

POLICY BRIEF SERIES

Water, the Origin of Life

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With over 30 years of the rapid economic growth and industrial development, China has emerged from one of the world's poorest nations to the world's second largest economy. From 1978 to 2011, real GDP growth averaged about 10 percent a year has indeed lifted more than 500 million people out of poverty. However, while China is celebrating its meteoric economic ascendance, the country faces many challenges as well, including high inequality, rapid urbanization, external imbalances, and most importantly, environmental degradation. Take air pollution for example, in northern China, readings of PM2.5, the most harmful types of toxic smog, have reached 40 times the maximum level allowed by the World Health Organization. Yet air pollution is not the only problem, rapid industrialization combined and inadequate regulation has seriously polluted 40 percent of China's lakes and rivers. The total cost on water pollution in terms of human life translates to 60,000 premature deaths annually, and every one out of four people in the world's most populous country lack access to safe drinking water.¹

Severe water pollution

Approximately 10% of China's surface water is heavily polluted and rated Level 5 or below, which means it is unsuited even for use in irrigation. In some river zones, Level 5 water can reach up to 40%. These seriously polluted water not only damages surrounding aquatic systems, but as it flows in to habitats, villages, towns, and suburbs, it contaminates underground water supplies, and puts the health of many lives at risk. The World Bank even warns China the "catastrophic consequences for future generations regarding its serious water shortages and water pollution problems. In fact, by 2014, up to 40% of the country's rivers are "seriously polluted" and 90% of cities' underground water supplies are contaminated. One study has shown that every day, near 980 million of the total 1.3 billion Chinese are drinking partly polluted water. Water pollution has become the main contributor to high rates of liver, stomach and esophageal cancer in China.²

¹ [Responsible Research \(2010\) *Water in China: Issues for Responsible Investors*. Singapore: Responsible Research, Feb 2010](#)

² Jeffery Hays (2013) *Facts and Details: Water Pollution in China* [online] (Updated April 2014)

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Available at:
<http://factsanddetails.com/china/cat10/sub66/item391.html#chapter-0> [Accessed 2 April 2015]



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How did it get this bad?

From an impoverished farming-reliant country to the “factory of the world”, China’s 30 decades of rapid growth has imposed some long-term environmental, health and social costs. In terms of water pollution, many studies have proved that there exists a positive correlation between industrial growth and the growth in total amount of discharged wastewater. From 2001 to 2012, the total amount of discharged wastewater in China grew from 43.3 billion tons in 2001, to 68.5 billion tons in 2012. The country experienced a growth of 25.2 billion tons of total discharged wastewater in 12 years, with an average of 2.1 billion tons of additional discharged wastewater annually, at an average annual growth rate of 4.3%. Rapid industrialization combined with inadequate regulation and lack of treatment facilities are among the main contributors to water pollution and environmental degradation. In terms of regulation inadequacy, for instance, the maximum allowable discharge concentration for some major pollutants are set at values that are a lot higher than that of the surface water quality standards. This not only result in many “seriously polluted” discharged wastewater to be considered “in compliance” with standards, but in term leads to the widespread dumping of toxic chemicals, agriculture runoffs and industrial contaminated wastewater to poison the country’s water sources such as rivers, lakes and ground and underground water supplies. The Yellow River and the Yangtze River are among the most polluted rivers in the world. These two rivers traverse China’s industrial belt as they flow from west to east, and by the time they reach coastal cities in the east, their waters require extensive treatment before being potable.

It has become a paramount concern that the general public has no knowledge of the quality of their drinking water. Southern Weekend, featured an interview with A Beijing family of water experts, both of whom revealed that they hadn’t drunk from the tap for twenty years to show the public how bad Beijing’s drinking water has become. The husband is an employee of the Drinking Water Commission at NDRC’s Public Nutrition and Development Centre and the wife is an official at the Healthy Drinking Water Committee under the Beijing Health Care Association. Years of research in the field has left them with the habit and knowledge of never drinking from tap water. Over the years, the expert couple watched levels of nitrate in their drinking water grew from 1 to 2 mg per liter in 2007, to 9mg per liter in 2013, a value very close to the national standard of 10mg per liter.³

Measurement of nitrogen contents is one of many ways to test for water quality. Findings of growing hazardous contents in drinking water have become a concern not only in Beijing, but across the country. 30% of industrial wastewater and more than 90% of household sewage in China are released into rivers and lakes without treatment. 80% of a sample of 278 Chinese cities has no sewage treatment facilities and 90% of the cities with contaminated water have no plans of building any underground water supplies.²

There is no doubt that regulators and factory/plant owners should take the blame for the current situation. In the past, profit-driven companies and state-owned enterprises in the oil and power industries have consistently blocked efforts by pro-environment government officials to impose policies that would alleviate pollution. The reason being is that pollution

³ [PENG, L. \(2013\) Beijing family boycotts city’s tap water. Southern Weekend, 16th January](#)



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alleviation or treatment is a costly project that all profit-driven companies would not want to bear, especially for those that produce refractory chemical byproducts. Without industrial-wide regulation and law enforcement, a company that is willing to investment in the environment will stand no chance at surviving from the competitions of its profit-driven counterparts. Lack of adequate supervision and regulatory authorities have always been a major weak spot when it comes to local environmental quality evaluation. In fact, most of water testing is done in-house by the same water-treatment plant being evaluated. Not to mention the cases when corrupted local officials cover up environment wrongdoings and overwrite evaluations upon receiving bribes.

How will the problem be fixed?

Rapid nationwide environment degradation has become an issue of paramount concern to the general public. In recent years, public fury over environmental issues has forced propaganda officials to allow official Chinese news organizations to report more candidly on pollution. Recognizing the growing threat to the country's water supply, the Chinese government has identified the priority to improve laws and regulations on water pollution control and to enhance action plans regarding water pollution prevention programs. In 2014, the Chinese government passed a new Environmental Protection Law, which went into effect on January 1st 2015, to set environmental protection as the country's basic policy rather than economic development at any cost. The amended law also provides stiffer penalties for polluting business, including higher fines and up

to 15 days in jail for company leaders who violate environment rules. Local officials can be demoted or fired if they are found guilty of misconduct, including receiving bribes and covering up environmental wrongdoings. In some extreme cases, they could be charged with criminal offenses.⁴

In April 2015, the Chinese government will release its new Water Pollution and Control Action Plan, also known as the "ten-point water plan", which aimed to overhaul water resources management and improve monitoring of drinking water supplies in the country. Not only will efforts be strengthened in toughening supervision of and accountability in handling wastewater, a new monitoring system will be introduced to follow drinking water from source to household tap. Concrete stipulations on the targets, tasks, measures and deadlines of pollution treatments have been identified and water pollution prevention is to be carried out on a large scale as the country plans on an estimated 2 trillion Yuan investment in combating water pollution.⁵

Strong financial support from the government will boost confidence in the water treatment industry. After the new action plan is stipulated, towns and suburbs will be the main market for water treatment. Targets will be set to complete or start new constructions of pipe systems, to build new and upgrade old water treatment facilities, and to help all suburban towns realize their water treatment abilities.

Under the new action plan, efforts will be put to cover the cost of water treatment. Higher standards will be set for discharging of

⁴ [PENNAY, P. \(2015\) China to release water pollution plan in April. The Australian Business Review, 23rd March](#)

⁵ [QIAN, R. \(2014\) China fights pollution with new clean water action plan. CNS wire, 11th June](#)



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wastewater, and relevant fees and penalties will be raised and its scope expanded. Also, a tiered pricing system will be introduced in 2014 to raise water fees for consumers in wealthier cities such as Beijing. More opportunities of growth will be realized in the water treatment/conservation industry as government takes the lead to invest in or subsidize facility development and technological advancement in pollution prevention and energy conservation projects across the country.

Rigorous regulations and effective law enforcement combined with government subsidies and investment in combating pollution is one effective way to tackle China's environmental problem. However, the goal of environment protection cannot be achieved relying solely upon government agencies. Cooperation between the government and the general public is strongly required on addressing the country's devastating environmental problems.

In Wuhan Provincial, the local government have already undertaken a radical solution and turned to local residents for assistance. Members of the public and NGOs became local "grassroots lake guardians" to provide information and evidence about pollution sources and advise officials about the best ways to control local pollution spread. And if the public feels that the authorities are unable to tackle the problems quickly enough, or lack the sources to do so, they will publicize their findings via traditional and social media to raise awareness across the nation.

The role of public is not limited to patrol activities, in May 2015, the Ministry of Finance and Ministry of Environmental Protection issued Guidelines ordering local authorities to encourage the growth of public-private partnerships (PPPs) for projects aiming at tackling environmental pollutions. The bundling

of interests between the government and the private entity in PPP projects allows for appropriate sharing of operational and financial risks between the public and private parties, and has the potential to increase efficiency and lower cost of projects. Through direct involvement in water protection/treatment projects, local governments not only can act as a supervisory agent to ensure the effectiveness of environment regulations, but also act as a facilitator to push projects forward especially through excessive layers of government approvals.

Although it is a long and difficult road, strong determinations have been recognized from the Chinese government and its people as more and more public and private capitals are invested in combating water pollution. It is now the nation's top priority and longing wish to bring safe drinking water to every household in China.