Many customers are very willing (to reduce food waste), as they know that they should not waste precious food.”

“我相信惜食将是未来的一个主要趋势。我们非常欢迎有机资源回收中心项目，这对于惜食运动很有帮助。

I believe that Food Wise will become a dominant trend in future. We support the ORRC1 project since it will be truly helpful to the Food Wise campaign.”

汤尼谭 先生
餐厅经理协会副主席

MR. TONY TAM
VICE CHAIRMAN, ASSOCIATION OF RESTAURANT MANAGERS

这一动议在香港社会引起了强烈反响，并获得了香港餐饮行业的广泛支持。

THE MOTION, WHICH HAS CREATED OVERWHELMING SOCIAL RESPONSE, ALSO RECEIVED WIDE SUPPORT FROM THE CATERING INDUSTRY IN HONG KONG.

SIMON WONG 先生
香港餐饮业联合会有限公司总裁

MR. SIMON WONG
PRESIDENT, HONG KONG FEDERATION OF RESTAURANTS & RELATED TRADES LIMITED

“有机资源回收中心的运行需要我们的支持，这是我们双方共同关注的项目。香港餐饮业联合会有限公司拥有超过 1,200 名来自不同餐饮集团的会员，他们非常关心惜食运动。

The operation of the ORRC1 requires our support. It is a project of mutual interest. The Hong Kong Federation of Restaurants & Related Trades Limited has over 1,200 members from different catering groups, who are very concerned about Food Wise.”

“我们的成员有很多方法（促进惜食运动），例如：用六道菜代替八道菜。一些中餐馆还与“惜食堂”[?]合作，向慈善机构捐赠多余的食物，一些茶餐厅还组织了“少米少钱”活动。我们将大力支持有机资源回收中心项目。

Our members have a lot of ways (to promote Food Wise), for example, having 6 dishes instead of 8 dishes. Some Chinese restaurants also collaborate with Food Angel[?] to donate surplus food to charitable organisations. Some Cha Chaan Tengs also organise the ‘Less Rice for $1.00 Less’ campaign. We will give full support to the ORRC1.”

马金梁 先生
餐饮艺术学院副主席

MR. MA KIN LEONG
VICE CHAIRMAN, INSTITUTION OF DINING ART

[?] “惜食堂”是小宝慈善基金于 2011 年开展的首个食物回收及援助计划，宗旨为“停止浪费、解决饥饿、以爱相连”。“惜食堂”团队致力向本地饮食界回收仍可安全食用之剩馀食物，通过严格的食物安检程序，再经中央厨房烹煮成营养均衡的热饭餐，最后由物流团队免费派发给社会上需要食物援助的人士。

‘Food Angel’ is the first food recovery and assistance scheme launched by Bo Charity Foundation in 2011, which aims to ‘stop waste, solve hunger and connect with love’. The ‘Food Angel’ team is committed to recycling remaining food that is still safe to eat from the local catering industry. Through strict food safety procedures, the remaining food is then processed in the central kitchen as a balanced diet. Finally, the logistics team distributes the free food to the needy in the society.

这只是一个起点
IT IS JUST A BEGINNING

香港有机资源回收中心项目为我们提供了一个经典的案例，让我们看到政府规划、企业技术、民众参与是如何有机地结合在一起，将餐厨垃圾变为可再生的绿色能源。而这只是一个起点。苏伊士新创建相信，在未来、在越来越多的中国城市，餐桌厨房将不仅仅提供珍馐美味，还将是一座座资源宝藏，承载着食物的价值和能量，以另一种形式为城市带来勃勃生机。

Hong Kong’s ORRC1 project is a typical example of how government planning, corporate technology and public participation are organically integrated to turn food waste into renewable green energy. Yet, it is just a beginning. SUEZ NWS believes that for more and more Chinese cities, the future dining table and kitchen will not only provide delicacies but also precious resources that encompass food value and energy, bringing vitality to the city in another form.

固废资源管理战略规划
全面布局 创新发展

郭恩堂
苏伊士亚洲固废资源管理首席执行官

Q 固废资源管理业务是集团目前业务增长的战略重点。作为它的总负责人，您能否介绍一下它的整体情况，特别是近年来的发展？

A 苏伊士在固废资源管理领域有着悠久的历史、丰富的技术经验和成功案例，特别是在传统的欧洲市场，苏伊士在多国都是最大的运营商。目前，固废业务在集团的营业额和员工人数占比都达到了 50%。在亚洲，我们的固废业务自 20 多年前就活跃在我们的传统市场：香港和澳门；如今随着中国市场需求的日益增长，我们正在实现加速发展。和水务一样，固废业务基本上也是由政策驱动的，目前各类公共事业和私营企业客户面临着环保政策日趋严格的压力，而我们能够提供一整套完整的解决方案帮助他们应对这一挑战。近年来，工业市场在危废处置方面的需求尤为突出，我们也在该领域成功开发了多个项目，特别是在中国内地。在未来，我们看到集团仍将面临发展机遇，因为我们有能力为市场提供差异化服务，不仅仅是基于价格优势，更是基于我们的安全、可靠和高效。同时，我们将继续服务于香港、澳门和台湾这些传统市场的主要客户，通过提供市场所需的新服务，比如香港的有机资源回收中心、台湾的大发危废处置项目，使我们拥有更多的发展机遇来扩大业务范围。最后，我们也在不断开发那些具有可持续发展市场的新区域，比如泰国的春武里废转能项目。

Q 由苏伊士新创建负责建设运营的有机资源回收中心项目于 2018 年投产，这也是集团在中国的首个餐厨垃圾回用项目。您有计划将这一业务推广到国内其它城市吗？在这一过程当中您认为会面临哪些困难和挑战？

A 有机资源回收中心是一个极具挑战性的项目。目前该项目已投产，向电网供电，并为香港的垃圾产生单位提供了填埋以外的替代处理渠道。该项目不仅是香港也可能是大中华区首个同类项目。我们计划利用该项目作为经典案例向市场展示我们的技术实力和管理复杂的有机资源回收项目的能力。这一市场目前正在中国迅速增长：许多项目正在开发中，并且政府也明确了降低填埋量的目标。但是我们必须有选择性地开发项目，因为一个可持续的好项目必须满足诸多关键条件。对此，我们有计划充分利用我们在中国多个城市已开展水务业务的先导优势，来发掘我们的潜在市场。此外，多项措施已在开展或筹划中，以加速我们在这一领域的发展。

Q 苏伊士新创建与国内危废市场的同行如何实现差异化竞争？我们危废处置项目有哪些专有技术和积极的影响？

A 和国内的竞争者相比，我认为我们有很多不同之处。首先与目前国内危废项目普遍只有 1 万吨 / 年的处理能力相比，我们定位在规模较大的项目，因为我们相信只有达到一定规模，保证安全和运营可靠性措施的成本才能得到有效分摊，实现规模效应。其次，我们的工厂系统性地实现了最高的运行效率和稳定性，危废处置厂的稳定运营对于工业客户来说至关重要，因为他们无法承受废料处理服务中断的损失，更不要说违规运行。最后，处理流程的高度可追溯性也是我们的一大附加价值，我们认为这是保证危废处置安全所必须的，这实际上也是我们有别于国内许多竞争者的重要一点。

Q 关于坚决抵制“洋垃圾”走私的“国门利剑”行动，您认为它会给苏伊士新创建在中国废料循环市场的发展带来什么机遇？

A 我坚信这一政策的执行绝不仅仅只是为了杜绝“洋垃圾”进口，更是为了给中国废料循环产业提供更加规范的良性发展条件。同时，我们应该注意到中央政府正在要求各级地方政府检查他们的垃圾治理整体规划，提出了提高循环比例、限制填埋量的目标。因此，就像几年前的危废市场，我们看到我们有机会进入这个领域。苏伊士在欧洲有着丰富的废料循环管理经验，我们应该充分利用好这些优势，为中国市场提供全新的解决方案。我们将会面临各种机遇，特别是在工业领域，因为工业企业将日益面临来自法律法规和税务方面的压力，迫使他们减少垃圾填埋量，甚至可能会出现和欧洲类似的“废料生产单位责任计划”。为此，我们立志为企业提供创新的解决方案帮助他们达成这一目标。事实上，我们正在探讨首个业务机会，并在为此展开谈判，目前的反馈是非常积极的。当然，我们还将面临各种挑战，其中之一就是提供足够创新的方案，以迅速地把我们和本土竞争对手区分开来。

最后，我想说我们不仅看到中国内地市场这一趋势，香港也准备在未来几年推出“废料生产单位责任计划”。废料循环业务很可能成为继危废业务后，苏伊士新创建固废资源管理的下一个增长点。

Q 在未来我们是否有计划帮助中国解决白色污染问题，限制塑料的使用？

A 塑料污染问题绝不仅仅限于中国，而是当今世界每个国家所面临的挑战。和欧洲与中国相比，有些欠发达国家的情况甚至更为严重，因为那里的废料管理还没有得到充分的监控。集团在欧洲已经有几座工厂从事各种塑料的循环利用，在亚洲我们事实上也已展开调研，寻找启动此类业务的机会，我有信心于今年宣布一个在亚洲的此类项目。在中国，消费者使用的各种塑料制品（特别是 PE 塑料瓶）正在朝着集中化处理方向发展，在这里我们有计划进入塑料循环市场。

Q 您给苏伊士新创建在中国固废市场的定位是什么？

A 我们必须保持在中国市场的差异化定位，提供有别于一般竞争对手的服务，关键在于“可靠、高效、透明和创新”。短期内我们将继续投入大力气稳固在危废处理领域的地位，与此同时进入发展前景乐观的新领域，特别是废料循环和土壤修复领域。

R&R'S STRATEGIC PLANNING

A COMPREHENSIVE LAYOUT FOR INNOVATIVE DEVELOPMENT

Antoine Grange
CEO, Recycling & Recovery, SUEZ Asia

Q **At present Recycling & Recovery (R&R) is the Group's strategic focus of business growth. As its leader, can you give us an overall introduction of R&R, especially its development in recent years?**

A SUEZ has a very long track record and a lot of expertise and references in R&R's activity, especially in its traditional European market, where it is probably the biggest player in many countries. Now R&R is representing almost 50% of the activity and headcount of the Group. In Asia, R&R has been active in this business since more than 20 years ago in the traditional markets of Hong Kong and Macau, but we are seeing an acceleration of growth following an increase in demand in the mainland Chinese market. Like water business, R&R's business is basically driven by regulations that are becoming more and more challenging for both public and private clients nowadays, and we are able to propose a broad range of solutions to help them tackle these challenges. In recent years, it has been particularly the case for hazardous waste treatment in the industrial market, and we have successfully developed several related projects, especially in mainland China. We hope to see more development opportunities for the Group in future since we are able to provide differentiated services for the market in terms of price, safety, reliability and efficiency. In the meantime, we will continue to serve our main clients in Hong Kong, Macau and Taiwan, and create more opportunities to extend our business scope by providing new services needed by the market, such as the Organic Resources Recovery Centre Phase I (ORRC1) in Hong Kong and the Dafa Hazardous Waste Treatment Project in Taiwan. Lastly, we are constantly opening up new markets for sustainable development, for example the Chonburi Waste-to-Energy Project in Thailand.

Q **Hong Kong's ORRC1 that is built and managed by SUEZ NWS has been put into operation in 2018. It is also the Group's first project for food waste recovery in China. Do you have any plan to replicate this project in other Chinese cities? What are the possible difficulties and challenges you foresee during the execution process?**

A ORRC1 is an extremely challenging project. The plant is now in operation, exporting electricity to the grid and providing an alternative for landfill disposal to Hong Kong waste producers. It is the first of such kind not only in Hong Kong but also probably in Greater China. We plan to use this project as a technical reference to demonstrate our technological strength and management ability in dealing with complex organic resources recovery. This market is growing rapidly in China, with many projects under development and the clear objective set by the authorities to reduce landfilling. However, we have to be selective in project development, as a good sustainable project has to fulfill many key requirements. We are planning to make full use of our leverage as a leading provider of water business in many Chinese cities to explore our potential market. Furthermore, a number of initiatives are already in the implementation or planning stage to accelerate our development in this field.

Q **How does SUEZ NWS distinguish itself from other competitors in the Chinese hazardous waste market? What are the expertise and positive impacts of our hazardous waste treatment projects?**

A I see a lot of differences as compared with other local competitors. First, we target bigger projects rather than the usual small-scale ones of 10,000 tonnes/year in China. We believe that a reasonable scale is necessary such that the cost of adopting corresponding measures to ensure safety and reliability can be effectively apportioned, thereby achieving economies of scale. Secondly, we are systematically realising the highest level of efficiency and reliability of our plants. Stable operation of the plant is a priority for our industrial clients who cannot afford a shutdown of their waste service providers, let alone non-compliance. Lastly, offering a high level of traceability of our treatment process is an added value, which is necessary to ensure safety of hazardous waste treatment and differentiates us from many other competitors in China.

Q **Regarding the Chinese National Sword policy on waste, what are the opportunities for SUEZ NWS in the Chinese recycling market?**

A I'm convinced that this policy has been implemented not solely to avoid foreign waste but also to provide more standardised and positive conditions for waste recycling in China. At the same time, it is important to note that the central government is asking all local authorities to review their master plan for waste management as well as to increase recycling ratio and limit landfill volume. Therefore, just like the hazardous waste market years ago, we see a new opportunity in this industry. SUEZ has rich experience in managing waste recycling in Europe and we should take full advantage of this to provide new solutions for the Chinese market. We will have more opportunities coming mainly from industries, as waste producers will face increasing legal and tax pressure to reduce landfill volume, and even the emergence of a 'Waste Producer Responsibility Programme' just like the one in Europe. Therefore, we are committed to providing innovative solutions for enterprises to help achieve this target. We are actually exploring and negotiating our first business opportunity and the feedback has been very positive so far. Of course, we will face various challenges as well, one of which is to offer really innovative solutions so as to stand out easily from the rest of the local competitors.

Lastly, I would like to add that the current trend does not exist only in mainland China, Hong Kong is also planning to introduce the 'Waste Producer Responsibility Programme' in the next few years. It is likely that waste recycling will become the next growth point of R&R after hazardous waste.

Q **What are the future plans we have to address the issue of white pollution and to limit the use of plastics in China?**

A The issue of plastic pollution is not specific to China, it is a challenge faced by all countries in the world. The situation in less-developed countries, where waste management is not fully monitored and controlled, is even worse than that in Europe and China. The Group has several plastic recycling plants operating in Europe and we are actually investigating and seeking opportunities to develop such business in Asia. I am confident that a new project of this kind will be launched in Asia this year. In China, centralised processing is becoming increasingly common for the recycling of all kinds of plastic products (especially PE bottles) used by consumers, so we are making plans to enter the Chinese plastic recycling market.

Q **In your view, what is the positioning of SUEZ NWS in China's waste market? What will be the next stage of development for R&R?**

A We have to maintain a differentiated positioning in China and offer services which can make us stand out from other competitors, with emphasis on reliability, efficiency, transparency and innovation. In the near future, we will continue to put efforts on strengthening our presence in the hazardous waste industry, as well as to explore new industries with bright prospects for development, especially waste recycling and land remediation industry.

2,000 万吨 / 年炼化一体化项目

31 套炼化主装置

3.6 万吨 / 日炼化污水排放量

7,800 吨 / 日反渗透浓盐水排放量

治污新理念
嵌入式污水处理厂

▲ 斑海豹

恒力集团是以石化、化纤为主的中国大型民企，2018年位列《财富》世界500强企业排行榜第235位。苏伊士新创建作为恒力集团在环境领域的战略合作伙伴，在其位于大连长兴岛的2,000万吨 / 年炼化一体化装置的污水配套项目中，率先引入了“嵌入式污水处理厂”的概念，以践行中国政府提出的“创新、协调、绿色、开放、共享”五大发展理念，为“2020年碳减排目标”作出实质性贡献。

恒力集团的炼化一体化项目倚靠环渤海经济圈，位于美丽怡人的大连长兴岛海边，所处的渤海湾地区因为工业企业集中，环境容量已接近临界值，也是淡水资源最为匮乏的地区之一。

该项目规模庞大，原油精炼规模达2,000万吨 / 年，炼化主装置数量多达31套，各装置排放的污染物成分复杂，污水处理难度大，排放和回用要求高。炼化一体化项目每天排放炼化污水3.6万立方米，反渗透浓盐水7,800立方米，加上已经建成的年产660万吨PTA项目，恒力集团面临着巨大的总污染物排放处理的压力。

同时，在距离炼化一体化项目仅20公里外的长兴岛另一侧，有一座美丽的斑海豹国家级自然保护区。斑海豹是唯一一种在我国海域繁殖的鳍足类动物，目前数量极为稀少，是国家二级保护动物，它每年往返栖息于中国、朝鲜和韩国，已经逐渐成为独立的一个类群。在全球，共有8个斑海豹繁殖区，而渤海辽东湾结冰区是8个繁殖区中最南端的一个，有重要的生态保护意义。

因此，在满足炼化一体化项目本身的各项严格要求之外，我们有责任采取更为先进的治污理念和技术，守护斑海豹赖以生存的栖息地，同时为客户实现经济效益和社会效益最大化。

为此，苏伊士新创建首次引入了“嵌入式污水处理厂”的理念。该理念的核心是：不再将污水处理厂的设计局限于污水处理本身，而是由一个单纯的“污水终端接收者和处理者”转型为一个“环境友好的资源整合者”。通过综合分析上游装置污染物（水、气、渣）的来源、特征和产生过程，对污水处理厂与上游石化装置进行协同设计，利用各环节产生的废物以“废”制“废”，有效减少了污染物的排放，并降低了企业的运行成本，守护了美丽的斑海豹自然保护区。

凭借其对二氧化碳减排和气候变化作出的突出贡献，“嵌入式污水处理厂”在2017年度“法中创新奖”评选中荣获“气候特别贡献奖”。

> “环保是我们石化行业发展的前提。“嵌入式污水处理厂”理念在恒力石化项目的落地，为我们提供了治污新思路，具有很强的示范意义，为石化行业乃至整个工业的绿色发展提供了一种可借鉴的范式。”
>
> **陈琪**
> 恒力石化（大连）炼化有限公司总经理

NEW CONCEPT TO FIGHT AGAINST POLLUTION

EMBEDDED WASTEWATER TREATMENT PLANT

A large Chinese private enterprise in the petrochemical and chemical fibre industry, the Hengli Group is ranked 235th out of Fortune's top 500 global companies in 2018. As the Group's strategic partner in the environmental field, SUEZ NWS has introduced the 'Embedded Wastewater Treatment Plant' ('Embedded WWTP') concept for the first time in its refinery-chemical project with a 20 million tonnes/year integrative installation on Changxing Island, Dalian, to fulfill the 5 development concepts of 'innovation, harmony, greenness, openness and sharing' advocated by the Chinese government and to make substantial contributions to China's '2020 carbon emission reduction target'.

The Hengli Group's refinery-chemical project is located at the seaside of the beautiful Changxing Island and within the Bohai economic circle. Its Bohai Bay region, whose environmental capacity is close to threshold due to high concentration of industrial enterprises, is also one of the most water-deficient areas.

The large-scale project has an annual oil refinery capacity of 20 million tonnes, with 31 sets of main refinery units. The pollutants from various units have complex components, which are difficult to treat. Also, the discharge and reuse standards are very high. The project discharges 36,000 m^3 of refinery wastewater and 7,800 m^3 of reverse osmosis (RO) brine per day, together with the PTA project's annual output of 6.6 million tonnes, the Hengli Group faces pressure of huge total pollutant emission amounts.

Meanwhile, on the other side of the island, just 20 kilometres from the refinery-chemical integration project, there is a beautiful National Nature Reserve for spotted seals. The spotted seal is the only pinniped species bred in the seas across China. As a second-class national protected animal, this rare species inhabits and travels to and fro China, North Korea and South Korea, gradually becoming an independent group. Out of 8 breeding areas for spotted seals around the world, the icing zone in Liaodong Bay, Bohai, is the southernmost area, thus boasting its significance in ecological protection.

> "Environmental protection is the premise of our petrochemical industry development. The operation of 'Embedded WWTP' in the Hengli project provides us with a new concept to prevent pollution. It is a model reference for the green development of the petrochemical industry and even the whole industry."
>
> **Chen Qi**
> General Manager, Hengli Petrochemical (Dalian) Refining & Chemical Co., Ltd.

▲ spotted seal

Therefore, besides meeting the stringent requirements of the project itself, we have the responsibility to adopt advanced ideas and technologies of pollution control to protect the habitats of spotted seals and to maximise both economic as well as social benefits for our clients.

Therefore, SUEZ NWS has introduced the concept of 'Embedded WWTP' for the first time. It supports the core idea that the design of a wastewater treatment plant should no longer be confined to wastewater treatment and should be transformed from a simple 'wastewater end receiver and processor' into an 'environment-friendly resource integrator' instead. Through a synthetic analysis of the sources, characteristics and production processes of pollutants (water, gas, slag) produced by upstream units, we create a collaborative design for the plant and the upstream petrochemical installations. By making use of wastes produced during various processes to treat waste, the 'Embedded WWTP' effectively reduces pollutant emissions, saves operational costs for clients as well as protects the National Nature Reserve for spotted seals.

By virtue of its outstanding contributions to carbon dioxide emission reduction and climate change, the 'Embedded WWTP' won the 'Special Contribution Award to Climate' in the 'Franco-Chinese Teams Innovation Awards 2017'.

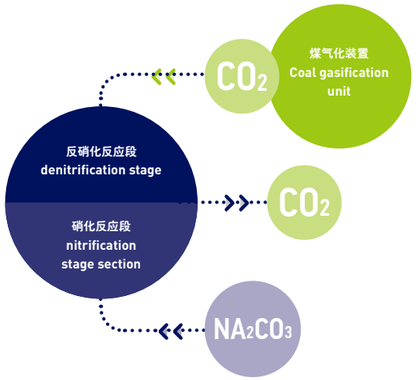
20
MILLION TONNES/YEAR REFINERY-CHEMICAL INTEGRATION PROJECT

31
SETS OF MAIN REFINERY UNITS

36,000
M^3/DAY REFINERY WASTEWATER DISCHARGE VOLUME

7,800
M^3/DAY RO BRINE DISCHARGE VOLUME

图解 “嵌入式污水处理厂”
HOW THE 'EMBEDDED WWTP' WORKS



1

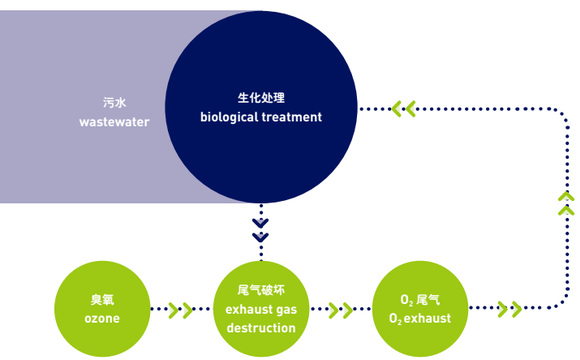
嵌入点 / Embedded point

煤制氢 CO_2 尾气综合利用

将煤制氢产生的大量 CO_2 引入污水处理过程，作为酸碱调节剂。

UTILISATION OF EXHAUST CO_2 IN HYDROGEN-FROM-COAL PRODUCTION

The large amount of CO_2 generated during production of hydrogen from coal is introduced into the wastewater treatment process, as a pH adjusting agent.



2

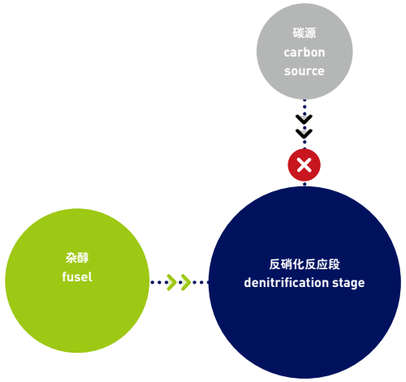
嵌入点 / Embedded point

污水深度处理臭氧尾气综合利用

将臭氧尾气引入生化处理的好氧段，作为补充气源。

NITRIFICATION STAGE SECTION

The exhaust ozone is introduced into the aerobic zone of biological treatment as a complement to the gas source.



3

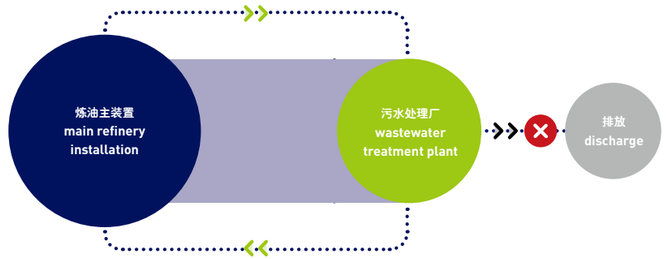
嵌入点 / Embedded point

杂醇利用

将工业废弃的杂醇作为污水处理的碳源使用，不需要补充额外碳源。

UTILISATION OF FUSEL

Fusel, a type of industrial waste, is used as a carbon source for wastewater treatment. So there is no need for extra carbon source.



4

嵌入点 / Embedded point

再生水回用

通过针对性处理工艺，主动提高污水系统出水指标，污水绝大部分回用，少量废水甚至无废水排放。

REUSE OF RECLAIMED WATER

By adopting targeted treatment processes, the plant actively raises the treated water quality index and most of the wastewater is recycled, with little or none discharged.

显著的节能减排降耗效果
SIGNIFICANT EFFECTS OF ENERGY CONSERVATION AS WELL AS EMISSION AND CONSUMPTION REDUCTION

2,116

减少二氧化碳排放 2,116 吨 / 年

Carbon emission reduced by 2,116 tonnes/year

11,000

减少药剂投加 11,000 吨 / 年

Dosing of chemical agents reduced by 11,000 tonnes/year

14 million

减少水资源消耗
1,400 万立方米 / 年

Water consumption reduced by 14 million m^3 year

7.01 million

减少能耗 701 万千瓦 / 年

Energy consumption reduced by 7.01 million kW/year

23 million

降低直接运行成本
人民币 2,300 万元 / 年

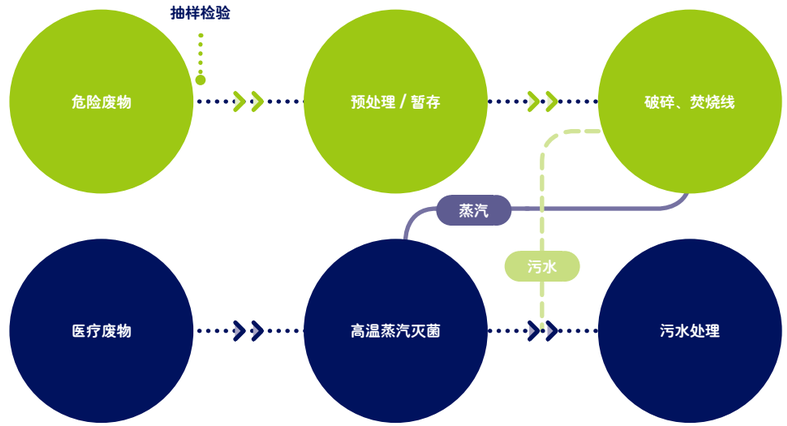
Direct operating costs reduced by RMB 23 million/year

南通，东抵黄海，南濒长江，与上海、苏州隔江相望，西与泰州为邻，西北与盐城接壤，“据江海之会、扼南北之喉”，被誉为“北上海”。南通集“黄金海岸”与“黄金水道”优势于一身，拥有长江岸线 226 公里，是江苏长江经济带的重要组成部分。

南通经济技术开发区作为中国最早批准成立的国家级经济技术开发区之一，经过多年的发展已经拥有现代装备制造、新材料、精细化工、新医药、新能源及现代服务业六大产业集群，其中很多产业在技术水平及制造能力上已经达到世界领先水平。然而，工业的发展不可避免地会带来工业废弃物的产生，其中就包括相当一部分具有腐蚀性、易燃性、毒性等特征的危险废弃物。为此，南通亟须建设一座现代化高标准的危废处置设施，以将工业风险降到最低，促进南通环境的进一步改善以及绿色低碳经济的发展。

基于上海化学工业区危废处置项目的成功经验，2014 年苏伊士新创建在南通经济技术开发区兴建了其在国内的第二个危险废弃物处置项目，并增加了医疗废弃物处置设施，以帮助南通实现对危废的无害化、减量化处置和资源化利用。2016 年项目正式投产，年危废处理能力达 3 万吨，医废处理能力达 3,300 吨。项目遵守各项严格的排放标准，将对环境的影响降到最低：尾气达到欧盟排放标准，并全天 24 小时接受江苏省环保厅的在线监测；燃烧后所产生的粉尘和灰渣经特别处理，填埋于精心选址、有监控且具备合格资质的危废填埋场。危废焚烧过程中所产生的热能被有效回收用于生产蒸汽，同时作为绿色能源供应给南通经济技术开发区中的其他企业和生产设施。另外，项目预留二期设计处理能力 3 万吨 / 年，二期投产后总能力将达到 6 万吨 / 年，成为江苏省最大的单体破碎混合危废焚烧设施。

南通危废处置项目总体工艺路线



江海之会 绿色发展

平稳运营三年来，南通危废处置项目服务了包括巴斯夫、科思创、宝洁、杜邦、陶氏等在内 400 多家客户，处理各类废弃物达 2,000 多种，切实地为南通工业的绿色发展扫除了环保隐患，并实现了资源的循环利用。

> “苏伊士新创建在南通的固废项目实现了节能减排、资源回收的同时，为我们创造了更多的附加价值。愿未来与苏伊士新创建开展更多合作，为中国环境的可持续发展贡献自己的力量。”
>
> **南通醋酸化工股份有限公司**

PROMOTING GREEN DEVELOPMENT WHERE YELLOW SEA AND YANGTZE RIVER CONVERGE

Nantong, with the Yellow Sea to its east, the Yangtze River to its south, Taizhou to its west and Yancheng to its northwest, is separated from Shanghai and Suzhou by a river and is known as the 'Northern Shanghai' for its strategic position connecting northern and southern China. Reputed for its 'Golden Coastline' and 'Golden Waterway' owing to its 226-kilometre bank of the Yangtze River, Nantong constitutes a key component of the Yangtze River Economic Belt in the Jiangsu Province.

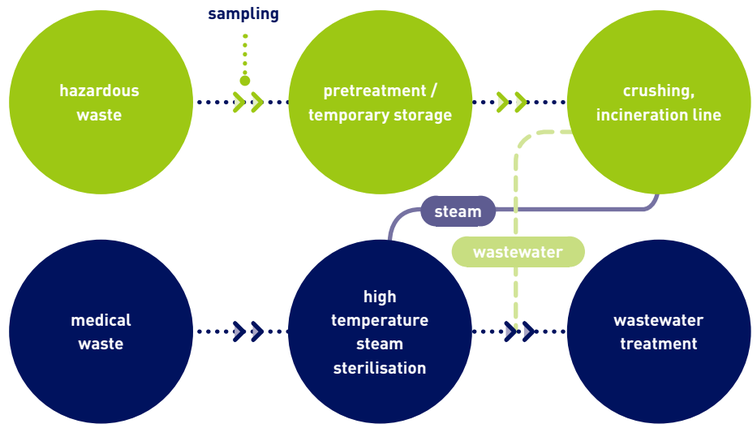
As one of the earliest approved national-level economic and technological development zones in China, the Nantong Economic and Technological Development Zone, after years of development, has set up 6 industrial clusters including modern equipment manufacturing, new materials, fine chemicals, new medicine, new energy and modern service industries, many of which are considered world-class in terms of technical level and manufacturing capability. Industrial development, however, inevitably results in industrial wastes, including a considerable amount of corrosive, flammable and toxic hazardous wastes. Therefore, it becomes paramount for Nantong to put in place a high-standard modern hazardous waste treatment facility so as to minimise industrial risks as well as promote further improvement of the environment in Nantong and development of low-carbon green economy.

Based on the successful experience of Shanghai Chemical Industrial Park's hazardous waste treatment project, SUEZ NWS launched its second hazardous waste treatment project in China in 2014 in the Nantong Economic and Technological Development Zone. The inclusion of a medical waste treatment facility is meant to help Nantong realise harmless, decrement treatment and utilisation of hazardous waste. The project was officially put into operation in 2016, with an annual treatment capacity of 30,000 tonnes and 3,300 tonnes for hazardous waste and medical waste respectively. It complied with stringent emission standards so as to minimise environmental impact - exhaust emission meets the EU emission standard with full-day online monitoring by the Environmental Protection Bureau of Jiangsu Province; dust and ash produced after combustion are specially treated and buried at selected, monitored and qualified hazardous waste landfill sites. Thermal energy generated from hazardous waste incineration are recycled for steam production and supplied to other enterprises and production facilities in the Nantong Economic Development Zone as green energy. In addition, the project has set aside a design treatment capacity of 30,000 tonnes/year for Phase II, whose total treatment capacity will reach 60,000 tonnes/year after it is put into operation, making it the largest single crushing mixing hazardous waste incineration facility in Jiangsu Province.

In the past three years of stable operation, the project has served over 400 clients including BASF, Covestro, P&G, Dupont and Dow, dealing with more than 2,000 types of hazardous waste treatment. It has effectively eliminated environmental risks and realised resource recovery, as part of green industrial development in Nantong.

> "The SUEZ NWS waste project in Nantong has achieved energy conservation, emission reduction and resource recovery, while creating even more added value for us. We hope there will be more opportunities to collaborate with SUEZ NWS in the future, so we may contribute to the sustainable development of the environment in China."
>
> **Nantong Acetic Acid Chemical Co., Ltd.**

OVERALL PROCESS OF NANTONG HAZARDOUS WASTE TREATMENT PROJECT



员工之星

黄丽娟

黄丽娟从澳门到上海，从研究中心工程师到事业部副经理，她作为参与者，见证并亲历了先进技术方案事业部的成立与发展。

Q 您是什么时候加入苏伊士新创建的？能否简单回顾一下您在集团的工作经历？

A 我于 2008 年 3 月加入澳门自来水，一直工作到 2015 年 12 月，这期间曾担任自来水化验及研究中心的工程师、供水部资源管理科副主任。2016 年我加入新成立的先进技术方案事业部任项目经理，2018 年 12 月开始担任副经理。

Q 先进技术方案是苏伊士新创建最新成立的业务单元，是什么促使您决定加入到这个新的团队？

A 澳门自来水作为苏伊士新创建的标杆企业，一般总是最早接触到苏伊士总部各类先进技术方案的。我在澳门自来水工作的几年间已经陆续接触并使用过多项苏伊士智慧水务和先进技术方案的产品，包括 AQUADVANCED® 智慧供水管网、Previor 智慧管网预测工具、Aquacircle 产销差诊断与预测工具等等。对这些产品的熟悉与认可让我在 2016 年因家庭原因决定回上海工作时毅然选择了先进技术方案部门。

Q 在目前的工作中您面临着哪些困难和挑战？是如何克服的？

A 2016 年刚加入先进技术方案的时候，面临各种转变与挑战：项目管理与日常运营的工作方式截然不同，压力也大很多，尤其从甲方到乙方的转变最初让我非常不适应。我在先进技术方案的工作是从通过各类文件的翻译了解产品功能特性开始的，之后逐步作为项目经理管理项目进度、协调与苏伊士总部和客户间的关系，可以说是完全由基础做起。经过 2016 年的适应期后，当 2017 年部门比较有经验的同事离职时，我能够很顺利地接手各个项目。2017 至 2018 年也是部门人手最紧缺的时期，我不仅作为商务人员去推广产品，还负责项目计划与合同的编写，同时在项目的执行过程中管理项目，当然还包括最后的收款。也正是经过这一年的锻炼，让我对整个项目周期都有了充分的了解，这也帮助我在团队和业务迅速增长的现阶段能够很好地去适应并带领团队。

Q 能否分享一件在苏伊士新创建最让您感到骄傲或者难忘的事情吗？

A 上海化学工业区人工湿地概念设计方案中标。第一次接触湿地项目、第一次负责投标、第一次与苏伊士总部的湿地专家和本地设计院进行合作完成技术标、第一次独立完成商务标、第一次独自拉着行李箱去递交投标文件、第一次作为项目解说参加专家评审。整个投标阶段时间紧任务重，我们最终在竞争激烈的四家投标方中夺冠成功中标。我至今仍清楚记得得知中标的那一刻与总部湿地专家的那个拥抱，非常感动与骄傲！

OUR TALENTS

CHERRY HUANG

Cherry Huang, who moved from Macau to Shanghai and made advancement in her career from being Engineer of the Research Centre to Deputy Manager of a BA, had witnessed and was involved in the establishment and development of Advanced Solutions.

Q When did you join SUEZ NWS? Can you briefly review your working experiences in the Group?

A I joined Macao Water in March 2008 and worked there until December 2015. I started as an engineer of the Drinking Water Laboratory and Research Centre before being promoted to Assistant Officer of Resource Management Division of Water Operations Department. In 2016, I joined the newly established Advanced Solutions as Project Manager, and earned a promotion to Deputy Manager in December 2018.

Q Why did you decide to join Advanced Solutions, the newly established BA of SUEZ NWS?

A As a benchmark enterprise founded by SUEZ NWS, Macao Water has first-hand information regarding various advanced solutions from the SUEZ headquarters. Over the years of working at Macao Water, I had come into contact with and used many of SUEZ smart water services and Advanced Solutions products, including AQUADVANCED® Water Networks, Prevoir Smart Networks Prediction Tool, Aquacircle Non-Revenue Water Diagnostic and Prediction Tool, etc.. Since I am familiar with these products and have full recognition for them, I chose to join the Advanced Solutions after I returned to Shanghai for personal reasons in 2016.

Q What are the difficulties and challenges you currently face at work? How do you overcome them?

A When I first joined the Advanced Solutions in 2016, there were various changes and challenges which I had to overcome - project management is entirely different from routine work, and the pressure is much greater, especially with the transformation from Party A to Party B, which I had difficulty adjusting to initially. At Advanced Solutions, I started with understanding the functional characteristics of products through translation of various documents, and then gradually learned to manage project progress and coordinate between SUEZ headquarters and clients as Project manager, all of which required me to start with the basics. After a period of orientation in 2016, I was able to take over various projects smoothly when more experienced colleagues of the BA left in 2017. The BA was most short-staffed from 2017 to 2018, I not only had to promote products as a sales person but was also responsible for project planning and contract drafting, in addition to managing projects during the implementation process and collecting final payments. After a year of training, I have developed a full understanding of the entire project cycle, which also helps me to adapt to and lead the team at the current stage of rapid growth of both the team as well as the business.

Q Can you share with us one of the proudest or most memorable moments you have had at SUEZ NWS?

A We won the bid for the Shanghai Chemical Industrial Park's artificial wetland conceptual design, which had brought me many new experiences – undertaking the wetland project for the first time, taking charge of bidding for the first time, collaborating with wetland experts from SUEZ headquarters and the local design institute to complete the technical bid for the first time, completing the commercial bid independently for the first time, submitting tender documents by myself with my luggage for the first time, and participating in expert review as project commentary for the first time. With a tight time schedule and multiple tasks to be completed during the tendering phase, we managed to beat 3 other strong contestants and emerged winner of the tender. I could still remember giving the wetland expert from the headquarters a hug upon learning the bid had been won. It made me feel really touched and proud.

员工之星

康瑾

康瑾毕业于同济大学中法合作项目的环境科学与工程专业。她于 2005 年加入集团，通过自身的努力从合作公司一线员工成长为中层管理人员，近 15 年的时光见证了她与集团共同成长的一点一滴。

Q 您是什么时候加入苏伊士新创建的？能否简单回顾一下您在集团的工作经历？

A 2005 年 9 月，我从学校毕业之后就加入了集团，第一份工作就加入了集团在亚洲最大的危废处置项目：上海化学工业区升达废料处理有限公司（“上海化工固废资源管理”）。在这里我一共工作了 11 年，从一线的生产班长、工艺工程师，到工艺安全经理，再到运营经理。2016 年 9 月，结合我个人发展方向和公司业务发展的需求，我从上海化学工业区转岗到苏伊士新创建固废资源管理，为生活垃圾和工业垃圾、危险废物两条业务线提供技术及运营支持。

Q 对于上海化工区的这段工作经历，您有什么特别的收获吗？

A 上海化工固废资源管理的工作经历对我个人来说意义重大，可以说我所有的工作经验和个人成长都和公司的发展结合在一起，对我来说，这不仅是一份工作，我也在这些年里逐步找到了自己的发展方向。我在公司的第一个岗位是生产班长，随着个人发展的需求和公司管理层的支持，我逐步从技术人员转向技术管理及生产管理，可以说是工程师向管理岗位转变的理想路径。在这里，我特别想感谢一下公司的历任领导，特别是 Philippe Allouche 和 Benjamin Chan，帮助我明确个人发展道路，并引导我发展各项职业技能。

Q 在目前的工作中您面临着哪些困难和挑战？是如何克服的？

A 为了配合生活垃圾和工业垃圾、危险废物两条业务线的发展需求，技术和性能保证部门于 2018 年 11 月正式成立，我也被任命为该部门的经理。这个新的部门的成立旨在保证两条业务线的已有业务按照集团相关标准运行并推动精益生产，同时为新业务的开展提供技术及管理支持，以确保集团在生产管理方面始终处于领先地位。这是一个充满挑战的部门，它的服务范围除了包含危险废物以外，还需要兼顾生活垃圾焚烧、有机废物资源化以及建筑垃圾等其他处置类型，随着新业务的开展，地域范围和业务类型上都将进一步扩充，如何尽快地适应并为相关方提供支持对我个人和我的部门来说都将是重大的挑战。目前我们正在进一步总结与危险废物相关的基本运行管理要求，并和总部的技术及性能保障部门对接，根据目前两条业务线的发展需求制定工作计划，分步实现各个业务类型的运行标准，并以此为基准逐步开展精益生产。应该说我们已经识别出困难，并在解决困难的道路上迈出了第一步，希望随着两到三年的发展，这些问题可以得到彻底解决。

Q 能谈谈您的家庭吗？在繁忙的工作中您是如何做到家庭事业平衡的？

A 我的个人生活比较简单，我和先生育有两个孩子，女儿 8 岁，儿子不到 3 岁。其实说到家庭和事业的平衡，这个问题的确很难回答，每个人都有自己的具体背景和选择，选择继续追求个人发展就意味着对孩子和家庭的照顾不能做到全心全意，不得不说是有些遗憾的。很幸运的是我的家庭一直给予了我强大的支持，我父母和公婆都愿意帮助我们照顾孩子的日常生活，我先生和我都很重视对孩子的陪伴，这让我在工作和出差的时候不用分心，而在回到家的时候我唯一的角色就是妈妈，希望能尽可能专心地陪伴孩子和家人。

OUR TALENTS

KANG JIN

Kang Jin graduated from Tongji University's Sino-French joint programme with a major in Environmental Science and Engineering. She joined the Group in 2005 and has grown from a front-line staff into middle management through her own efforts. For the last 15 years, she has made progress together with the Group.

Q When did you join SUEZ NWS? Can you briefly review your working experiences in the Group?

A I joined the Group in September 2005 after graduating from university. I was first involved in the largest hazardous waste treatment project in Asia - Shanghai Chemical Industry Park SITA Waste Services Co., Ltd. ('SCIP R&R'). where I worked for 11 years, and my job scope covered that of front-line Production Shift Leader, Process Engineer, HS Manager as well as Operations Manager. In September 2016, to meet the needs of both my personal development as well as the company's business development, I was transferred from SCIP to SUEZ NWS R&R to provide technical and operational support for the business lines of municipal and industrial waste as well as hazardous waste.

Q Have you gained anything special from your working experience in SCIP?

A The working experience in SCIP R&R means a lot to me personally. In a way, all my work experiences and personal growth have been closely tied with the development of the company. For me, this is more than just a job, I have gradually found my own career development direction after all these years. I was first employed as a production shift leader. Then, with my personal development needs and the support of the company management, I gradually made a switch from technical support to technical management and production management, which was considered an ideal path for engineers as they take on the position of a manager. I would like to take this opportunity to express my gratitude to all the leaders of the company, especially Philippe Allouche and Benjamin Chan, for helping me define my personal development path and guiding me in the development of my professional skills.

Q What are the difficulties and challenges you currently face at work? How do you overcome them?

A In order to meet the development needs of both business lines of municipal and industrial waste as well as hazardous waste, the Technical and Performance Assurance Department was formally established in November 2018, and I was appointed as manager of the team. The new department aims to ensure that the existing businesses of both lines operate in accordance with the relevant standards of the Group and that lean production can be promoted, while providing technical and management support for the development of new businesses so as to make sure that the Group maintains a leading position in production management. This is a department full of challenges. Besides hazardous waste service, it also covers other treatment models such as municipal waste incineration, organic waste recycling and construction waste. Along with the development of new businesses, it will be further expanded in terms of geographical scope and business type. The challenge for my team and myself is to find ways to adapt and provide support for the relevant parties quickly. We are currently in the process of summarising the basic operation management requirements related to hazardous waste treatment and making the coordination with the Technical and Performance Assurance Department of the headquarters to formulate work plans based on the development needs of the existing two business lines and realise the operational standards of different businesses step by step, gradually carrying out lean production on this basis. As such, we have identified the difficulties and have taken the first step to resolve them. Hopefully, with two to three years of development, these issues can be resolved completely.

Q Can you share with us more about your family? How do you balance work and life despite a demanding work schedule?

A My personal life is relatively simple. My husband and I have two children - an 8-year-old daughter and a less than 3-year-old son. In fact, when it comes to work-life balance, there is no perfect answer to the question. Everyone has his or her own background and choice. When you choose to continue pursuing your personal development, you have to compromise on the care of your children and family. There is bound to be regrets. Fortunately, my family has been very supportive of me. Both my parents as well as my in-laws are willing to help take care of our children, and my husband and I try to spend time with our children whenever possible. This allows me to stay focused at work and during business trips. When I get back home, I take on the role of a mother, and I hope to devote all my time to my children and family.

敦刻尔克引入法国首个环保并具有社会包容性的水价方案

敦刻尔克，这座位于法国东北部靠近比利时边境的港口城市，十分重视社会和谐与可持续发展问题，这意味着他们要应对双重挑战：在鼓励对环境负责任行为的同时，确保每个人都能够获得清洁用水。为此，2012 年当地政府决定引入法国首个环保并具有社会包容性的水价方案，并由苏伊士主导这一开创性方案的实施。

敦刻尔克在十几年前就开始推行可持续发展的生活方式，并取得了显著的进步，特别是在水资源管理方面，效果尤为突出。大自然中可饮用水资源每年在以 15 亿升的速度减少。为此，一个环保并具有社会包容性的水价方案于 2011 年应运而生，并迅速在这座城市落地生根。该方案根据用水量差异性定价，是敦刻尔克用水联合会、苏伊士以及很多其他社会团体共同参与和广泛讨论的结果，并迅速地成为示范性举措。该方案具有环保性，因为它旨在鼓励居民做出更明智的选择（减少用水），同时它也有社会包容性，因为充分考虑了方案会给不同收入家庭带来的影响。

苏伊士在广泛咨询、确定技术方案以及定价设计方面为敦刻尔克地方政府提出过多项创新型建议。通过“公平用水”计划，集团现在能够向所有客户提供合适的定价方案。在敦刻尔克，苏伊士自 2005 年起，为其管理公共供水和污水处理服务，通过在该地区多年的研究和多方调研，最终确定了最优化的水价方案。

使用范围，价格范围……如何制定既环保又有社会包容性的水价方案？

该定价方案的亮点在于既考虑了用水量，也考虑了家庭成员构成和收入的影响，这也与法国政府希望在全法测试阶梯水价的计划一致。它的原则是首先对所有居民基本用水以较低的价格计费，然后上调超出基准量的用水价格。上浮范围根据困难家庭的社会指标进行了加权，选择这些家庭的标准则是依据全民补充医疗计划（“UAMC”），8,600 户当地城市家庭已从该补充医疗计划中受益。

该方案根据用水量制定了三档价格，分别为“基本用水”、“增值用水”以及“享受用水”。这一划分最主要的创新之处在于“基本用水”（食品及卫生用途）的设定。据测算，敦刻尔克每个家庭每年理论上需要 75 立方米的“基本用水”，这意味着家庭年用水量在 0 到 75 立方米之间时，能够享受到基于之前水价 20% 的折扣优惠（折后水价：0.83 欧元 / 立方米）。此外，对于那些享受 UAMC 计划的家庭更有 70% 的大比例降幅（折后水价：0.32 欧元 / 立方米）。该定价结构同时考虑了家庭规模问题，大家庭可以通过“用水支票”的形式享受额外的价格补贴，即从家庭的第六位成员开始，每人每年可以获得 12 欧元的补贴。

而当用水量在 76 到 200 立方米之间时，也就是到达“增值用水”档（洗涤、浇灌花园等），水价为每立方米 1.53 欧元。当用水量超过 200 立方米到达“享受用水”档时，水价会上调到每立方米 2.04 欧元。此外，我们还建立了一个特别机制以赞助专业的节水行为：“可持续用水基金会”鼓励企业经营者投资改进设施，以减少用水，保护这一日益稀缺的珍贵资源。为了筹措基金会资金，最后一档的使用者每立方米用水需额外支付 0.01 欧元。

评估是为了下一步的发展

该水价方案启动后，“环保及社会包容性论坛”也同时成立。论坛成员包括了当地居民、地方政府和社会保障团体，其目的是为了评估用水趋势、保证措施的有效性和根据当地居民需求进行再调整。通过为期一年的运作和对 1,000 多位居民的访谈，评估报告显示尽管有些地方还需要调整，但整体反馈是非常积极的。报告显示 70% 的人认为该方案在环保方面有正面意义，63% 的人认可该方案的社会包容性。

环保并具有社会包容性的水价方案、阶梯水价、季节性水价和社会合作基金，这些都是苏伊士在近几年与地方政府共同实施的众多水价定价解决方案中的一部分。集团正通过“公平用水”计划支持地方政府实施合适的水务政策，确保所有人在获得清洁用水的同时保护水资源。敦刻尔克在这方面无疑是一个典范。

DUNKIRK INTRODUCES THE FIRST ENVIRONMENTALLY-FRIENDLY AND SOCIALLY INCLUSIVE WATER PRICING SCHEME IN FRANCE

Dunkirk, a harbour city located in the northeast part of France close to the border of Belgium, attaches great importance to the values of social harmony and sustainable development. That means a two-fold challenge - encouraging environmentally responsible behaviour and ensuring clean water for everyone. Therefore, in 2012, the local authority decided to operate the first environmentally-friendly and socially inclusive water pricing scheme in France, an innovative and pioneering project led by SUEZ.

It has been over ten years since Dunkirk adopted a sustainable development approach, which made impressive progress, particularly where water is concerned. The amount of drinking water captured in the natural environment reduces by 1.5 billion litres per year. Therefore, the idea of an environmentally-friendly and socially inclusive water pricing scheme emerged and rapidly took hold in this city in 2011. This approach to consumption and differentiated water pricing, which is the result of an extensive consultation process involving the Dunkirk's Water Syndicate, SUEZ and many other social players, promptly became a model project. It is environmentally-friendly because it aims to encourage residents to make wise choices (consume less water). It is socially inclusive because we are dealing with a system that takes households' income into account.

SUEZ spearheaded proposals relating to consulting, technical solutions, and price engineering in order to assist Dunkirk's local authority. Thanks to its 'Fair Water' initiative, the Group is now offering appropriate pricing solutions to all its customers. In Dunkirk, where SUEZ has been managing public water and sanitation services since 2005, several years of research and reviews involving various players in the region ultimately enabled an optimal solution to be defined.

APPLICATION SCOPE, PRICE RANGE… HOW TO DEVELOP A WATER PRICING SCHEME THAT IS ENVIRONMENTALLY-FRIENDLY AND SOCIALLY INCLUSIVE?

The novel aspect of this scheme, which is in keeping with the French government's desire to test progressive water pricing throughout France, is to take both the amounts consumed as well as households' resources and composition into account. The principle consists of invoicing the initial amounts consumed to all residents at a low price, and then increasing the price beyond a certain volume. This increase is weighted using a social indicator that applies to vulnerable households. The criterion used to select these households is Universal Additional Medical Cover ('UAMC'). 8,600 local households have benefitted from such cover within the urban area.

Three price ranges have been introduced depending on the level of water use, i.e. 'essential' water, 'useful' water and 'luxury' water. The key innovation lies in the range referred to as 'essential water' (for food and hygiene). It takes into account the theoretical consumption of 75 m³ of 'essential' water per household per year. This means that, for volumes of water ranging between zero and 75 m³, households will benefit from a 20% decrease in the price of water (0.83 euros/m^3) compared with the tariff applied previously, plus a significant reduction of 70% for households covered by the UAMC scheme (0.32 euros/m^3). This pricing structure also gives due consideration to the size of households. In the case of large families, an additional price supplement will be made in the form of a 'Water Cheque' for 12 euros per person per year as from the 6th member of the household.

The bill will be 1.53 euros/m^3 for consumption ranging between 76 m³ and 200 m³, i.e. 'useful water' (laundry, watering the garden, etc.), and the price will then rise to 2.04 euros/m^3 for amounts in excess of 200 m³. A device has also been set up to fund initiatives by professionals - the 'Sustainable Water Fund' which encourages business operators to invest in order to reduce their consumption and to protect the resource that is becoming increasingly scarce and more precious every day. In order to finance the fund, the price of water rises by 0.01 euros/m^3 for this range of users.

ASSESSING TO MAKE FURTHER PROGRESS

Once the scheme had been launched, an 'Environmentally-Friendly and Socially Inclusive Forum' was formed, comprising residents, local authorities and social security organisations, in order to assess the trend in water consumption, the effectiveness of the measures implemented and its adaptation to the needs of residents in the territory. After a year in operation and interviews with more than 1,000 people, the review has shown that feedback is positive, although some adjustments need to be made. 70% of the people have a positive opinion of the scheme's environmentally-friendly aspect, while 63% have a positive opinion of its socially inclusive aspect.

Environmentally-friendly and socially inclusive pricing, progressive pricing, seasonal pricing and social solidarity funds are some of the many water pricing solutions that SUEZ has implemented with local authorities in recent years. The Group is supporting local authorities that want to implement a water policy to ensure clean water for everyone via the roll-out of its 'Fair Water' initiative, while making efforts to protect water resources. The Dunkirk region is undoubtedly a role model as far as this new pricing plan is concerned.

蒙彼利埃能源再生新标杆

苏伊士利用厌氧消化技术将超过 51% 的有机废弃物转化为资源

法国蒙彼利埃市十分重视废弃物的资源化利用，并在这方面不断提出更高的要求。由苏伊士为该市管理运营的 Amétyst 绿色能源工厂，利用厌氧消化技术将有机废弃物转变为资源，并通过投资扩能，年发电能力提升了 50%，并显著减少了垃圾填埋量。

蒙彼利埃位于法国南部，是埃罗省的省会，法国南部重要的工商业中心。位于地中海沿岸的蒙彼利埃，全年温暖且日照充足，几乎没有冰雪天气，被称之为“阳光之城”。

苏伊士自 2008 年起开始通过管理 Amétyst 绿色能源工厂，应用厌氧消化技术处理生活垃圾，为蒙彼利埃 43 万居民供热供电。该项目目前是法国同类型工厂中最大的。然而，蒙彼利埃当地政府并不止步于此，他们希望能进一步扩大再生能源产量，同时减少送往填埋场的垃圾量，加快该地区的循环经济发展。

苏伊士凭借其专业背景，为蒙彼利埃提供了完备的解决方案：通过提高生活垃圾回收处理能力，以及为有机废弃物回收产业的发展创造必要条件，将不同类型废弃物转换为新的能源。

苏伊士投资 1,000 万欧元，将 Amétyst 绿色能源工厂的产能扩大了 50%，2017 年发电 2.3 万兆瓦时、产热 1.2 万兆瓦时。目前该地区超过半数的废弃物都被转化为了新能源。

高效的能源循环利用技术与将有机废弃物转化为堆肥的新工艺相结合，有助于显著减少垃圾填埋量。在欧洲，Amétyst 项目已成为运用厌氧消化技术处理生活垃圾和有机废弃物的新标杆。

>51%
该地区超过 51% 的废弃物被转化为新能源

17.3
每年处理生活垃圾 17.3 万吨

33,500
每年生产 33,500 吨标准化堆肥

A NEW BENCHMARK FOR ENERGY REGENERATION IN MONTPELLIER

SUEZ CONVERTS MORE THAN 51% ORGANIC WASTES INTO RESOURCES THROUGH THE USE OF ANAEROBIC DIGESTION TECHNOLOGY

Montpellier, a city in France, attaches great importance to the recycling of wastes and continuously sets high standards in this aspect. The Amétyst green energy plant, managed and operated by SUEZ, converts organic wastes into resources through the use of anaerobic digestion technology. By increasing investments and expanding its capacity, its annual power generation capacity has thus been improved by 50%, with a significant decline in landfill capacity.

Located in southern France, Montpellier is the capital of Hérault and an important industrial and commercial centre in southern France. Thanks to its proximity to the Mediterranean Sea, Montpellier is warm and sunny throughout the year, with hardly any icy or snowy weather, so it is called the 'City of Sunshine'.

Since 2008, SUEZ, which is responsible for the management of the Amétyst green energy plant, has been applying anaerobic digestion technology in household waste treatment and supplying heat and electric power to 430,000 residents in Montpellier. The project is currently the largest among plants of the same kind in France. Despite this, the local government still hopes to further expand the production of renewable energy and cut down on the amount of waste going to landfills so as to speed up the development of circular economy in the region.

By virtue of its professionalism, SUEZ has provided a complete set of solutions for Montpellier - converting different types of wastes into new energy by improving the recycling capacity of household wastes and creating necessary conditions for the development of the organic waste recovery industry.

SUEZ has invested 10 million euros to expand the capacity of the Amétyst green energy plant by 50%. In 2017, it produced 23,000 MWh of electricity and 12,000 MWh of heat. At present, more than 50% of the wastes have been converted into new energy in the region.

By combining the highly efficient energy recycling and utilisation technology with a new technology that converts organic wastes into compost, it will help significantly reduce landfill volume. In Europe, the Amétyst project has become a new benchmark for the treatment of household and organic wastes through the use of anaerobic digestion technology.

More than 51% of wastes have been converted into new energy in the region

173,000 tonnes of household waste treated annually

33,500 tonnes of standard compost produced annually

Q 您是什么时候加入苏伊士新创建的？能否简单回顾一下您在集团的工作经历？

A 我是 2008 年 2 月加入苏伊士新创建的，转眼已经在这个充满活力、充满希望、充满温暖的大家庭工作了 10 年。10 年来，我一直在方案部工作，先后参与、组织了多个给水及污水处理方案项目，也亲历和见证了公司的壮大。这期间，集团还选派我赴法国总部工作学习了 4 个月，直接参与海水淡化项目的投标工作。俗话说，十年磨一剑，通过常年工作的积累以及团队的支持帮助，我自己也从一名方案项目的组织者，逐渐成长为一名带领方案市政团队砥砺前行的“队长”。面向未来，我们有信心把方案工作做得更出色。

Q 在目前的工作中您面临着哪些困难和挑战？是如何克服的？

A 当前的环保市场正处于蓬勃上升趋势，国内的水厂提标及环境区域治理也全面推进。这对我们既是难得的机遇，也是巨大的挑战。如何支持集团在新一轮科技浪潮和激烈的市场竞争中稳中求胜，这就要求我们整个团队也包括我本人，必须增强战略眼光、把握未来技术走势，在方案上不断推陈出新、与时俱进，通过精准的服务，打造和巩固我们的品牌。

Q 我们了解到您曾作为学员参加过苏伊士新创建的导师计划？能否谈谈您的收获？

A 作为学员，我很荣幸参加了 2016-2017 年度的苏伊士新创建导师计划。我认为，这个计划很有意义，效果明显，最核心的是导师们帮助学员把自己的才华、责任、思考与日常工作及未来发展紧密融合起来。学习期间，我的导师经常通过分享他的管理经验，向我传授从更高层面分析问题的方式以及更宽广的思路，使我在日常管理工作中遇到难题时，能够更加着眼全局、从容应对。所以，我也建议这个计划能够坚持办下去。

Q 能否分享一件在苏伊士新创建最让您感到骄傲或者难忘的事情？

A 日常工作中经常都会有新收获。组织澳门大水塘水厂三期工程的方案项目，就给了我一次非常难忘的经历。这个项目包括对现有系统的优化以及增加新系统。由于水厂处于正常运行状态，因此在方案设计时需要重点考虑优化措施对现有系统的影响。为了尽可能降低停产次数、减少停产时间，在整个方案准备过程中，由方案、设计、执行部门同事组成的团队多次赴澳门现场考察，与业主沟通交流，充分了解业主需求。在北京办公室，团队经常集体讨论、群策群力，最终提交了一份满意答卷，受到了业主的高度好评。从这件事中，我们深刻体会到了什么是集团的“客户至上”、“承诺”、“合作”、“从差异中学习”的精神，也充分感受到了作为国际一流企业所应有的品质与情怀。

OUR TALENTS

SHU MINGJUN

At present Shu Mingjun is Deputy Director of Treatment Infrastructure's Proposal Department As a senior staff of the Proposal Department, she had participated in many key water supply and sewage treatment projects.

Q When did you join SUEZ NWS? Can you briefly review your working experiences in the Group?

A I joined SUEZ NWS in February 2008 and have been with this big family full of vitality, hope and warmth for 10 years. For all these years, I have been serving in the Proposal Department of Treatment Infrastructure. I had participated in and organised a number of water supply and sewage treatment projects, as well as witnessed the growth of the company. I also had the opportunity to work and train in the headquarters in France for 4 months, during which I was directly involved in the bidding of desalination projects. As the saying goes, 'it takes ten years to grind a sword', after years of work experience and support from the team, I have gradually grown from a project organiser into the 'captain' of a municipal proposal team. We are confident of doing a better job in the future.

Q What are the difficulties and challenges you currently face at work? How do you overcome them?

A The present environmental protection market is on an uptrend, with the water plant upgrading and environmental governance by regions in China, which is both a rare opportunity as well as a great challenge. To support the Group's victory in the face of new technologies and fierce market competition, both our team and myself will have to enhance our strategic vision, grasp the future technology trend as well as constantly offer innovative solutions and keep pace with the times, such that we may build and consolidate our brand through precise service.

Q We understand that you have taken part in the Mentoring Programme as a mentee. How have you benefitted from the Programme?

A As a mentee, I am privileged to join the SUEZ NWS Mentoring Programme 2016-2017. Personally, I think it has been very meaningful and effective. The mentors helped mentees integrate their talents, responsibilities, thinking with their daily routines and future development. During the Programme, my mentor often shared his management experiences and taught me to analyse problems from a higher level as well as to think more open-mindedly, so that I could be more focused on the overall situation and learn to deal with the issue calmly when I encounter any difficulty during the course of my management work. Therefore, I strongly recommend that the Programme be carried on.

Q Can you share with us one of the proudest or most memorable moments you have had at SUEZ NWS?

A There is always something new to gain in my daily work. The organisation of Macau MSR Phase III project was a very memorable experience. The project includes the optimisation of the existing system and the construction of new systems. As the water plant was still running normally, we had to take into account the impact of optimisation measures on the existing system in the course of design. In order to cut down on both number and length of time of shutdowns as much as possible, a team comprising colleagues from the Proposal, Design and Execution departments made site visits to Macau on several occasions during the preparation of the plan and communicated with the proprietor regarding their needs. The team often held discussions in the Beijing Office and worked collectively to submit a satisfactory proposal, which was highly appraised by the proprietor. This has made us deeply understand the Group's spirit of 'customer orientation', 'commitment', 'partnership' and 'learning from differences' as well as fully feel the quality and sentiment of being a world-class enterprise.

员工之星

王缘

王缘现任江苏中法污水处理有限公司（“江苏中法污水”）总经理，他曾服务于集团多个合作公司，上海、重庆、常熟都留下了他的足迹，也让他从一名同济大学中法合作项目的毕业生迅速成长为水务运营方面经验丰富的管理者。

Q 您是什么时候加入苏伊士新创建的？能否简单回顾一下您在集团的工作经历？

A 2007 年 11 月我作为合作公司招聘的员工开始了在上海化学工业区的工作。2008 年 3 月开始担任公司污水处理厂厂长，负责整个污水处理厂的运行管理。2012 年 8 月到重庆唐家沱担任总工程师，同样负责污水处理厂运行技术方面的工作。2013 年 3 月开始在重庆长寿化工项目担任总工程师，分管客服部、工程部以及质安监部。2015 年 4 月开始在江苏中法污水处理有限公司（“江苏中法污水”）工作，任常务副总，2016 年担任总经理至今，主要负责其污水业务的运营管理以及业务拓展。

Q 在目前的工作中您面临着哪些困难和挑战？是如何克服的？

A 江苏中法污水是个新公司，成立时间不长，但是自 2015 年成立以来发展很快，业务拓展得也很多，目前污水板块已经有五座市政污水处理厂、四座工业污水处理厂以及一座在建的日处理能力 12 万立方米的市政污水处理厂。专业技术人员紧缺的问题也越来越明显，同时，业务的快速发展、政府及业主方对我们要求的不断提高，也让我们越来越感受到压力和挑战。克服的方法其实就一个，就是：牢牢记住污水处理厂的安全和达标运行是我们工作的首要任务。只要我们的各项工作都是围绕着这一核心展开，并灵活地根据各方面的情况及时调整，我相信任何困难都是可以被克服的。

Q 能否分享一件在苏伊士新创建最让您感到骄傲或者难忘的事情？

A 当我们在介绍自己所在的公司时，发现越来越多行业外的人都开始知道我们公司，这个挺让人感到骄傲的。

Q 苏伊士新创建是您目前唯一工作过的企业，是什么让你留了下来？对未来的职业生涯你有什么畅想吗？

A 公司不断的给我机会去表现我的能力，让我的价值得到体现，所以留在公司是理所当然的事。希望通过自己的努力，为公司不断地创造价值，也希望将来在公司能够有更好的发展机会。

OUR TALENTS

TONY WANG

Tony Wang, General Manager of Changshu Sino French Wastewater Treatment Co. Ltd. ('Changshu Wastewater') , used to serve in several joint ventures within the Group and has worked in Shanghai, Chongqing and Changshu. With such valuable working experience, he has grown from a graduate of Tongji University's Sino-French joint programme into an experienced manager in water operations.

Q When did you join SUEZ NWS? Can you briefly review your working experiences in the Group?

A In November 2007, I started working in the Shanghai Chemical Industry Park as a staff recruited by the joint venture. Then, in March 2008, I was promoted to the JV's Plant Manager, responsible for the operation and management of the wastewater treatment plant. I was transferred to Tangjiatuo, Chongqing, in August 2012 as Chief Engineer, responsible for the plant's technical aspects in operation. In March 2013, I took on the position of Chief Engineer in the project of Chongqing Changshou Chemical Industry Park and was made in charge of Customer Service, Engineering as well as Quality & Safety departments. Since April 2015, I have been working in Changshu Wastewater, firstly as Executive Deputy General Manager and then General Manager from 2016 till now, mainly in charge of Changshu Wastewater's operation management and business development.

Q What are the difficulties and challenges you currently face at work? How do you overcome them?

A Changshu Wastewater is a newly established company, but since its founding in 2015, it has been developing and expanding rapidly in terms of business. At present, our wastewater sector consists of five municipal wastewater plants, four industrial wastewater plants and one municipal wastewater plant with a daily treatment capacity of 120,000 m^3 that is currently under construction. The shortage of professional and technical personnel is becoming more obvious. At the same time, with rapid business development and continuous increase in demand by the government and proprietors, we have to cope with greater pressure and challenges. The only way to overcome this is to bear in mind that respecting the safety and quality standards of wastewater treatment plants are our top priority. As long as we stick to this core principle and make adjustments flexibly and timely according to various situations, I believe that we can overcome all difficulties.

Q Can you share with us one of the proudest or most memorable moments you have had at SUEZ NWS?

A When we introduce our company and find that more and more laypeople start to know our company, it makes me feel very proud.

Q As the only company you have worked for so far, what is the positive factor you like about SUEZ NWS? What do you think of your future career?

A I have been given many opportunities to show my ability and realise my personal value, which is why I choose to stay on in the company. I hope to create value for the company through my own efforts and have better development opportunities in the future.

作为一家领先的环境企业，苏伊士新创建不仅提供创新、循环的解决方案实现餐厨垃圾的回收利用，更是倡导每一位员工在日常生活中践行绿色环保的餐饮习惯，杜绝食物浪费。

As a leading environmental company, SUEZ NWS not only provides innovative and recycling solutions to realise food waste recovery, but also encourages all staff to cultivate green diet habits and say 'no' to food waste in their daily life.

舌尖上的环保
杜绝食物浪费
A BITE OF ENVIRONMENTAL PROTECTION NO FOOD WASTE

“舌尖上的环保”小贴士
TIPS FOR 'A BITE OF ENVIRONMENTAL PROTECTION'

01 源头减废

- 贯彻“光盘行动”，适量取食，不留剩饭剩菜；
- 了解食材的正确存放方法和使用期限，避免因过期导致的浪费。

02 餐厨分类

- 如所在社区拥有餐厨垃圾回收和利用系统，则务必将餐厨垃圾单独分类；
- 了解家庭餐厨垃圾的循环利用方法，如：制作酵素、堆肥等，在家中实现就地回用；
- 选择到餐厨垃圾处理较规范的餐厅用餐。

03 可持续的餐饮

- 降低食用外卖的频率，以减少一次性餐具的使用；
- 尽量购买本地食材，多食素食，以减少食材生产和运输过程中的碳排放；
- 了解并食用“可持续海产品”*。

01 REDUCE FOOD WASTE AT SOURCE

- Implement 'Clear-The-Plate Action' and take only what you need to avoid leftovers;
- Learn to store food correctly and consume prior to best before date to avoid waste due to expiry.

02 FOOD WASTE SORTING

- If there are food waste collection and recycling facilities in your community, please make sure that you sort the food waste separately;
- Know more about the household recycling methods of food waste, such as: making enzymes, compost, etc. for reuse at home;
- Choose to have meals in restaurants that treat food waste properly.

03 SUSTAINABLE DINING

- Have less takeaway food to cut down on the use of disposable tableware;
- Consume local products and vegetarian food to reduce carbon emission caused by food production and transportation;
- Be aware of and take 'sustainable seafood'.

可持续海产品是指通过可持续养殖和捕捞方式收获的海产品（鱼类、甲壳类、贝类）。海洋管理委员会（MSC）和水产养殖管理理事会 (ASC) 的认证商标最为著名，它们可以帮助人们正确选购可持续海产品。此外，世界自然基金会 (WWF) 的《海鲜消费指南》也能帮助消费者识别可持续海产品。

Sustainable Seafood refers to the seafood products (fish, crustaceans and shellfish) that have been harvested in a sustainable manner, with respect for life in the oceans. The Marine Stewardship Council (MSC) and the Aquaculture Stewardship Council (ASC) are best known for their quality labels that help people to make a sustainable choice. The Seafood Guide published by World Wide Fund Nature (WWF) is also helpful for consumers to identify the Sustainable Seafood.

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