



The greening of the

Baoding, a city of a million people in the eastern Chinese province of Hebei, bristles with cranes and is pock-marked with construction sites. Horse carts and cargo trucks jostle in chaotic traffic with shiny Mercedes, nimble scooters and sturdy bicycles. Small grimy workshops spew out onto litter-strewn streets, and huge new industrial estates sprawl into the flat hinterland.

Rising against Baoding's concrete-coloured sky is the Power Valley Jinjiang International Hotel, a hulking five-star establishment that doubles as an electricity-generation plant. Its roof and south and west faces are clad in building-integrated photovoltaic panels (PVs), which soak up the sun's energy and turn it into power to heat the guests' luxurious rooms and light up twinkling chandeliers.

The hotel generates a maximum of 300 kilowatts of electricity. A plaque at the hotel entrance boasts it would take 104

tonnes of coal, emitting 270 tonnes of CO₂, to produce the equivalent amount of power for a year. An adjacent PV-clad building, which serves as a business centre, produces up to 500kW, and another soon-to-be completed building will bring the total capacity of the complex to 1500kW.

It's a monument to the potential of

China surpassed the US last year as the world's leader in clean-energy finance and investment.

solar energy, and a grand statement of hope that China can swing away from its polluting past towards a more sustainable future.

I've come to Baoding by train from Beijing, 146km away. Travelling at more than 200kph, the bullet-nosed locomotive shot past tumbledown villages, wheat fields, bent-over farmers and huge swathes of young plantation forest, depositing me at

Baoding's shabby railway station an hour after leaving the capital.

I'm here to try to work out whether China's incredible 30-year industrial revolution, which has lifted hundreds of millions of people out of poverty but caused catastrophic environmental damage, has reached a turning point. Whether the solar-powered hotel and the rocket train are part of a bigger plan to put the world's biggest greenhouse-gas emitter – with its poisoned rivers, encroaching deserts, acid rain and murky skies – on a cleaner path to prosperity.

Baoding's showcase hotel and its long rows of solar-powered street lights (which can keep working for five days without sunshine, says my guide, Zhai Yi) hint at a bold vision in which it will be glorious to be both green and rich. Two years ago, the city joined with international environmental group Worldwide Fund for Nature (WWF) to set up a "low-carbon city" initiative. The idea is to accelerate China's clean-energy sector, promote energy efficiency and drive research and development. It's all happening in close collaboration with



monster

After its incredible 30-year industrial revolution, can heavily polluted China really become the cleantech capital of the world? BY REBECCA MACFIE

China's powerful National Development and Reform Commission.

Enticed by tax breaks and subsidies, renewable-energy companies are responding in droves, and the city is fast becoming the cleantech capital of China. The renewable-energy sector now makes up 12% of the local economy and is picked to overtake Baoding's traditional industries – auto and textile manufacturing – within two years.

At Yingli Solar, huge billboards outside the factory gate chart the explosive growth of an industry. Don't beat yourself up if you haven't heard of Yingli, but the Baoding-headquartered company is one of the biggest solar manufacturers in the world (and the first Chinese company to sponsor the FIFA World Cup). A small army of beige-clad company spokespeople recite the impressive data: in 2003 Yingli produced enough PV panels to generate 3MW of electricity; this year its capacity reached 1400MW. Started just 12 years ago, it exports around the world, is listed on the

New York Stock Exchange, employs 6000 staff and has sales of NZ\$16 billion.

"We have the most enhanced machines in the world," one of the beige lieutenants says. Having been ushered through the vast, modern interior of the complex, where they take in raw silicon at one end and pump completed PV panels out the other, I have no reason to doubt it.

"Things are moving in China a lot faster than even the Chinese thought would happen."

United Power, headquartered in a new industrial park developed purely for the wind-energy sector, has a similar story of breathtaking growth. Set up by state-owned power generation company Guodian just three years ago, it now turns out 90 wind turbines a month. It is surrounded by manufacturers that make control systems, hubs and gearboxes for windmills. Lining the Wind Park's

dusty new streets are dozens of gracefully curved new turbine blades waiting to be trucked to the vast new wind farms under development in China's interior.

Baoding's local government leaders are not alone in enthusiastically embracing a greener future for their communities. In Shanghai, WWF has teamed up with the city government in a major energy-efficiency push; in Rizhao, a city in Shandong Province, 99% of residences have solar water heaters as a result of a local government mandate and low-cost manufacturing; in Inner Mongolia, the local government is backing a project to turn "black water" (toilet waste) into irrigation-grade water and fertiliser.

Nationally, green ambitions are writ large as part of the Communist Party's aim to build a "harmonious society". The Government aims to have China generating 20% of its electricity from renewable sources by 2020, up from 7% in 2005. The country already has more renewable-energy capacity than any other and, according to the Pew Environmental Group, last year surpassed the US as the



Top, a steelworker at a Baotou Iron and Steel Group mill in Inner Mongolia; above, a worker in Victory Traffic Facilities Engineering Co's Baoding plant inspects a solar-powered aircraft kit; right, the thriving metropolis of Shanghai.



world's leader in clean-energy finance and investment.

China's solar photovoltaic manufacturers account for a third of global production (although most is exported), and one in 10 Chinese households have solar water heaters. It has doubled its wind-energy capacity in each of the past four years, and now ranks fourth in the world in terms of wind installations (although close to a third of new wind farms have yet to be connected to the grid). By 2020, its wind power is expected to be more than 11 times what it is now, with much of the new capacity coming from seven giant wind farms that will produce a total of 120GW – the equivalent of 240 large coal-fired power stations.

China is infamous for opening two coal-fired power plants a week to satisfy its hunger for energy. But what's not so well known is that it has also shut down 7500 old and inefficient coal plants in recent years. According to some commentators, its fleet of coal plants is now more efficient than America's.

China's fuel-efficiency standards for cars are tighter than those in the US, its Government is subsidising the uptake of electric cars and its auto manufacturers are widely tipped to lead the world in electric-vehicle development (Chinese company BYD is behind the world's first mass-produced hybrid plug-in). Although the number of cars on the roads is soaring

at a frightening rate – up 33% in the year to May – the streets are also full of efficient electric bikes and scooters.

The country is undergoing the biggest expansion of rail in history, extending the network from 78,000km to 120,000km – including 13,000km of high-speed rail – by 2020. Ten thousand square kilometres

“The joke here is that the country would be completely unliveable if they actually enforced all the laws.”

of forest and grassland have been planted in each of the past 10 years. Some NZ\$15 billion has been tagged for new wastewater treatment plants.

And, notwithstanding China's reputation as a wrecker of the climate talks in Copenhagen last year, it is targeting a 40-45% reduction in greenhouse-gas emissions as a proportion of its GDP by 2020.

As ever in China, the numbers and the ambition are of epic proportions. But so, too, is the environmental calamity wrought by three decades of 10% year-on-year economic expansion and the regime's legacy of pursuing growth at any cost.

China's emergence as the workshop of the world has placed an intolerable burden on the environment. About half of the country's rivers are too polluted to use as a source of drinking water, and 20% are so toxic they can't be used for any purpose, including industry and agriculture. More than 300 million people lack access to safe water, and three-quarters of China's lakes suffer from eutrophication. Less than 60% of sewage is treated before being dumped into waterways.

The country's rivers and lakes have endured a litany of toxic disasters, such as the 2005 chemical plant explosion that sent 100 tonnes of benzene into the Songhua River, and the 2007 algal bloom that turned the once-beautiful Taihu Lake – China's third largest – fluorescent green.

Acid rain, caused by sulphur-dioxide emissions from the burning of fossil fuels, is making people sick, destroying crops and eating into buildings. Even with the growth of wind and solar power, coal still accounts for over 70% of China's energy needs, and because the economy is growing so fast that proportion won't diminish any time soon.

According to the World Bank, 750,000 people in China die prematurely because of polluted air and water, and contaminated drinking water is causing high rates of stomach, liver and bladder cancer. Advancing deserts now cover more than



Left, solar panels cover a wall of the Power Valley Jinjiang International Hotel; top, Yang Ailun; above, Peggy Liu.

a quarter of China's landmass. Pollution and land degradation has turned tens of millions of farmers into what China's environment vice-minister, Pan Yue, has called "environmental refugees".

"What's happening now is simply not sustainable," says Greenpeace China campaigner Yang Ailun. One of the leaders of a 40-strong Greenpeace contingent based in central Beijing, Yang believes things will get worse before they get better for China's environment. "The majority of middle-sized Chinese cities are only just entering their rapid expansion phase.

"China doesn't have the luxury of repeating the 'pollute first and clean up after' model." As Western countries did during their industrial revolutions? "Yes, they managed it and it took 200 years ... There is no way China can develop like that. The local pollution problems are already threatening social stability. Over half of China's incidents of local unrest are related to environmental causes."

Yang, a graduate of finance, accounting and sociology who leads Greenpeace China's climate-change campaign, says the country is already a victim of climate change-induced drought and natural disasters, and the burden falls mainly on the rural poor. A report published recently by her office warns gravely: "If immediate action is not taken, climate change will cripple China's efforts in poverty alleviation."

But she says China's top central government leaders "get it". "There are some very positive signals about how the situation may be improved. You can see how they have started to talk about the environment and climate-change issues, and they have started to make environmental protection a very high priority

"China doesn't have the luxury of repeating the [Western] 'pollute first and clean up after' model."

for the Government." She believes real progress is being made towards the country's ambitious renewable-energy targets.

Yang's colleague Ma Tianjie, who runs Greenpeace's campaign against toxic waste, says some improvements are being made on water, too – in particular, big investment in new wastewater treatment plants. Local officials have been made accountable for a 10% reduction in organic pollutants in the next five years.

But at the same time, new evils are emerging. "Since last year there have been several incidents that concern thousands of people, such as high levels of cadmium in the blood," says Ma. "China is in a sandwich situation. On one side it is pressed by the old pollutants that

we saw in the West 50 years ago. On the other side is it also pressed by new industries and new chemical products such as electronic waste."

Ma says there's nothing wrong with China's environmental laws – the problem is enforcement and compliance. Information disclosure is the key to environmental progress, and he says it's because of the absence of data that villagers fail in their attempts to get compensation from polluting industries. In 2008 China's Ministry of Environmental Protection invoked a new law requiring companies that violate regulations to disclose that information publicly. But a Greenpeace study last year showed widespread non-compliance, both among big foreign-owned companies and Chinese firms.

"Implementation by local environmental protection bureaus is very weak," says Ma. "They don't understand the regulations or they have the notion that as long as they have the information, the companies don't have any obligation to release the information."

Yang says in some regions local governments don't implement environmental edicts passed by Beijing because they lack funds for enforcement. Also, the offending industries are often important sources of local government revenue.

"The Chinese do very well in achieving development targets. If you say, 'We want



The Songhua River in 2005, after 100 tonnes of benzene from a chemical plant explosion poured into it.

to develop 150GW of wind power', that's a huge target, but all the provinces will fight for it – 'I want a bigger one, I want a bigger share' – because they understand that when they have a bigger target, they will get better development support and more industry will go there. But when it comes to restrictive targets – 'you need to reduce this or limit this' – local government doesn't want to have any limitations put on how they develop their local economy."

But she says Beijing does have the power to make local government officials fall into line, and there are some signs that performance of local politicians is being assessed by the central government against environmental criteria.

"We have heard of a couple of people who lost their jobs because they didn't meet their environmental targets, but it's not a lot."

The mountains are high and the emperor is far away." It's an old saying recited frequently in China to explain why edicts issued in Beijing are often ignored in the provinces.

"The joke here is that the country would be completely unliveable if they actually enforced all the laws," says Gary Rieschel, a Shanghai-based American venture capitalist who sees commercial opportunity in China's polluted skies and waterways. His US\$500 million fund, Qiming Venture

Partners, has set aside 15% for cleantech companies that could make money out of China's clean-up. Among those he has backed is New Zealand company LanzaTech, which has found a way of turning flue gas from steel mills into ethanol and other chemicals (see story next page).

About half of China's rivers are too polluted to use as a source of drinking water, and 20% are so toxic they can't be used for any purpose.

"The pollution laws have been in place for the past 10 years, but they just didn't bother to enforce them," says Rieschel. "China is not an autocratic system in the sense that Beijing issues an edict and 1.3 billion people suddenly bow. They issue an edict and everyone sits down that night and says, 'Do we have to pay attention to this one?'"

For instance, coal plants were required to have scrubbers installed to reduce sulphur-dioxide emissions. "But they forgot to say you had to turn the scrubbers on. Or the inspector would call the day before and say, 'Hey, we're coming', and they'd turn them on."

But Rieschel says Westerners should avoid rushing to judge China on its envi-

ronmental record. "When I was growing up in Portland, Oregon, the Willamette River was so dirty the salmon stopped running. It took 15 years to clean it up ... [China's environment] is a bit like Los Angeles was in the 1970s."

And he believes attitudes really are changing in China. He says it's hard to overestimate the embarrassment caused to the leadership by the likes of the algal bloom in the middle of the Olympic sailing venue, and believes they are "deadly serious" about cleaning up. "For example, it used to be that the penalty for dumping sewage into the river was a fine, and so for the polluter it just became a budget item. Well, now it might cost \$100,000 a day."

The calibre of local government officials is mixed, however. "At the highest level they are doing a good job – for example, at the Shanghai municipal and provincial level. But at the next level you are dealing with a far less educated and sophisticated group."

Campaigner Peggy Liu, named as a *Time* environmental "hero" in 2008 and this year's recipient of the laureate award from New Zealand's Hillary Institute, is trying to plug the environmental deficit among China's local government leaders. The fast-talking, American-born electrical engineer served her corporate apprenticeship in Silicon Valley and global consultancy McKinsey & Co.

Brass from muck

New Zealand companies are hoping to clean up in China.

China's environmental crisis presents big opportunities for New Zealand entrepreneurs with novel technologies that could help the country clean up.

Auckland-based LanzaTech, which has developed a process that uses a special microbe to turn waste gas from steel mills into ethanol, has just signed a contract with giant Chinese steel-maker Baosteel to build a demonstration plant in Shanghai. LanzaTech chief scientist Sean Simpson says the plant should be operating by the end of next year. The plan is to quickly follow up with a full-scale commercial plant.

LanzaTech is also working with the Chinese Academy of Sciences to accelerate the uptake of its technology.

Simpson, who co-founded LanzaTech in 2005, says the company has made rapid progress in the Chinese market. "We have technology that resonates with a lot of groups." China is committed to reducing its carbon footprint, and Baosteel wants to become a "leader in the field of low-carbon, recyclable and environmentally friendly steel products".

Among LanzaTech's investors is Shanghai venture-capital fund Qiming, run by American Gary Rieschel. "I think New Zealand has a huge advantage," he says. The New Zealand-China Free Trade Agreement, which includes an undertaking to co-operate on environmental management, gives New Zealand entrepreneurs "a huge umbrella of protection" when it comes to intellectual-property protection, a perennial concern for companies operating in China. "Why would China allow a small New Zealand company that's providing technology that's of great benefit to China, both economically and environmentally, to be cheated or disadvantaged?"



LanzaTech co-founder
Sean Simpson

Christchurch company Commtest, which makes vibration analysis and monitoring equipment, hopes to cash in on China's massive investment in water treatment and wind power. Max Ma, who runs Commtest's China operation, explains that the company's technology uses vibration analysis to predict maintenance problems, which helps prevent costly breakdowns and extends the life of capital equipment. It has won two contracts in the water sector – one on a massive project to treat Yangtze River water for Shanghai's drinking water supplies, and a similar project in Guangzhou.

A Commtest subsidiary, TurningPoint, has developed online condition-monitoring technology for wind turbines. Ma says the system has been installed in two turbines in Shanghai, which will serve as reference sites.

Blenheim-based Carbonscape, backed by entrepreneur Nick Gerritsen, is also

eyeing opportunities in China. Carbonscape has developed microwave technology that turns waste material, such as crop residue and sewage sludge, into charcoal, locking the carbon into a stable state. The charcoal can then be used as a soil conditioner. The company has been working to prove the technology to local government officials in Chengdu, the capital of Sichuan Province, and recently imported into New Zealand a sample of rapeseed straw to be zapped in Carbonscape's machine. The results will be reported back to Chengdu in the hope of initiating further discussions.

Gerritsen also has high hopes for another of his novel green technologies. Aquaflow has developed a method of harvesting algae from waterways and turning it into oil. Chengdu authorities had approved an Aquaflow trial on a polluted local lake, but it has been held up by lack of finance. Gerritsen says gaining acceptance will take a long-term commitment and engagement with local officials.

New Zealand-born entrepreneur Gavin Crombie, a long-time resident of Chengdu who has been helping Carbonscape and Aquaflow get a foothold in China, believes China is undergoing a sea change in environmental consciousness, and the potential for novel technologies that could help the clean-up is "mind-boggling".



Carbonscape
backer Nick
Gerritsen



An algae outbreak in Taihu Lake affected this major tap-water source, which is also contaminated with oil.

Protesting too much

It's easy to assume that anyone who criticises the status quo in China is promptly locked up by the regime. High-profile examples like environmental activist Wu Lihang, who was jailed for three years after protesting about the pollution of Taihu Lake, feed the caricature of Stasi-like oppression.

But at least 100 environmental non-governmental organisations (NGOs) are thought to have been formed in China, with the establishment of Friends of Nature in 1994 often cited as a pivotal point in the Government's tolerance of environmental activism.

Not surprisingly, however, there are many strictures. To register as an NGO, for instance, an organisation must first find a government agency willing to be a "sponsor".

Greenpeace China chooses instead to operate as a company, says campaigner Yang Ailun. It is not permitted to enrol members or take donations, and relies on funding from Greenpeace's international operation.

As for the range of actions environmentalists can mount, Yang says Greenpeace China can do "pretty much everything, except that we have to be more careful about the type of public activities we want to organise.

"There is a line there that you need to test quite constantly to understand how you can work most effectively ... We need to think about who we want

to reach and also evaluate the potential risks involved."

The "line" is not defined. "It's moving all the time. It's important to dance with this line." She says a legacy of the Cultural Revolution is that many Chinese are fed up with politics. "So we have to respect that, and if we want to work effectively in China, we have to think of



WU LIHANG

how to make people like Greenpeace."

Beijing environmentalist Yang Xiangjun is pessimistic about the Government's attitude to the role of green groups. Activist websites are censored and monitored, and sometimes randomly shut down - she cites the closure of the influential

China Development Brief in 2007, and another NGO site that was shut down just a few weeks ago. Tight new rules on the receipt of funding from foreign donors will also make life harder for environmental groups, given their heavy reliance on offshore money.

"The progress of democracy is slowing down. It's going backwards."

She says the Government is afraid of too much public awareness. "If NGOs go in and educate farmers that 'you have rights and you can fight back', then the local government has problems. That's why they really don't want NGOs to grow." She says she has seen many instances of activists being suppressed. "At the same time I am hopeful because more and more people are waking up."

Realising China was the new economic frontier, she and her husband moved six years ago to the country from which her parents had fled after the 1949 Communist revolution.

In 2007 she established JUCCE - the Joint US-China Collaboration on Clean Energy. She tells me over coffee in a smart side street off Shanghai's Nanjing Rd that the goal is to "change the way that China creates and uses energy". China's rapid urbanisation is a key part of the environmental equation, and urban mayors hold enormous power. "They're more like kings than US-style politicians."

In the past year, JUCCE has trained 135 mayors representing 335 million people, pumping them full of information about smart-grid technology, clean transport, energy-efficient light bulbs, and so on. Similarly, 26 state-owned-enterprise heads have also been exposed to the JUCCE message. At the end of June, Liu was due to assemble a further 30 mayors and 30 SOE chiefs at a major energy forum, at which Investment New Zealand's Chris Mulcare was invited to speak about novel Kiwi technology that could help China clean up.

Liu is an enthusiastic advocate for smart-grid technology, which balances generation and demand, reduces transmission losses and is better suited to intermittent energy sources such as wind. She believes that - partly as a result of JUCCE's advocacy work and mayoral training - China is at a "tipping point" in its development of the technology. Four cities have been named as smart-grid pilot sites, the state grid company has 100 people working on standards, and a huge smart-grid demonstration site has been set up in the city of Yangzhou.

"There's an unbelievable intensity of commitment." Developments like this suggest to her that China will go green "faster, bigger and more cost-effectively [than elsewhere], and these solutions will then be taken to other countries ... Things are moving in China a lot faster than even the Chinese thought would happen."

During a visit a few days later to the central Chinese city of Chengdu, I get a sense of China's potential to bring about sweeping environmental change. Thanks to some deft string-pulling by my host, New Zealander and long-time Chengdu resident Gavin Crombie, I'm whisked at short notice to the office of Tang Tianqiang, deputy secretary of the Environmental Protection Agency of Chengdu's high-tech industrial zone. Tang has agreed to be interviewed about environmental management in this

attractive tree-lined city, the capital of Sichuan Province.

He settles behind his desk, at the centre of which sits an ashtray full of butts, and explains in a series of long monologues how Chengdu is cleaning up. "If the air is bad, then the people will suffer and their health will suffer and the economic production will suffer," he explains through our interpreter, Tracey. A few years ago, the city's water treatment and industrial structure was "not very reasonable". Now, 80-90% of polluted water is treated at new plants that are "more advanced than in parts of Europe".

The region's important pig-farming industry has been reformed. Effluent from the predominantly small holdings was a major source of water pollution, "so we closed these small farms and moved them ... into areas where we have built infrastructure to process the water, and we use the water to irrigate the land". Small farmers were given subsidies to move onto larger farms or to leave the industry.

Small polluting factories went the same way. "We destroyed the smaller factories and built larger ones, or introduced more advanced industries." (Whether the policy was quite as ferocious as Tracey's interpretation suggests is not altogether clear.)

He calls these policies the "three gathers" – gathering the peasants together in the city, the industries into high-tech or industrial zones, and the land into specialised zones for fruit-growing, flower-growing, and so on. This way, he says, "we have the ability to control the pollutants".

Traditional polluters like the paper and chemical industries have been forced to clean up. If they contaminate the water, they get a fine and time to improve their systems, but if they continue to offend they are shut down permanently. "Also, we introduced industries from overseas or which have a large scale, because usually they have greener concepts."

There has also been a clampdown on Chengdu's 2.4 million cars, responsible for 40% of the air pollution there. Those that fail to meet emissions standards have been progressively banned from the inner city. Four coal plants have been shut down and industries told to move to natural gas. "We have put a lot of effort into implementing the regulations."

In 2004 American analyst Elizabeth Economy wrote the seminal text on China's environmental crisis. A compelling and exhaustively researched book, *The River Runs Black* charted the toxic burden of China's rampant growth,

explored the role of weak environmental enforcement agencies and corrupt local officials who often have stakes in polluting enterprises, and analysed the country's long tradition of seeing nature as something to be tamed for man's advantage.

"China has laid waste to its resources," she concluded. The results were being seen in illness, lost productivity, spoiled crops, severely degraded waterways. She foresaw three possible scenarios for China:



There is "a strong 'nimby' movement among educated middle-class people and they are willing to take to the streets ... That puts a new kind of pressure on local government."

■ a more sustainable model of growth, with a boom in environmental technologies, the development of a strong green movement and citizen participation, and improved rule of law;

■ sporadic improvement in environmental protection, poor incentives for clean technologies and a constrained environmental movement; and

■ environmental meltdown, with local government officials favouring employment and growth at the expense of the environment in a bid to preserve social stability, while the central government's "Go West" campaigns provoke mounting unrest in Tibet and Xinjiang as a result of economic and environmental exploitation.

After listening to the likes of Tang, Liu, and Yang in the course of a two-week trip to China, I'm keen to know which of these three scenarios Economy believes have materialised in the six years since her book was published.

"All [of them]. All at once," she says down the line from New York. "I think probably somewhere between the most optimal and the second, to be fair. The

direction they want to move in is clearly to revamp their energy structure and make China a global leader in sustainability. They have made some strides towards that in terms of clean technology.

"But clearly the implementation lags far behind the optimal result that they seek." And there are many "contradictory tendencies". For instance, despite the much-trumpeted roll-out of high-speed rail, there's also a huge push to build 280,000km of motorway by 2050.

And although she acknowledges there has been big spending on wastewater treatment, she remains sceptical. "Let's wait and see what percentage are actually operated.

"You can always find good examples – national model environmental cities and so on – that are moving forward and exceeding their goals." But environmental protection continues to be fundamentally hampered by a lack of transparency, accountability and the weak rule of law. "If you look around the world at what it takes to have effective environmental protection, these are the three things that underpin it. I don't think top-down mandates are the way to go." For all the talk of bold targets, local environmental protection agencies remain "legless" and understaffed.

But she sees some positive changes. Environmental groups, which used to limit themselves to issues such as biodiversity, are cutting a wider swathe and pressuring officials and companies for greater accountability. And public protest is moving from the countryside into the cities. There is "a strong 'nimby' movement among educated middle-class people and they are willing to take to the streets ... That puts a new kind of pressure on local government, because it's an educated protest, it's not an after-the-fact 'my crops have been ruined' protest. It's 'you are about to do something to me', so it affects policy." At the same time, though, Beijing is tightening up on foreign contributions to non-governmental activist groups, which they rely on for 90% of their funding.

As it turns out, Economy – a fluent Mandarin speaker who travels to China four times a year – is about to publish a revised edition of her book. Ominously, it's still called *A River Runs Black*. The river of the title, the Huai in northern China, remains heavily polluted despite a clean-up campaign, she notes.

"When I change the title to *The River Runs Blue*, I will probably have a different view." ■

Rebecca Macfie's visit to China was supported by Asia New Zealand.