The Cost of Going Green

A peek into China's chemical industry

This whitepaper will offer insights into the latest policies introduced by the Chinese Government, how they are affecting the supply chain, and where the future of the industry lies.

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Introduction

Chemical prices around the world are soaring. According to the Federal Reserve Bank, U.S. import prices of organic chemicals have increased by nearly 3% in 2017, driven largely by China. The country takes up 12.2% of global organic chemical exports in 2016, surpassing the US (9.8%) and Germany (7.4%). Volatility in Chinese government policies have become a defining factor in the global chemical market scene.

But this hasn't stopped China from pushing forth radical, new policies.

>3%

Chemical prices increased by >3% in 2017

12.2%

China exports 12.2% of all organic chemicals in 2016

“Better Quality, Not Quantity”

Earlier in October at the 19th Communist Party Congress, Chinese President Xi Jinping paved the way to shake the chemical industry once again with the announcement of new environmental policies.

China is now set to become a “green nation” by 2035, with rocket-high targets of pollution reduction and ecological protection along the way.

While Xi has risen to become China’s most influential leader since Mao, his determination to rebuild China with “better quality, not quantity” will radically transform the industry in the many years to come.

President Xi Jinping announced new environmental policies at the 19th Communist Party Congress

Photo credit: [illegible]trait Times

In fact, factories and laboratories across China already started feeling the pain earlier this year. For example in Jiangsu Province, where the chemical industry is an economic pillar that generates USD 3 trillion of sales per year, government officials have started reviewing and strictly enforcing emission regulations.

All chemical facilities along Lake Taihu in Jiangsu Province will be closed or relocated by 2020 in a bid to protect precious water resources.

Half of the facilities that do not meet the new standards will be forced to shut down by 2017, and all facilities along Lake Taihu will be closed or relocated by 2020 in a bid to protect precious water resources. Similar situations are also taking place in regions like Northern China and Yangzi River Delta, causing serious havoc to market supply.

Lake Taihu in Jiangsu Province has been heavily polluted by nearby chemical manufacturing facilities

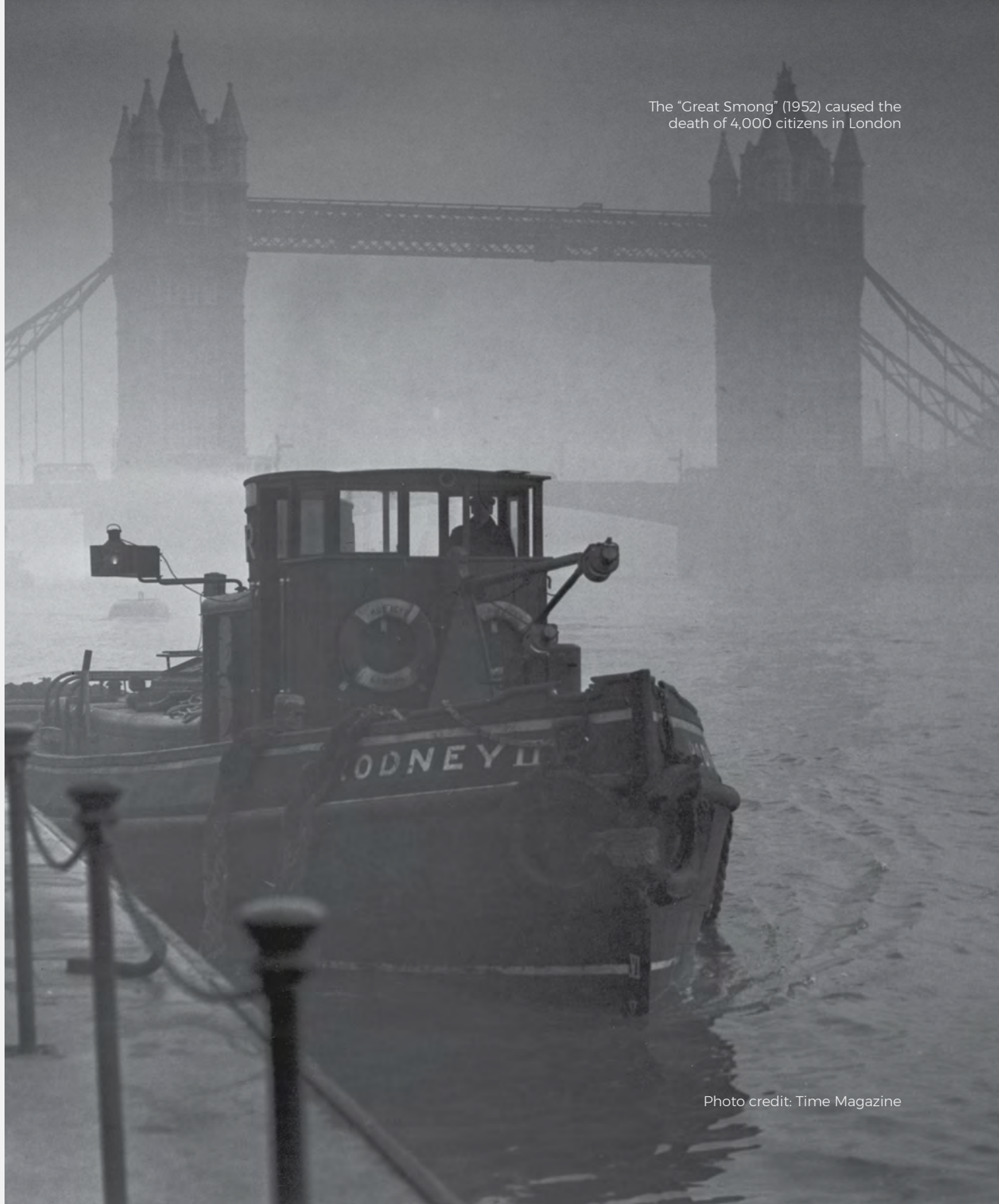
Photo credit: Eco-Business

The History of Going Green

To understand China's push into environmental policies, we need to look no further than Europe's (particularly Britain's) history of industrialization.

The "Great Smog" (1952) caused the death of 4,000 citizens in London. It was not until 1956 when the British Government finally put in place the Clean Air Act.

In the early 1900s, years after the Industrial Revolution began, skies above London were dark and toxic gases in the air were causing corrosion on metals and stones that filled the city. There was even a week in 1952 when the "Great Smog" trapped the people of London, causing the death of 4,000 citizens. It was not until 1956 when the British Government put in place the Clean Air Act, that the situation started to improve.



The "Great Smong" (1952) caused the death of 4,000 citizens in London

Photo credit: Time Magazine

Many would then ask: wouldn't such regulations be detrimental to the industry's development? The answer is no, not necessarily.

Stricter regulations have historically driven innovations by creating a safer marketplace, in turn increasing the supply of and demand for safer alternatives.

REACH, introduced by the EU in 2006, was criticized by many as a roadblock for the development of the chemical industry. It was depicted as a key driver of costs and a waste of resources. But the fact is, stricter regulations have historically driven innovations by creating a safer marketplace, in turn increasing the supply of and demand for safer alternatives.

For example, a spike in patents for phthalate alternatives was recorded after stronger laws were enacted to protect consumers from these widely used plasticizers. In addition, if we look at the list of top 15 chemical exporters in the world in 2016, almost half of them belong to the EU, contradicting what many thought would happen.

REACH regulations boosted supply of and demand for innovative solutions in the chemical industry

Driving Innovations

With China's new environmental policies, the country's chemical industry will undergo a long-overdue consolidation, forming new clusters of factories and labs that are more competent and innovative.

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Smaller entities will be consolidated to benefit from economies of scale, and the elevation of manufacturing cost will be compensated by a simplified value chain of resale and distribution. While the short-term downside is a spike in cost of procurement, supply chain risks will fall and become more manageable in the long run.

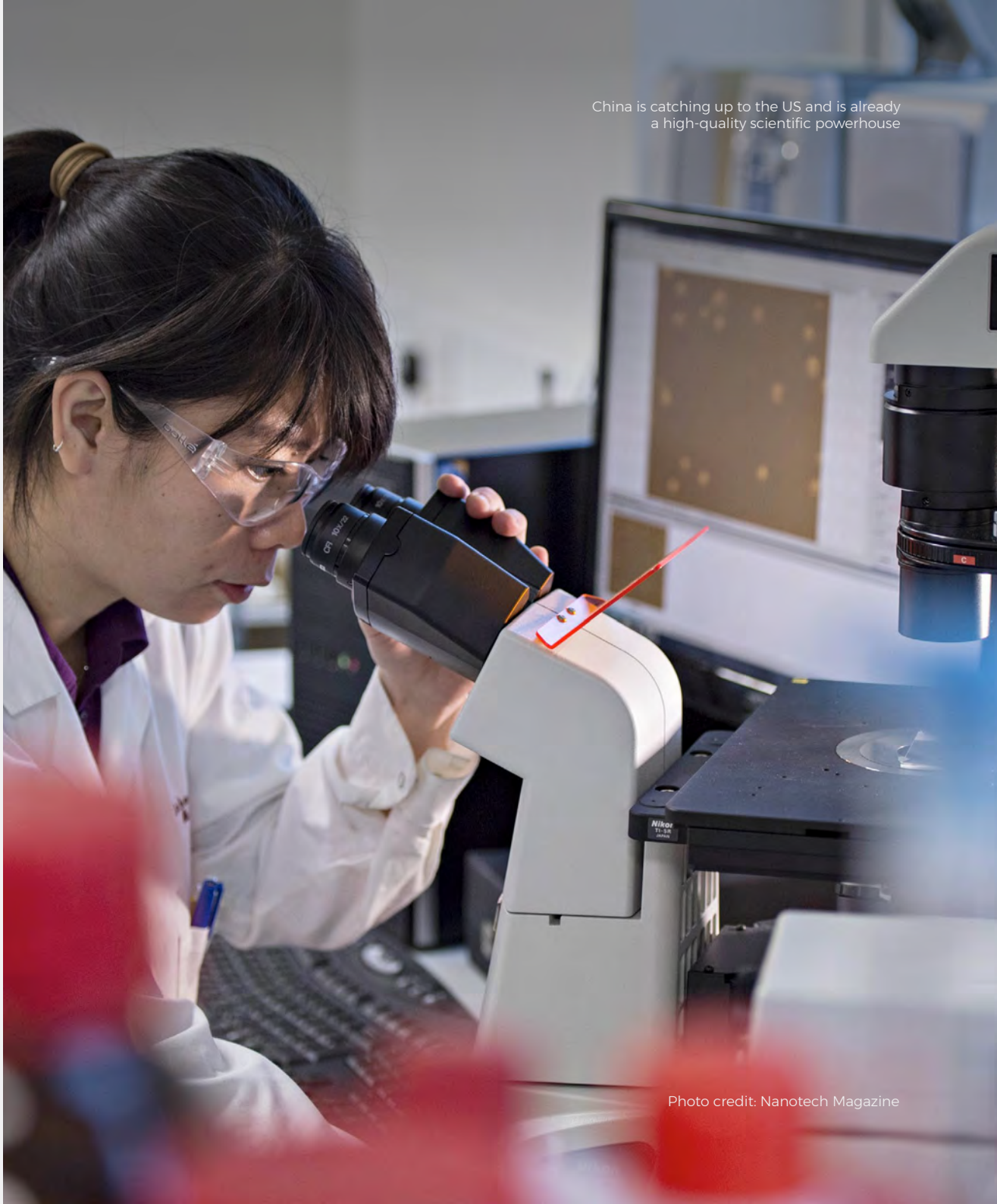
Chemical plants and labs in China will be consolidated to form new clusters of facilities

Most importantly, much like how Germany and Japan transformed themselves from “manufacturing” to “innovating”, we could expect a new wave of technical innovations coming out from China.

According to Dr. Nick Campbell, Executive Editor at Nature, China is catching up to the US and is already a high-quality scientific powerhouse. In fact, China is only second to the US when it comes to both R&D spending and high-impact science research performance.

We will see even more projects that require sophisticated skills and knowledge, like custom synthesis and scale-up planning, to be outsourced to or originated from China.

The industry will start to benefit from the level of innovation that China has to offer in the decades to come.



China is catching up to the US and is already a high-quality scientific powerhouse

Photo credit: Nanotech Magazine

The Verdict

With Xi's push to drive China's qualitative development for the next few decades, the chemical industry in China will undergo a significant restructuring. The policies did not come as too big of a surprise given the way many industrialized nations have transformed in the past.

Although chemical prices are driven up, the global supply chain will benefit from the innovations offered by China in the long run.

The synergy between the new environmental policies and China's increasing research spending and capability creates tremendous potential for the development of multiple industry verticals, including pharmaceuticals, energy and many more.

Innovation comes at a cost. But the cost of going green could well blossom into a new age for the chemical industry.