



OPPORTUNITY REPORT CIRCULAR ECONOMY IN CHINA

A Circular China?

Circular economy has been a buzzword in China for some years. The circular economy, in which products and materials are kept at their highest utility at all times through regenerative cycles, is an ideal Chinese policymakers strive to reach. Supportive measures are sparking new projects for improved resource management.



Direct opportunity

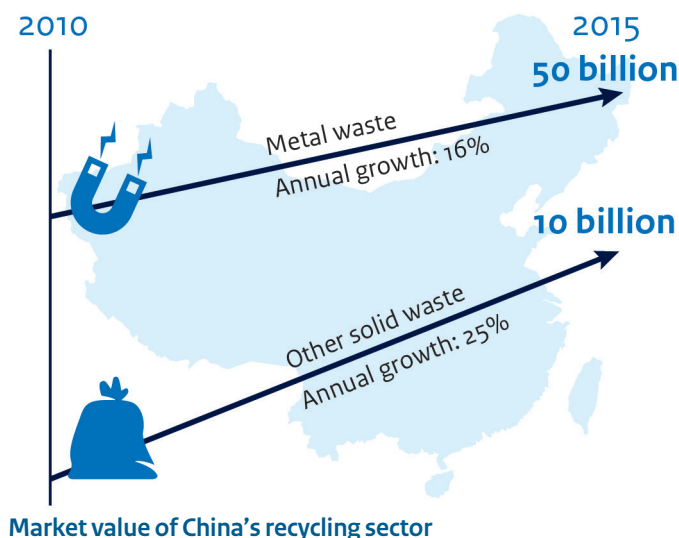
The government initiates new circular industrial parks and municipal waste management systems.

Direct opportunity

China's private sector increasingly looks for more efficient resource extraction technologies.

Long-term opportunity

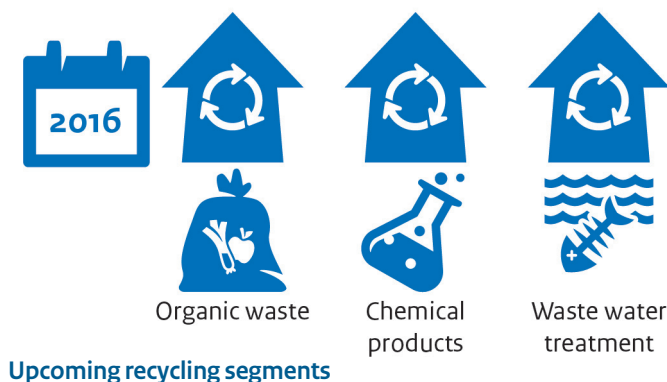
China still has a lot of catching up to do in cleaning up production processes and designing linked product lifecycle loops.



Waste management sector

As a net importer of waste, China's recycling industry is already very developed. China is one of the world's largest recyclers of metal waste and scrap, currently valued at more than EUR 50 billion. Recycling of non-metallic solid waste is rapidly catching up, with an annualized growth rate of 25% in the last 5 years. This forms the basis for China's nascent resource management.

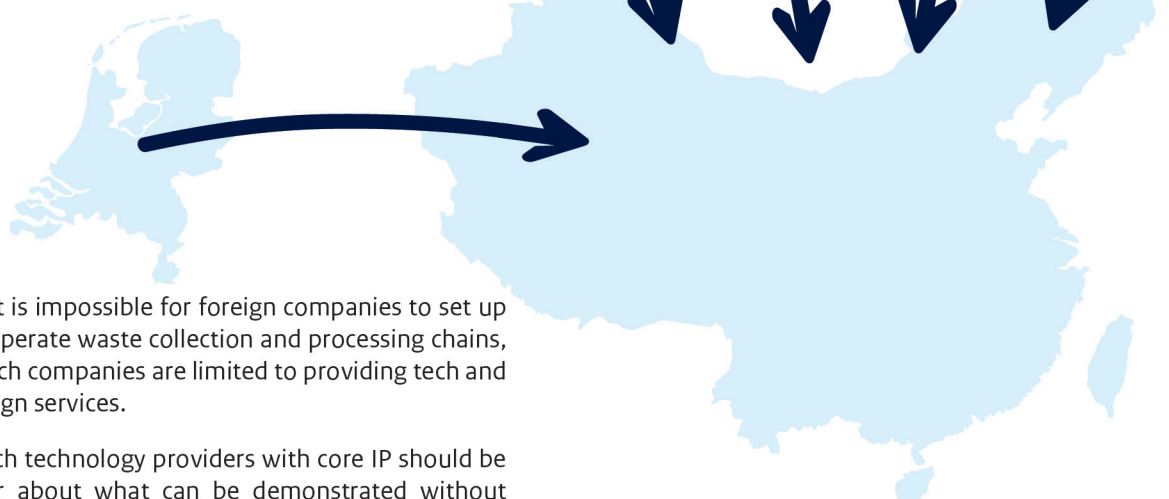
Traditional recycling of materials such as PET plastic, paper and aluminum is taking a hit due to plummeting commodity prices. On the other hand, markets for recycled materials from organic waste, as well as a number of chemical products display significant growth. Moreover, there is potential growth in the recycling of textiles and construction waste. Thanks to stricter environmental laws, there are even incentives for new resource management methods outside the recycling industry, for instance for wastewater reduction and energy use measurement tools.



Circular innovation in practice

The Netherlands is quickly becoming a global hotspot for circular economy. It boasts a growing number of enterprises with unique technologies for efficient waste treatment and energy use. China offers many potential applications for Dutch technologies. However, implementing circular innovation does not happen without a sense of practice.

Competition requires Dutch companies to clearly communicate their advantage and to specifically apply their product to the local market.



As it is impossible for foreign companies to set up or operate waste collection and processing chains, Dutch companies are limited to providing tech and design services.



Dutch technology providers with core IP should be clear about what can be demonstrated without losing their main asset.

Entering China's resource management sector

Waste treatment and circular economy



Treatment



Food waste

200 million tons*
1/4 of China's food production

- 73% landfill & 25% incineration
- 2% digestion or recycling
- 65% generated before consumer
- Targeted collection feasible



Construction waste

1.5 billion tons
4.000 x Empire State Building

- Less than 5% recycling or reuse
- Developed countries up to 95%
- Causes pollution and land occupation
- Collection moderately easy



Textile waste

30 million tons*
1/6 of global textile production

- 10% is recycled or reused
- Majority of waste is post-consumer
- Local collection pilots
- Difficult to scale up



Wastewater

80 billion tons*
15x IJsselmeer

- Overall treatment close to 80%
- Domestic wastewater treated in growing number of public sewage plants.
- Stricter penalties on illegal discharging by paper, chemical, textile and steel producers



Market

Technologies that produce fermented animal feed, organic fertilizer and methane are getting more profitable

C&D waste is increasingly applied to concrete formulas, and on a small scale for highway construction and bricks.

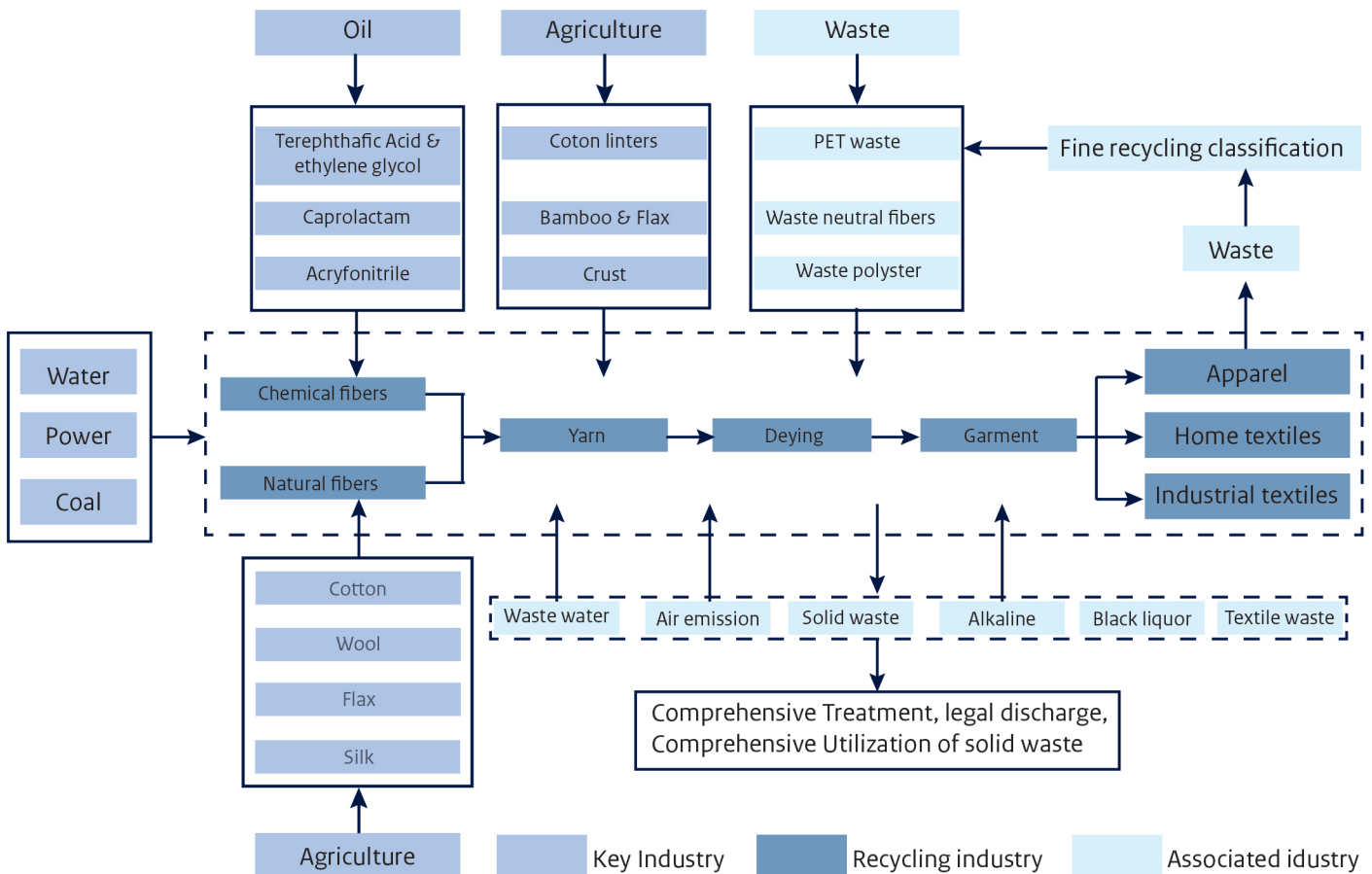
EUR 120 billion textile and apparel market. Global brands increasingly use recycled textiles in design. Alternative textile fiber applications are also a promising market

35 million tons of sludge is produced, containing heavy metals and chemicals. 80% goes untreated, due to negative profitability, but the government has announced investment.

* Yearly

Integrated industrial chains

Recycling of materials now regarded as “waste” forms the basis of a circular economy. Utilizing waste as a resource has fueled businesses for centuries, even before the birth of ecological awareness. However, single-type waste stream recycling, such as transforming cardboard boxes into newspapers, is a limited business. Successful circular resource management leans on the combination of various waste types and other materials into industrial chains. The Chinese government supports the private sector in designing integrated industrial chains, such as below model for the textile industry, which also uses petrochemical waste. These also include processing and measurement technologies to lower CO₂ emissions and save energy.

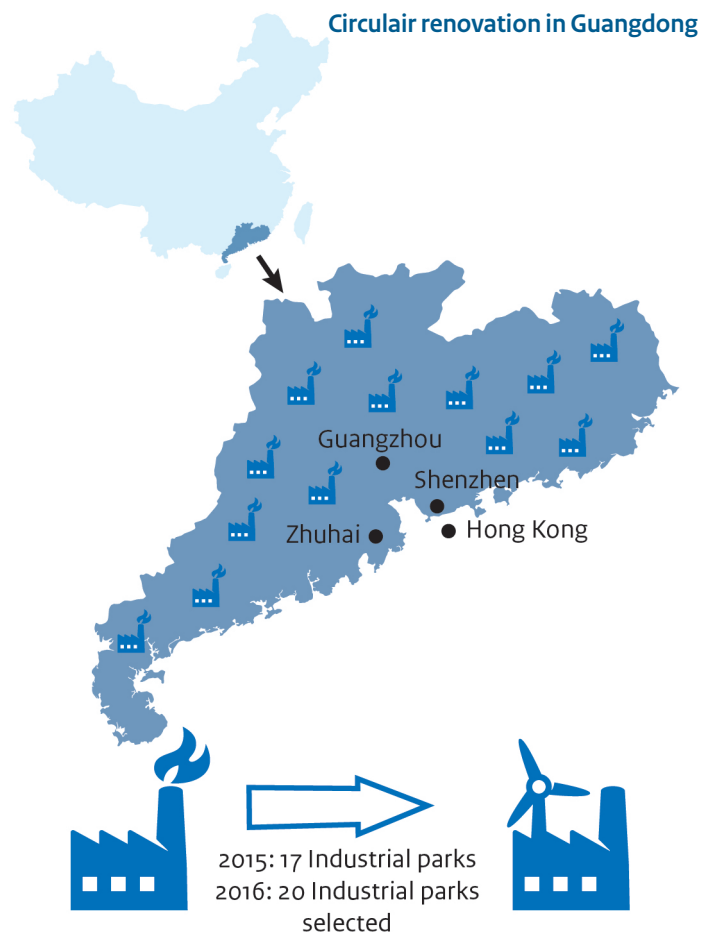


National Circular Economy Textile Industry Action Plan

Highlighted: Opportunities in the renovation of industrial parks (Guangdong)

Guangdong Province is located in the South of China, next to Hong Kong. As the province with the largest GDP in China and an economy the size of Mexico's, Guangdong is known as the "factory of the world." Since the opening of China's first Special Economic Zones in Guangdong during the 1980s, hundreds of larger and smaller industrial parks have sprung up. Now that advanced manufacturing is replacing grimy chimneys and labor-intensive sweatshops, a number of industrial parks are transformed into sustainable resource-sharing facilities.

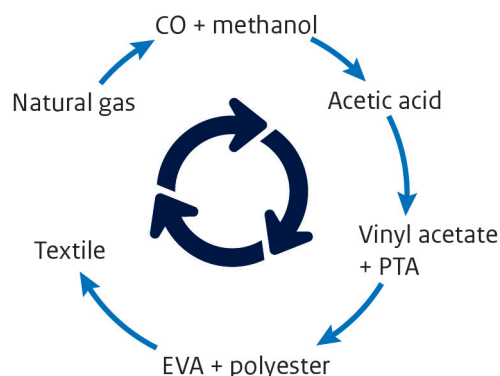
Guangdong authorities are currently selecting industrial parks to undergo a circular renovation. The industrial parks are generally diverse in composition, but have one or two key industries, such as Gaolan Port below.



Key performance indicators for these parks are value and utilization rate of material and energy streams. Local governments specifically aim to use linked industrial chains and disruptive treatment methods to increase resource utilization. The Netherlands Consulate General in Guangzhou collaborates with the Guangdong Circular Economy Association to propose design and technology providers to local decision makers.

Zhuhai Gaolan is one of the selected projects. It has wharfs for liquid chemicals and bulk cargo with the largest tonnage in the Pearl River Delta area. More than 150 companies are already established here, including petrochemical heavyweights such as Shell and BP, but also textile and machinery manufacturers. Heat sharing systems and chemical chains are being established, but further design and implementation is needed.

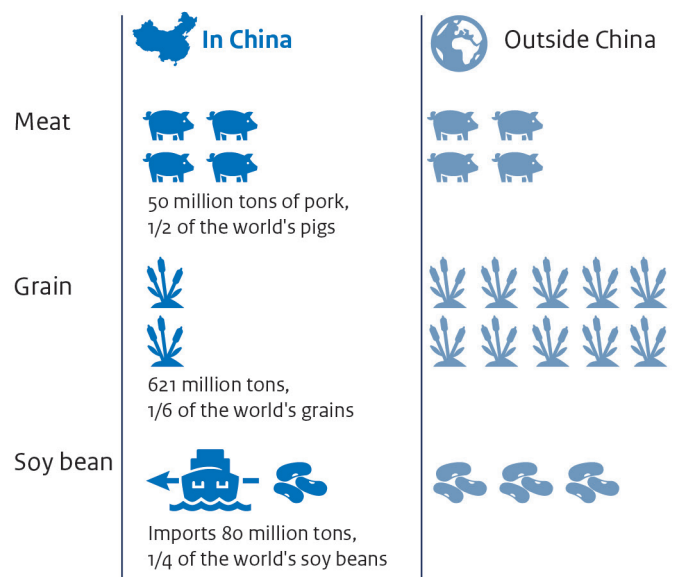
Example of a developing chemical chain in Gaolan



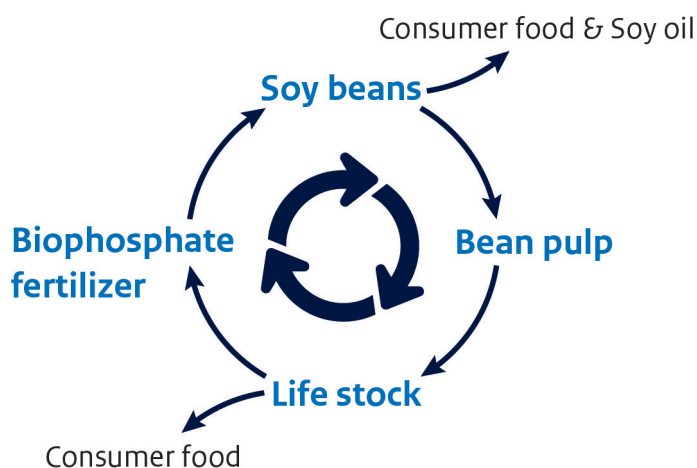
Highlighted: Opportunities in organic resource management (Fujian)

China is an agri-food behemoth, ranking first in worldwide farm output. The country produces substantial organic waste streams which constitute a circular business opportunity. China's budding organic circular economy, which now reclaims resources from less than 1% of organic waste, increasingly finds a market for its products in cosmetics, livestock feed and food additives. An example of a less obvious market for organic products, is the use of bamboo for the desulfurization of coal.

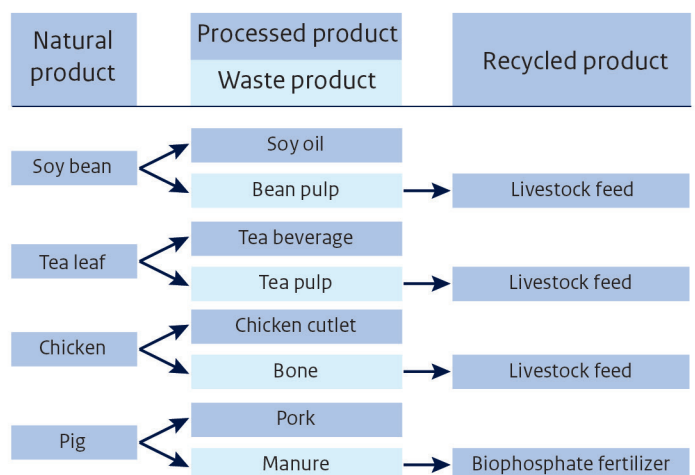
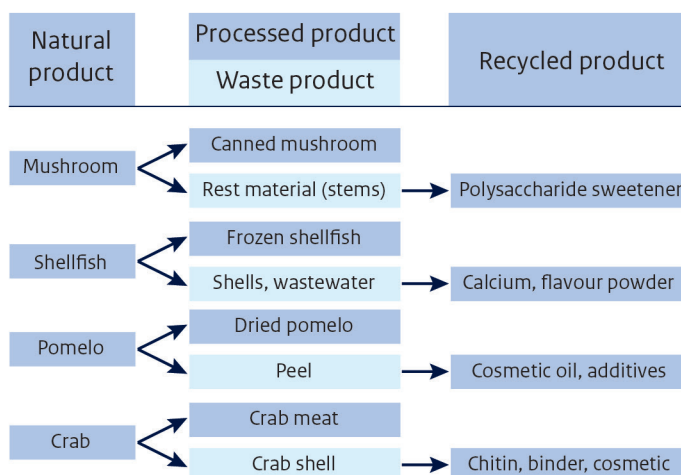
Fujian Province is located in the South of China, opposite Taiwan. Fujian is rich in agriculture, forestry and fishery and hosts a lively food processing industry. Provincial and local government officials are actively looking to upgrade these sectors, and are making subsidies available for R&D-driven projects.



Agricultural production in China



One of the cities with direct opportunities is Zhangzhou, which enjoys warm sister city relations with Wageningen. Zhangzhou is located next to Xiamen, and has a food processing industry of global scale, producing an annual output of EUR 18 billion, which is close to 14% of China's total food processing. Some of its main primary products are mushrooms, seafood and fruits. A part of the recycling that already takes place in Zhangzhou is listed here. There is a strong interest to expand the possibilities.



For the Netherlands, worldwide

Do you have the circular innovation China needs? Get in touch! The Netherlands Consulate General in Guangzhou can connect you to decision makers in key enterprises, industry organizations and local governments in South China.

Dutch companies who are considering to open up the Chinese market can take advantage of a Business Partner Scan. During a Business Partner Scan, multiple Dutch missions in China conduct tailor-made market research and bring you in touch with high potential business partners.

For more information about services of the Netherlands economic network in China:
http://china.nlabassade.org/Zakendoen_in/zakendoen/wat-kunnen-wij-voor-u-betekenen

Please send your inquiries to the Consulate General of the Netherlands in Guangzhou:
GNZ-EA@minbuza.nl



This report was written by:

Ruben de Bie
Economic Policy Officer
Consulate General of the Kingdom of the Netherlands in Guangzhou

Special thanks to: Dr. ZHU Wangzhao, Mr. ZHOU Li, Mr. WANG Jiyue, Mrs. Karin HAN, Mr. Tommie VAREKAMP

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