



Project Innovation Awards

IWA PROJECT INNOVATION AWARDS 2010

I Introduction

The International Water Association (IWA) Project Innovation Awards (PIA) programme was created to recognize excellence and innovation in water engineering projects around the world, and highlight the belief and emphasis within the IWA community that solutions to our water challenges can be achieved through innovative and practical solutions.

The PIA runs on a two-year cycle, with entries competing first at the regional level for regional awards, and with regional winners advancing into the global awards competition for the grand awards. Applications for the 2010 PIA commenced on 9 November 2009 and closed on 12 February 2010.

II Programme Concept

Eligibility

The PIA is open to applicants who may be individuals, and companies, organizations, governmental bodies, or any combination of the above, whether or not the organization is a member of IWA.

Award Categories

Entries are submitted for competition in one of the following five awards categories:

- Applied Research Projects - Research of an applied nature that advances the state of the art in water engineering including research leading to new improved water engineering equipment (process, control, instrumentation, etc.).
- Design Projects - Design of water/wastewater facilities including projects delivered by alternate methods, such as design-build or design-build-operate.
- Operations/Management - Operations or management of water/wastewater or related facilities, a pollution programme, or environmental regulatory programmes (local, national or regional).
- Planning Projects - Planning related to a water/wastewater control project, system or water/wastewater management facilities or activities.
- Small Projects - Any applied research, planning, design or operations/management work as defined in the above categories related to a potential capital expenditure of less than €4million or an operations/management activity with an annual budget of less than €400,000.

The projects first compete at the regional rounds in one of the following regional bases, i.e. Asia Pacific, East Asia, Europe and North America¹. A project may be entered into a regional base if it satisfies either of two conditions: - (a) project was executed in a location within the regional base, or (b) the company or organisation responsible for the project is based within the regional base. In the 2010 PIA, we have added a fourth regional base – the East Asia region – to reflect the growing global interest in the PIA Programme and to encourage more applications from Asia, including China.

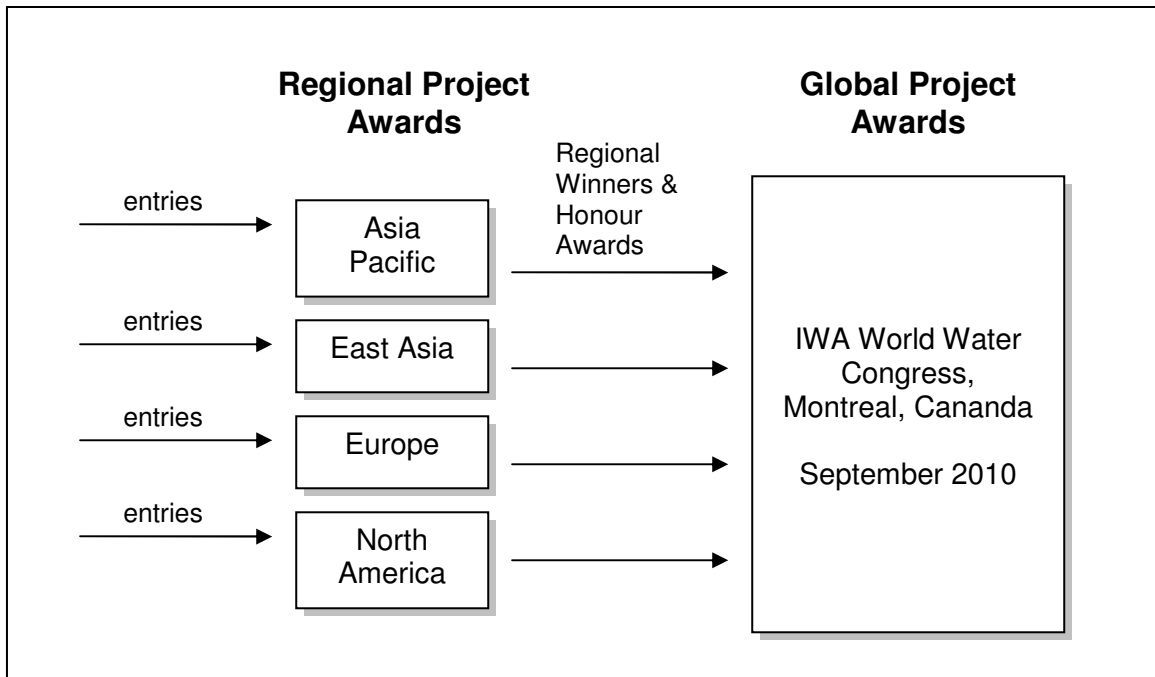


Figure: The Project Innovation Awards process

Judging

Separate judging panels will be formed for each regional award and the global award. The judges will comprise of industry experts in the water and wastewater profession from each region, and every judge will individually score each entry based on a list of five (5) criteria. The highest and lowest score for each entry will be taken off, and the rest of the scores combined and averaged. Winners will be determined based on these average scores.

The five judging criteria are:

- Originality and Innovative application of new or existing technology
- Future value to the engineering profession
- Social, economic and sustainable design considerations

¹ The North America Regional Award is conducted through the American Academy of Environmental Engineers (AAEE).



Project Innovation Awards

- Complexity of the problem or situation addressed
- Exceed client/owner needs, including budgeted and actual cost, scheduled and actual date of completion, etc.

Winning Projects

There will only be one winning prize awarded for each project category in each region. Depending on the scores of the other entries, the judging panel may grant Honour Awards to other deserving entries in the same category.

All winning and honor award projects in the regional bases will automatically be advanced to the global awards competition where they compete with the winning and honor award projects from the other regional bases to become the overall grand award winner.

Regional and Global Award Ceremonies

There will be three (3) regional awards ceremonies planned in 2010, and they will be held during a major international water event, as follows:-

Regional Base	International Water Event	Date
Asia-Pacific	Singapore Int'l Water Week 2010	30 June 2010
East Asia	Aquatech China, Shanghai, China	4 June 2010
Europe	IWA European Utilities Conference, Barcelona, Spain	10 May 2010

The Global Project Innovation Awards Ceremony will be held at the 2010 IWA World Water Congress in Montreal, Canada on 22 September 2010.

----- END -----



EMBARGOED until 4 June 2010

Excellence in East Asia Water Engineering Projects Recognised - Announcing the Regional Winners of the 2010 IWA Project Innovation Awards

Winners of the IWA Project Innovations Awards will be revealed on 4 June 2010 in an awards ceremony in Shanghai, China. The winners by award category are:

Applied Research			
Winner	<i>Climate Change Adaptation Through the Promotion of "Rain Cities"</i>	SNU Rainwater Research Center, Suwon City, Namhae County, and Geomarine Co.	<i>Republic of Korea</i>
Honour Awards	<i>Iron-Based Adsorbents and Related Technologies for the Simultaneous Removal of As(III) and As(IV): Application for Drinking Water Treatment and Water Environment Remediation</i>	<i>Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences</i>	<i>China</i>
Design			
Winner	<i>Design and Construction of Re-provisioning of WSD Utilities and Infrastructure Works for Proposed Centennial Campus of the University of Hong Kong</i>	<i>Black & Veatch</i>	<i>Hong Kong SAR</i>
Honour Awards	<i>The Air Flotation + Ultra-Filtration Water Treatment Plant in Macao</i>	<i>Macao Water Supply Co. Ltd.</i>	<i>Macao SAR</i>
	<i>YongIn YoungDuk Sewage Treatment Plant Project</i>	<i>Kolon Engineering and Construction Ltd.</i>	<i>Republic of Korea</i>
Operations/Management			
Winner	<i>Development of Time Integral Type Leakage Detector</i>	<i>Tokyo Suido Services Co. Ltd.</i>	<i>Japan</i>
Honour Awards	<i>Creating Premium Seoul Tap Water – From "Clean & Safe Water" to "Tasty Water"</i>	<i>The Office of Waterworks, Seoul Metropolitan Government</i>	<i>Republic of Korea</i>
Planning			
Winner	<i>Taipei Water Department Leakage Control and Management by DMA</i>	<i>Taipei Water Department</i>	<i>Chinese Taiwan</i>
Honour Awards	<i>Zhangjiagang Free Trade Zone Sembcorp Co. Ltd. – An Integrated, Energy Saving, Zero Liquid Discharge and Sustainable Wastewater Treatment/Reclamation Project</i>	<i>Zhangjiagang Sembcorp Ltd.</i>	<i>China</i>

	<i>To Implement the Basin of and Regional Management of Sewage Enterprises Through Construction and Operation of Small and Medium Sized Sewage Treatment Plant</i>	<i>Beijing Capital Co. Ltd.</i>	<i>China</i>
Small Projects			
Winner	<i>The Development and Application of Innovative High Speed Biological Groundwater Treatment Technology</i>	<i>Nagaoka International Corporation</i>	<i>Japan</i>

Detailed descriptions of the East Asia winning projects, and a general brief on the IWA 2010 Project Innovation Awards, are available in the accompanying attachment and on the PIA website www.iwa-pia.org.

The Project Innovation Awards Programme (PIA) was established by the International Water Association in 2006 to recognise excellence and innovation in water engineering projects throughout the world. The Awards programme supports IWA's goal to "connect water professionals worldwide to lead the development of effective and sustainable approaches to water management". Amongst other criteria, project evaluation has been based on social, economic and sustainable design and the future value to the water engineering profession.

The East Asia Regional Award Ceremony and Luncheon will be held on 4 June at The Portman Ritz Carlton in Shanghai, China. All East Asia winners and honour awardees will be advanced together with the winners and honour awardees of the Asia-Pacific, Europe and North America Regional Awards competition to compete for the PIA Global Grand Prize, which will be presented at the IWA World Water Congress in Montreal, Canada on 22 September 2010.

The Asia-Pacific Regional Awards Ceremony will be held on 30 June in Singapore at the Singapore International Water Week, while the European Regional Awards Ceremony was held earlier on 10 May in Barcelona. The North America Regional Awards competition is conducted through the American Academy of Environmental Engineers (AAEE).

The 2010 Project Innovation Awards are sponsored by Beijing Capital (www.capitalwater.cn), Black & Veatch (www.bv.com), GHD (www.ghd.com), KWR (www.kwrwater.nl), Malcolm Pirnie (www.pirnie.com), Nagaoka International Corporation (www.nagaokajapan.co.jp/eng/) and SKM (www.skmconsulting.com).

--- End of release---

For further details or interest in attending the East Asia Regional Awards ceremony, contact Ms Brenda Lai (email: Brenda.lai@iwhq.org) or call mobile +65-9847-5284.

The International Water Association is a global reference point for water professionals, spanning the continuum between research and practice and covering all facets of the water cycle. Through its network of members and experts in research, practice, regulation, industry, consulting and manufacturing, IWA is in a better position than any other organisation to help water professionals create innovative, pragmatic and sustainable solutions to challenging global needs.

**THE 2010 IWA EAST ASIA REGIONAL PROJECT INNOVATION AWARDS
EXECUTIVE SUMMARIES OF WINNERS AND HONOUR AWARDS**

Winner for Applied Research

**SNU Rainwater Research Centre, Suwon City, Namhae County and Geomarine Co. for
*Climate Change Adaptation Through the Promotion of “Rain Cities”***

Current climate change-related water issues such as floods, drought and water shortages are all related to rainwater, thus proper rainwater management is essential. A “Rain City” is defined as a city that recognizes the benefits of rainwater harvesting as a method for climate change adaptation and makes regulations to collect and utilize rainwater instead of letting it drain away. The famous Korean rain city model, Star City, is a high-rise building complex located in the northeastern part of Han River, Seoul equipped with a multipurpose rainwater management system. Among the benefits obtained by the Star City system are savings of 40,000m³ of tap water and 10,000 kWh of energy in one year, which improve long-term climate change adaptation. The flooding of local sewers was also greatly reduced by the use of rainwater tanks. Due to the success of SNU RRC’s research, more than 30 cities in Korea have declared themselves Rain Cities by changing their rainwater policies from “draining” rainwater to “collecting” rainwater.



Star City, Republic of Korea.

Honour Award for Applied Research

Research Centre for Eco-Environmental Sciences, Chinese Academy of Science (RCEES, CAS) for *Iron-Based Adsorbents and Related Technologies for the Simultaneous Removal of As(III) and As(IV): Application for Drinking Water Treatment and Water Environment Remediation*

Arsenic pollution is a world-wide problem which severely threatens the health of tens of millions people globally. The development of innovative technologies for simultaneous removal of As(III) and As(V) from drinking water and contaminated water bodies without addition of any other oxidants is urgently needed to minimize the side effects of oxidants, simplify process application, and reduce operation and maintenance costs. The RCEES, CAS has successfully developed a novel adsorbent, i.e. ferric and manganese binary oxides (FMBO), and FMBO-based technologies to simultaneously remove As(III) and As(V) from drinking water with a high efficacy but low cost in decentralized small-scale (rural area) treatment stations, centralized large-scale (urban area) treatment plants, and for the remediation of arsenic-contaminated water bodies. In addition, another adsorbent composed of ferric and cerium binary oxides (FCBO) has also been developed to effectively remove arsenic in household point of use (POU) systems. These new adsorbents and related technologies will greatly help to improve the health of arsenic-threatened populations as well as aquatic ecologies.



Remediation of Dasha River to meet downstream requirements.

Winner for Design

Black & Veatch for *Design and Construction of Re-Provisioning of WSD Utilities and Infrastructure Works for Proposed Centennial Campus of the University of Hong Kong*

The University of Hong Kong (HKU) Centennial Campus required space for the development at the west of existing HKU Main Campus. To do this, an innovative, sustainable, geologically conservative and environmental friendly solution for the re-provisioning of salt water service reservoirs in caverns inside Lung Fu Shun hillside was required, to allow the area currently occupied by the salt water service reservoirs to be turned into fresh water service reservoirs. As the site for the proposed development was occupied by existing fresh water and salt water service reservoirs and associated waterworks facilities managed by the Water Supplies Department (WSD) of the Government of the Hong Kong Special Administrative Region (HKSAR), the development involved the re-provisioning of waterworks facilities and associated infrastructure works prior to the development of facilities for the Centennial Campus. This project significantly reduced slope cutting, extensive site formation works, the need to fell matured trees, avoided disturbance to the existing habitat and minimised visual impact to the neighbourhood.



Black & Veatch: Re-provisioning of salt water reservoirs in the caverns of Lung Fu Shan.

Honour Award for Design

Kolon Engineering and Construction Ltd. for *YongIn YoungDuk Sewage Treatment Plant Project*

To meet the needs of a rapidly growing population and stringent effluent regulation (particularly, nitrogen and phosphorous), YongIn city is under pressure to construct sewage treatment facilities within a severely limited urban area. The major problems for sewage treatment in YongIn city are extreme space constraints, highly fluctuating influent loads in pollutant concentration and flow, low temperature (< 10 °C in winter season), and public concern on sewage treatment plant construction in the downtown area. YongIn City selected Kolon's YoungDuk Sewage Treatment Plant proposal employing the NPR process for nutrient removal, which is an advanced biological nutrient removal technology using a free-floating urethane media (BioCube) for short hydraulic retention time, is stable in pollutant removal even in winter and requires relatively low footprint compared to conventional processes. The project scope included the design of KOLON's NPR process as a major treatment process, completely underground construction of the plant, sustainable design employing effluent reuse and the installation of photovoltaic cells and wind mill, and development of public zones for social and recreational use throughout entire space even above the underground plant.



Aerial view of the YongIn YoungDuk Sewage Treatment Plant.

Honour Award for Design

The Macao Water Supply Co. Ltd. for *The Air Flotation + Ultra Filtration Water Treatment Plant in Macao*

Macao, a coastal city with a territory of just about 29 Km², attracts more than 20 million visitors a year mainly because of its entertainment industry. The economy boom has triggered higher water demand growth since 2006. A new water treatment plant had to be built to satisfy the demand growth of the next 10 – 15 years, which is forecasted as high as 373 MLD. The new treatment plant, including 120 MLD capacity treatment process units, a booster of the same capacity and a clear water tank of 5000 m³, had to be accommodated within the area of 2750 m². The treatment process also has to cope with the risk of algae boom during hot seasons and bromide during dry seasons caused by sea water intrusion. After a careful study and investigation, Macao Water decided to deploy a unique treatment process combination: flotation plus ultra-filtration. Eventually, AquaDAF® of Degremont and ZeeWeed® 1000 of Zenon were selected. Cost-wise, the new treatment plant was completed with its civil structure including all the treatment process united and the booster for full capacity but equipped with only half of its designed capacity to meet the emerging and long term water demand. If necessary, it can be fully equipped within 3 – 6 months. The plant was completed within 24 months.



Aerial view of the new Macao Water water treatment plant.

Winner for Operations/Management

Tokyo Suido Services Co. Ltd. for *Development of Time Integral Type Leakage Detector*

The acoustic method has been the main method to identify water leakage points. However, long experience and proficiency are required and the number of technicians who can distinguish water leakage sound has decreased mainly because of aging. In 2009 Tokyo Waterworks Service Co., Ltd. (now named Tokyo Suido Services Co. Ltd.) and Nihon Water Solution Co., Ltd. jointly developed and improved the automatic Time Integral Type Leakage Detector for further efficient inspections by enabling simpler operations, which does not require experience or high level of proficiency, and has better portability. This device can detect water leakages within the range of 20m from the measuring point within a short time of 1 – 5 seconds. It is also not easily influenced by the sound of intermittent water service use and street sounds transmitted through the earth. Due to its portability, work efficiency is also improved because both meter reading and water leakage check can be done at the same time.



Tokyo Suido Services' Time Integral Type Leakage Detector

Honour Award for Operations/Management

The Office of Waterworks, Seoul Metropolitan Government for *Creating Premium Seoul Tap Water – From “Clean & Safe Water” to “Tasty Water”*

Seoul tap water, 'Arisu' meets all 155 items of water quality inspection recommended by W.H.O (World Health Organization) but the public are suspicious about the quality of Arisu and avoid drinking it. This has brought about a low rate of drinking tap water, high sales volume of bottled water, reckless underground water development, widespread use of water purifiers, waste of water resources and pollution of drinking water caused by the mismanagement of water purifiers. To solve these problems, the Office of Waterworks sought to improve the public perception of tap water by introducing new policies which focuses on “Tasty Water” instead of “Clean & Safe Water” and introducing a water quality monitoring system which is accessible to the public. Under the new policy, the Office of Waterworks in planning to implement 6 advanced water treatment plants, reduce the smell of disinfectant from tap water, prevent red water by subsidizing households to replace old in-house pipes and removal of reservoirs from buildings to prevent water quality deterioration. Water quality data is also made accessible to the public via the internet and mobile phones, household residents are also provided with free water quality analysis of their tap water and are encouraged not to install water purifiers. Since the implementation of this project, the percentage of residents who drink tap water has increased by 15%.

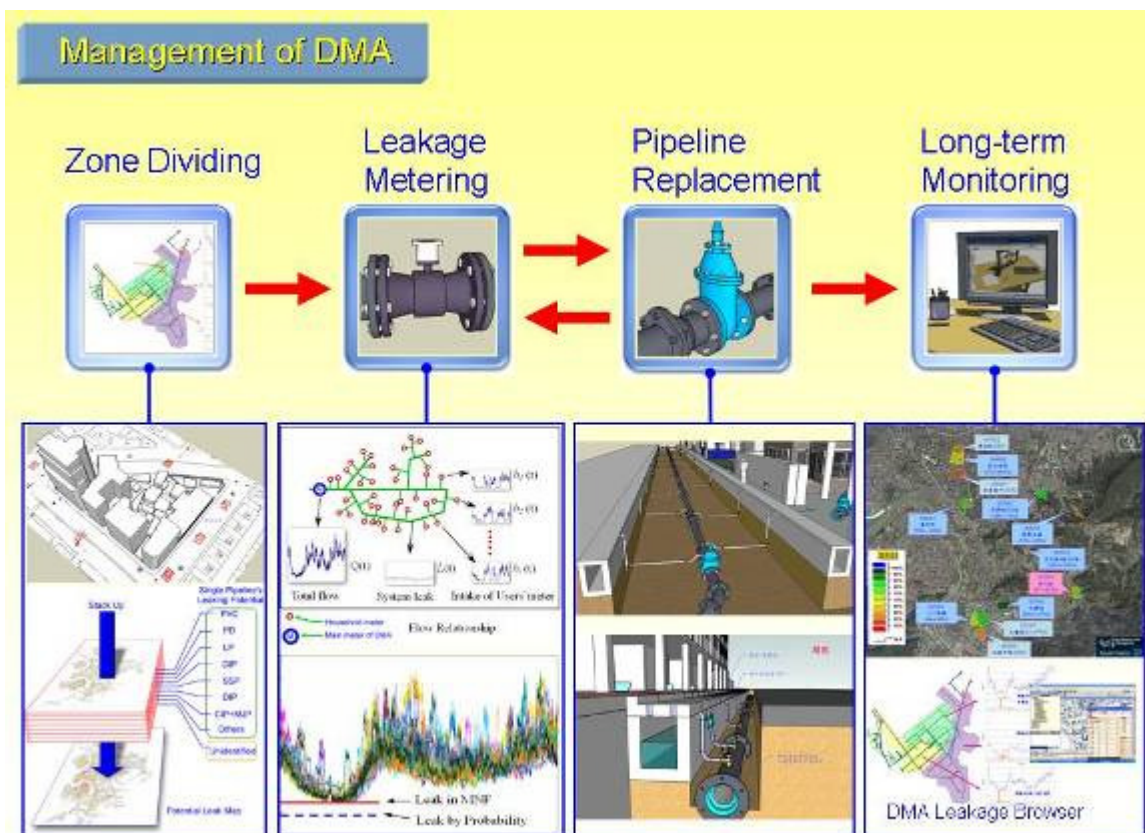


Arisu Water Quality Verification at a home.

Winner for Planning

Taipei Water Department for *Taipei Water Department Leakage Control and Management by DMA*

Due to unique geographical conditions, rainfall in the country is extremely unbalanced in both time and space, and with the steady development of economy comes an increasing demand for water. In addition, the Taipei pipeline network was suffering from severe leakage. A serious drought in 2002 triggered the Taipei Water Department (TWD) to take serious look at the leakage, which was as high as 28.4%. In addition to huge investments in replacing pipeline network, TWD adopted DMA (District Metering Area) as a management method. Combined with several innovative measures, the areas with heaviest leaks were pinpointed. Not only the priority of pipeline replacement can be arranged with efficiency but also ensure the quality of pipeline replacing works. Since the start of the project, TWD has completed the division of 465 DMAs, 1090 km of pipelines was replaced and the leakage rate was reduced gradually from 2002 and reached 22.03% by 2009.



Taipei Water Department's Leakage Management and Control by DMA.

Honour Award for Planning

Beijing Capital Co. Ltd. for To Implement the Basin of and Regional Management of Sewage Enterprises Through Construction and Operation of Small and Medium Sized Sewage Treatment Plants

Hunan is the “land of plenty” with a beautiful environment, rich water resources and dense river network. Its basin covers basically all the main administrative divisions in Hunan territory. However, urbanization and industrialization have damaged the water environment of Hunan. Beijing Capital Co., Ltd. and the Hunan Provincial Government signed a strategic cooperation agreement in December 2007 to improve the regional water environment. From February 2009 to December 2009, Beijing Capital Co., Ltd. has invested and set up 6 sewage treatment plants and 12 km of urban sewage collection pipe network. In the province, there are a total of 10 small and medium sized sewage treatment plants and one garbage landfill operated and managed by Beijing Capital Co., Ltd., with sewage treatment capacity of 600,000 tons / day. From 2010, the Beijing Capital Co., Ltd. will continue to expand investment in the field of sewage in Hunan and shift the focus to further improve the business operation management system of the completed sewage plants, including the establishment of staff training, technique optimization and control, on-line testing, laboratory test, equipment and facilities maintenance and repair as well as many other professional systems, ultimately to establish a "basin & regionalization" management model.



Beijing Capital's Yangjiaxi Wastewater Treatment Plant

Honour Award for Planning

Zhangjiagang Free Trade Zone Sembcorp Water Co., Ltd for Zhangjiagang Free Trade Zone Sembcorp Water Co., Ltd – An Integrated, Energy Saving, Zero Liquid Discharge and Sustainable Wastewater Treatment/Reclamation Project

Receiving and treating mixed, fluctuating quality industrial wastewater streams from more than 100 chemical/petrochemical plants inside an industrial park at one centralized location while meeting the stringent effluent discharge standard is not an easy task; implementing an integrated BOO wastewater treatment/reclamation plant utilizing low energy, zero liquid discharge, waste heat recovery, waste minimization, sustainable design concepts with social and economic benefits is certainly an ideal Total Water Management model that is even harder to achieve. This is especially true and difficult in China where the Government promotes separate pre-treatment plant followed by a centralized wastewater treatment plant concept. Zhangjiagang Sembcorp, with tremendous support from the local Government, has planned to build an integrated wastewater treatment/reclamation plant consisting of low COD aerobic process, high COD low energy anaerobic process featuring waste heat recovery, acidic/alkaline wastewater neutralization pre-treatment and membrane based effluent reclamation with zero liquid discharge. The originality and innovative application of existing technologies with substantial economic of scale benefits from this Total Water Management concept not only support customers and local government to meet strict national environmental requirements but will also help to save and protect the precious natural water resource of Yangtze River.

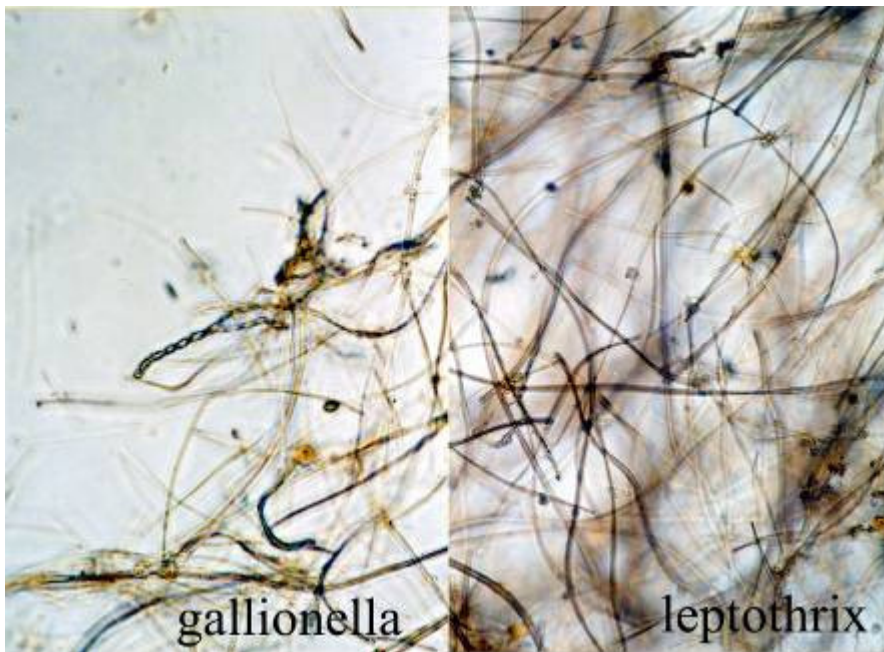


Zhangjiagang Free Trade Zone Sembcorp Water Co., Ltd's integrated, energy saving, zero liquid discharge and sustainable wastewater treatment/reclamation project

Winner for Small Project

Nagaoka International Corporation for The Development and Application of Innovative High Speed Biological Groundwater Treatment Technology

Direct oxidation and chlorination is the most commonly used method for treatment of groundwater used for waterworks supply. However, guidelines on the use of chlorine has become more stringent in recent years due to the formation of trihalomethan and cyanogens. Biological Treatment does not face with such problems, but filtration speed is slow and needs wide space for treatment. Nagaoka has developed a High Speed Biological Groundwater Treatment System called "CHEMILES" and applied it for the waterworks system operated by Yosano Town, Kyoto with capacity of 1,200 m³/d. This original technology and innovative application has solved such complexity of problems and achieved successful removal of high concentration of iron, manganese, ammonia nitrogen by biological method and yet at the same high speed as rapid filtration, and of course, without injecting oxidation agent.



Bacteria in Nagaoka's biological treatment