



Rijksdienst voor Ondernemend
Nederland

*A brief introduction to the Environmental Protection Industry in
Liaoning Province*

*>> Duurzaam, Agrarisch, Innovatief
en Internationaal ondernemen*



Colofon

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1. Introduction

China has become the world's second-largest economy and the biggest carbon emitter. Decades of rapid economic growth have left many of the rivers desiccated and a great number of cities perennially shrouded in smog. The environmental protection issue has become a major hot topic for Chinese people and the demand for blue skies and clean water is rising significantly. The Chinese government has realized the severity of this problem and since January 2015 the new environmental protection law has been launched. The new law authorizes environmental authorities with more power and allows harsher punishments for polluters. In 2015, the Chinese government launched a series of policies and measures and herewith pushed environmental treatment to the national strategic agenda. Consequently, the way of environment governance has evolved from government leading to public and private partnership (PPP) and from quantity-oriented to quality-oriented. The environmental protection industry has become one of the most booming sectors in China and with the right approach and partners, offers plenty of business opportunities for national and international players.

The Province of Liaoning is located in the Northeast of China. As a part of China's so called 'rust-belt', the province is struggling to meet the environmental targets set by the national government. This report, written by the Netherlands Business Support Office (NBSO) Dalian, gives a brief introduction of the Environmental Protection industry in Liaoning and its opportunities. NBSO Dalian supports Dutch SME's in doing business in China's Northeastern region.



Liaoning Province

2. Liaoning Environmental Protection industry

As one of the main industrial bases in China, there are many heavy polluting industries located in Liaoning province such as petrochemicals, equipment manufacturing, minerals and metallurgy. Over the years, these industries have seriously damaged the environment in this region. In November 2015, heavy smog shrouded Liaoning province with PM 2.5 concentration of 1400 micrograms per cubic meter, exceeding the recommended health levels with more than 50 times. Liaoning government is taking this issue very seriously by increasingly restricting pollutant discharges of polluting enterprises. Those that fail to meet government requirements will be forced to stop production or operations. More and more enterprises will continue to enter the environmental protection industry in order to help the polluters to meet the increasing demand from governments and companies. Until now, Liaoning is home to approximately 2500 companies in this industry and this number is expected to grow 4% per year. Most of the enterprises related to this industry are located in Shenyang and Dalian.

Recently, the Liaoning thirteenth-five-year plan for environmental protection industry has been launched. The main focus is on improving the quality of the environment by concentrating development on polluted water, air and soil treatment.



Shenyang, November 2015, Source: Xinhua News

Polluted Water Treatment

In 2015, the State Council issued the 'Water Pollution Prevention and Control Action Plan' also called the '[Water Ten Plan](#)'. After implementation the demand for polluted water treatment comes mainly from governments, and the water pollution control pressure is still huge. The Liaoning government will continue to invest heavily in pollution control in order to ensure emission reduction from heavy polluting industries. Until now there are around 300 water treatment plants in Liaoning province. The government plans to reach a water treatment rate of 95% in 2020 by building more water treatment plants and introducing new technology for existing plants. In addition, Liaoning government is also paying attention on strongly increasing the control of the agricultural and rural pollution. Since the year 2016, when building, rebuilding and expanding large-scale livestock and poultry farms, the companies are obliged to install facilities for rainwater and sewage shunting and water treatment.

By the year of 2020, Liaoning government strives to improve the overall water quality of 50% of the rivers in the province, and enhance the environment quality and ecological system. Currently the local government and companies are very eager to find solutions and technologies for sewage treatment, industrial water treatment and

re-use, nitrogen removal for rivers, waste water treatment for rural areas and efficient expertise management for water treatment plants.

Air Treatment

Liaoning government will strictly control the new establishment of coal burning boilers and accelerate the gasification project for the province. Coal burning pollution has been a major source of air pollution. In order to strengthen the coal burning control, until now the Liaoning law enforcement has checked over 3000 coal burning boilers and discovered around 250 illegal activities that have been fined with over 15 million RMB in total. By the year 2020, all coal burning boilers with a capacity up to 20 tons will be removed from the city. In addition, full control of dust is another focus aspect from the Liaoning government. Dust suppression for coal yards and construction sites has to be reduced by taking tight measures from the government. Besides, the environmental protection department is very interested in introducing new technology for sweep machines for street cleaning.

Soil Treatment

The State Council in China launched the "[Soil Ten Plan](#)" at the end of May 2016. This is the third pollution action plan issued by the State Council following the one targeting air pollution in 2013 and the "Water Ten Plan" in 2015. In China about 16% of the cultivated land is polluted by heavy metals, like cadmium, arsenic, lead and mercury and the situation is even more severe Liaoning Province. Also, the use of pesticides per unit area in China is 2.5 times higher than the world average. Comparing with water and air treatment, soil treatment development is the most difficult treatment which is still at an early stage of development facing many challenges and problems. The Soil Ten Plan aims to restrain soil pollution preliminarily by 2020. By that time China will basically guarantee the soil security of farmland and land plots for construction, and control soil contamination risks. The plan's goal is that 90 percent of farmlands will be made safe by 2020, and the percentage is expected to increase to 95 percent by 2030. Besides, local government officials will be held accountable for soil deterioration in local areas if they fail to prevent and control soil pollution.

3 Liaoning's main environmental protection players

There are approximately 2500 companies related to environmental protection industry in Liaoning, most of them are active in the fields of water treatment, air treatment, environmental protection projects engineering and construction. Below you can find a selection of several main players in the industrial protection industry in Liaoning province.

Liaoning Environmental Protection Group

The company was established in 2016 with registered capital 580 million RMB and 800 employees. It is a state owned enterprises together with 19 branch companies from environmental protection industry. The company's main business is water and air treatment project construction, engineering and consultation.

Website: <http://lnepg.com/> (Chinese only)

Dalian Dongda Group

This company is one of the leading water treatment companies in China. It was established in 1995, has projects in 15 cities in China and its main business model is BOT, TOT, BOO, TOO.

Website: <http://ddhj.cn/index2.asp> (Chinese only)

Dalian Teda Environmental Protection Co., Ltd

The company was founded in 2009 with registered capital 250 million RMB. Its main focus is solid waste treatment. The company has a solid waste burning and treatment facility in Dalian.

Website: <http://www.dlteda.com/> (Chinese only)

Dalian Bi Hai Environmental Protection Co., Ltd

The company was founded in 2007 with 1300 employees. Its main business is environmental protection project engineering and construction for industrial companies, such as electrolytic aluminum companies.

Website: <http://www.bihaipe.com/index.php/Index/index/language/cn/> (Chinese only)

Shenyang Everbright Environmental Protection Co., Ltd

The company is specialized in engineering and construction for waste water treatment for metallurgy, agriculture, pharmaceutical, sewage.

Website: <http://www.guangdahb.com/index.asp> (Chinese only)

Liaoning HuaFu Environmental Engineering Co., Ltd

The company was established in 1998, specializing in providing environmental solutions for oil & gas fields, including produced water re-injection and reuse to OTSG, flow-back treatment, oily sludge disposal, drilling mud solidification.

Website: <http://www.huafuep.com/EN/index.aspx> (English available)

4 Trends and opportunities

Recent developments and changes in China's Environmental Protection Industry lead to several trends and opportunities for businesses.

Demand for more high tech and know-how

The overall technology level in the Environmental Protection industry in most of China's provinces is still low, therefore many local companies are interested in introducing foreign technology into the Chinese market. Such as coal burning boiler plants that are looking for new solutions to reduce the emissions; heavy polluted industrial companies looking for solutions for their waste water treatment and re-use; advanced dust suppression technologies for construction sites, etc. There are many potential opportunities for Dutch expertise and technology in this market.

Consultancy Services

Since many Chinese companies are interested in foreign environmental protection technologies and expertise, the consultancy service market for this industry is also developing very fast. We see more local companies hiring foreign experts as consultant to train their employees about how to adopt modern technology. Furthermore, many manufacturers are looking for foreign expertise for product upgrade and production optimization.

Government Support

As environmental protection is taken into account for the assessment of political achievements, more local governments will invest in supporting environmental protection projects. Local governments tend to invite submissions of specialized enterprises for pollution control and treatment through public bidding. More local governments will also start supporting the development of environmental protection enterprises, through financing, favorable tax policies, land approval, and other related incentives.

Promising Industry

Due to the thirteenth-five-year plan, the central and provincial government will continue to invest in environmental protection projects. This will directly and substantially drive the development of the industry in the next five years. More effective and cost-saving technologies will be developed and put into practice in the coming years, as governments, enterprises and research institutes will all invest more in research and development activities.

Many foreign enterprises that provide advanced technologies in the Environmental Protection industry are expected to enter China in the coming years to meet the countries' demand for solutions. Their entry will also enhance the overall technology level of the industry and intensify competition levels. Expected is that this will greatly benefit the industry and the environment in the future years.

5. Relevant authorities and branch organizations

The main association and government department within the sector are listed below. There are many other environmental protection associations from provincial level to municipal level but websites are either not available or only in Chinese. For more information about the local associations in Liaoning you could contact NBSO Dalian.

Ministry of Environmental Protection

Website: <http://www.zhb.gov.cn/>

Supervision on general environmental protection industry

China Association of Environmental Protection Industry

Website: <http://www.caepi.org.cn/>

Non-Profit organization, with memberships from enterprises, agencies, organizations or institutions involved in environmental protection industry.

6. Relevant trade fairs:

IE Expo 2017 (May 4th- 6th 2017, Shanghai)

Website: <http://www.ie-expo.com/> (English available)

Aquatech China (June 7th-9th 2017, Shanghai)

Website: <http://www.aquatechtrade.com/china/> (English available)

7. Contact information

Many Dutch companies do business across the Dutch borders. The Dutch Ministry of Foreign Affairs therefore actively supports the interests and puts efforts together for Dutch companies abroad. Through embassies, consulates and Netherlands Business Support Offices (NBSO).

In Northeast China the Netherlands is represented by the NBSO Dalian. NBSO Dalian covers the provinces of Liaoning, Jilin and Heilongjiang. Services provided by the NBSO include providing tailor-made market information and connect you to the right local partners, for example by executing a Business Partner Scan. If you would like to know more about the opportunities that the Liaoning Environmental Protection sector has to offer to your company, NBSO Dalian is happy to offer support.

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8. Sources

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http://www.ln.gov.cn/zfxx/zfwj/szfwj/zfwj2011_106024/201601/t20160105_2034829.html
http://www.ln.gov.cn/zfxx/zfwj/szfbgtwj/zfwj2011_111255/201606/t20160628_2369800.html
- IBISWorld Industry Report, Water Pollution Control in China, January 2016
- Several articles from Liaoning News Websites
<http://ln.people.com.cn/n/2015/1104/c353960-27012845.html>
http://www.cenews.com.cn/qy/cyxw/201605/t20160519_805331.html
<http://www.hbzhan.com/news/Detail/106482.html>
- Information provided by the Dalian and Shenyang Environmental Protection Association

Other useful reports:

- <http://chinawaterrisk.org/resources/analysis-reviews/key-water-policies-2015-2016/>
- <http://www.rvo.nl/sites/default/files/2016/05/Opportunities-in-water-and-environmental-technology.pdf>
- <http://china.nlbassade.org/binaries/content/assets/postenweb/c/china/zaken-doen-in-china/sectoren/water/treating-chinas-wastewater-opportunities-galore.pdf>
- <http://chinawaterrisk.org/resources/analysis-reviews/sponge-cities-an-answer-to-floods/>

Appendix: Introduction to Liaoning Province

Liaoning Province forms the southern portion of the northeast China region. Covering an area of 145,900 square km and with a total population of almost 44 million, this region represents a powerful economic bloc within Mainland China. Liaoning Province is the largest economy in the northeast. The capital of Liaoning Province is Shenyang. There are 14 cities directly under the jurisdiction of the provincial government. Its nominal GDP for 2014 was 2.86 trillion RMB making it the 7th largest in China. Because the other provinces in northeast China (Heilongjiang, Jilin and Eastern Inner Mongolia) are landlocked, Liaoning provides the gateway for products manufactured or grown across the entire region to be transported either overseas or to the south of the country.



Facts Liaoning	
Province name	Liaoning
Capital	Shenyang
Other major cities	Dalian, Anshan, Yingkou, Liaoyang, Tieling, Dandong, Fushun, Benxi
Population	44 million
International airport	Dalian and Shenyang Airport (Japan, S-Korea)
Province GDP 2015	2870 billion RMB
GDP per Capita 2015	65521 RMB
Main industries	Petrochemicals, Equipment Manufacturing, Agriculture, Shipbuilding, ICT, Minerals
Main trading partners	South Korea, Japan, ASEAN and USA

Liaoning, renowned as the “equipment department” of China, is a research and production base for heavy equipment. The province has been a major center for heavy industry and raw materials industrial development over the last 100 years, and today these industries still represent the largest component of the economy in China’s northeast region. The province has the most important raw materials production bases in China, including mining, quarrying, smelting and pressing of ferrous metals as well as petroleum and natural gas extraction.

There is also a significant agricultural sector, making the province a major producer of maize, sorghum, and soybeans, and a major exporter of various fruits. Other important industries for the province include shipbuilding, horticulture, automotive and high added value. Industrial development in Liaoning is concentrated around Shenyang and Dalian, cities that are supported by comprehensive supply chains and research and development institutes. These two cities are the most popular destinations for FDI in Liaoning, accounting for around 80 percent of the province’s total FDI.

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