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DUTCH SINO BUSINESS PROMOTIONS

# “Black and Odorous Water“ in China

## Where does it come from and where will it be?

A report on environmental issues in China, focused on urbanization, water, remediation and future developments

By **Dutch Sino Business Promotions** (May 2019) | Text: Jiajia Ling & Stanley Fu | Visualization: Kamassan Kaisiepo

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Fig. 1

**Overview of areas in China affected with Black and Odorous water**

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# The “Black and Odorous Water“ problem in China

Currently, China’s society is witnessing and involved in an unprecedented national-scale program to improve domestic water quality: resolving the “Black and Odorous Water” problem.

The phrase “Black and Odorous Water” in fact started to catch the public’s attention in April 2015, when the Standing Committee of the Political Bureau of the People’s Republic of China released the “Notice of the State Council on Issuing the Action Plan for Prevention and Control of Water Pollution” (commonly called the “Ten Water Rules”). Afterwards, a series of policy documents were launched to help enforce the goal to largely improve the water environment quality.

From macro-societal perspective, the ever-growing urbanization and industrialization in China are contributing to Black and Odorous Water problems. Due to the lack of effective water pollution control and management systems, urban water bodies (mostly canals) become reservoirs for precipitation, agriculture discharge, industrial effluents and sewage. It results in heavy pollution of urban water bodies. According to the information platform of Ministry of Housing and Urban-Rural Development (MOHURD), 2100 Black and Odorous Water bodies have been identified until now. Geographically, more water problems occur in economically developed and areas with abundant water resources. The Central, Southern and Eastern parts of China account for 70.8% of all Black and Odorous Water bodies. Looking from the perspective of individual provinces, Guangdong and Anhui have more than 200 Black and Odorous Water canals respectively, which make up for 21.9% of the total. Additionally, the five provinces Jiangsu, Henan, Shandong, Hunan, and Hubei all have more than 100 problematic water bodies, making up for 36.19% of the total Black and Odorous Water bodies. The widely present Black and Odorous Water bodies not only impair the aquatic ecology, but also disturb the lives of the citizens and threaten public health, which hinders the process of constructing livable urban cities and building up ecological cities in China.

## Current situation and political background

Many factors play a role in the urban Black and Odorous Water problems. Sewage and surface runoff (especially in agriculture area) bring in excessive amounts of nutrient to the water bodies that result in eutrophication. Together with stagnant physical conditions, it creates a favorable environment for microorganisms to grow, consuming the dissolved oxygen in the water. In anaerobic water, organic matters are decomposed into black substances. Actinomyces produce a special substrate through metabolism, which results in an unpleasant odor. Characterizing for the odorous substance is that very little of it (0.002-0.02 ug/l) can create a very intense smell [1].

The domestic management and prevention of watershed pollution was launched in China's ninth five-year-plan. After more than 20 years of effort the general water environment in China is getting better, the water quality in basins and rivers has largely improved [1].

However, the situation is different for the management of urban canals, where the pollution sources and ecological management are very volatile. This is largely due to the uncompleted baseline investigation of rivers, lacking long-term monitoring. The fragmented governance system in China resulted in one single department being responsible for urban city water management: the hydraulic department. Within the managing units of the hydraulic departments, there are not many ecologists or environmentalists; therefore the understanding of managing water ecology is not profound enough. The aforementioned reasons make the problem of Black and Odorous Water continuously severe. This shows in three aspects:

***Firstly***, the ratio of heavily polluted water (type V) is significant, approximately 10% of the total surface water, some water bodies even have much higher figures. For example, in the Huai river area, type V water makes up a proportion of 39.1%.

***Secondly***, canals and rivers that flow into or along cities commonly have heavy pollution, resulting in a large affected population with high public attention and disapproval rates.

***Thirdly***, drinking water safety calamities still occur frequently [2].

China's central government is very ambitious to reverse the situation and improve the water environment. As the 'Ten Water Rules' points out, the main purpose of constructing an ecological civilization is to improve the water & environment quality, and reduce the proportion of Black and Odorous Water among all water bodies to a maximum of 10%:

> *Key indices: By 2020, the overall proportion of water quality of seven basins, including Yangtze River basin, Yellow River basin, Pearl River basin, Songhua River basin, Huaihe River basin, Haihe River basin and Liao River basin being above average (reaching or exceeding Class III) will be 70% or above, quantity of black and odorous water bodies in built-up areas in cities at prefecture level and above will be controlled within 10%, the overall proportion of centralized drinking water source quality in cities at prefecture level and above reaching or exceeding Class III will be larger than 93%, the proportion of extremely poor groundwater quality nationwide will be controlled around 15%, and the proportion of above average (Class I and II) water quality in offshore areas will reach about 70%. The proportion of unusable (below Class V) water sections in Beijing-Tianjin-Hebei Region will be about 15% lower, and efforts should be made to eliminate unusable water bodies in the Yangtze River Delta and Pearl River Delta.*

The new standards and higher requirements are calling for revolutionary methods in Black and Odorous Water management.

Photo 1. Residents Look At A Heavily Polluted River, Zhugao, Sichuan province. Photo courtesy of indepent.co.uk

## The market of managing "Black and Odorous water"

There is much attention for, and capital influx in, the Black and Odorous Water management market. In 2012, the central national government allocated special fiscal funds with a value of 21 billion RMB to facilitate managing the treatment of canals and rivers in the focus areas. To strengthen supervision and management, the hydraulic department and finance department, together with all provinces and cities, signed the "Agreement of responsibility for middle and small river management" [3].

According to "The 13th Five Years Plan: sewage treatment and renovation", 1120 Black and Odorous Water bodies need to be managed between 2016 and 2020. In total, investments for the pollution control and prevention has reached to 170 billion RMB on prefectural level and above. It's estimated that the expenses for treating Black and Odorous Water is 35 million RMB per stretching kilometer. To achieve the goals for reducing problematic water bodies to maximum 10% according to the "Ten Water Rules", the potential market size for the focus cities is around 100 billion RMB. And if towns and rural areas are also taken into account, the total domestic potential market size for treating Black and Odorous Water can amount to approx. 400 billion RMB [4].

In general, solving the Black and Odorous Water problem is one of great significance and urgency. Management upscaling and process acceleration are imperative to succeed. However, the political system in China doesn't allow foreign companies in China to be directly contracted if they don't possess a domestic Chinese business license. Therefore, cooperation with qualified local partners as internal suppliers or tender partners (in consortium) would be the most efficient and effective way to be involved.

Black and Odorous Water management can strongly benefit China's water treatment industrial chain. For potential candidate companies, "resource integration capacity and scope of expertise" will be the most important criteria for (local & provincial) governments to select their cooperating partners.

## So what's in it for Dutch companies?

Black and odorous water pollution is one of the many environmental challenges commonly seen in China nowadays. It has become a priority because of the latest series of green development policies and environmental regulations that were announced and came into force by the P.R.C central government.

Dutch companies are well known in the environmental sector, delivering promising technologies and designs from end of pipe to front of pipe solutions. At this moment, China is in huge demand for pollution cleanup and prevention measures, this is where Dutch expertise can play an essential role to provide best practices with proven technologies. Cleantech companies that are capable to provide concrete solutions to challenges such as, water quality control (algae bloom, eutrophication, heavy metal), water quantity monitoring, soil remediation, river basin restoration, wastewater treatment (constructive wetlands), sponge city & urban resilience design and evaluation, biodiversity enhancement, sustainable energy and air purification have a great window of opportunity to participate in the Chinese market.

Photo 2. Fishermen Collecting Fish In A Polluted Canal, Beijing. Photo courtesy of David Gray/Reuters

# Dutch Sino Business Promotions
## *"Connecting for Sustainable Growth"*

Founded in 2006, Dutch Sino Business Promotions (DSBP) has been committing to building the bridge between Sino-Dutch businesses in the field of environmental sustainability, horti-agricutlure and governmental relations.
With the opening of DSBP's China office in Shanghai in 2017, the company is able to closely connect with the local market demands and to provide broader networking opportunities and services.
As an experienced international business consultancy firm, DSBP has accumulated profound knowledge in governmental policy, environmental technology and business strategies in the Chinese market.
DSBP has successfully delivered concrete results including technology implementation, business matchmaking events, trade missions, roadshows, seminars and nevertheless international merger and acquisition.
DSBP is your credible partner for entering and expanding your business footprint in China, our international team in both Rotterdam and Shanghai has years of experiences to guide and advise you along the journey.

***Partner for International Business (PIB) - Dutch consortium for the Chinese market coordinated by DSBP***

One of the platform initiated and coordinated by DSBP is the Partner for International Business (PIB) 'Urban Challenges – Integrated Sustainable Solutions', the Dutch consortium consists of three different types of organization including enterprise, knowledge institutes and governmental bodies.
DSBP promotes PIB in the Chinese market through its extended network and resources and facilitates cooperation in the form of training, project technology implementation, product procurement with local Chinese partners.
The PIB provides an integrated solution where the concept "Food – Water – Energy Nexus" is implemented, to meet various challenges of rapid urbanization and climate change. Each member of PIB has specific expertise that is complimentary to the others and as a consortium, we cover the professional field of (and not limited to) master planning, sponge city design and evaluation, river basin ecological recovery and governance, smart water management, and urban sustainable governance.
Several PIB members are actively involved in water management and ecological recovery projects in China with local partners facilitated by DSBP, for example, in the above mentioned black and odorous water case in Wuhan, Hubei province. We hope this platform can deliver Dutch best practices in successful business models and we look forward to seeing a growth in numbers of completed projects in the near future. Contact us for detailed information, we are welcoming new members onboard.

**Cooperate with DSBP,**
**Your smooth entry to the Chinese market**
There are many ways we can help you to expand your business activities in China with our experienced team and network. We trust that our professional knowledge can lead you to a smooth entry to the Chinese market. Here are some ideas to kickoff your China discussions:

**- Join PIB Urban Challenges – Integrated Sustainable Solutions and become a member.**
You will participate in China related events organized by DSBP, meet potential Chinese partners and contribute your expertise to urgent environmental sustainability issues.

**- Participate in the next China mission with DSBP**, for more information please do not hesitate to contact us at **dsbp@dutchsino.com**

Check our website for more information about DSBP's work! **www.dutchsino.com**
*Customized service including but not limited to market entry report, China strategy, fact finding trip, business support, communication strategy and implementation, business matchmaking, event organization.*

## References

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Image reference
[Photo 1] Sichuan river image, courtesy of Independent.co.uk. As found on https://www.independent.co.uk/environment/nature/the-24000-question-would-you-take-a-dip-in-chinas-polluted-rivers-8505612.html
[Photo 2] Fisherman image, courtesy of David Gray/Reuters. As found on http://avax.news/pictures/98858

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