

The background of the page is a black and white photograph of a large, layered rock formation, possibly a cliff face, with a cloudy sky above it. The rock layers are horizontal and show signs of weathering and erosion.

ACCOUNTANTS FOR BUSINESS

The green economy: pushes and pulls on corporate China

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About Accountants for business

ACCA's global programme, *Accountants for Business*, champions the role of finance professionals in all sectors as true value creators in organisations. Through people, process and professionalism, accountants are central to great performance. They shape business strategy through a deep understanding of financial drivers and seek opportunities for long-term success. By focusing on the critical role professional accountants play in economies at all stages of development around the world, and in diverse organisations, ACCA seeks to highlight and enhance the role the accountancy profession plays in supporting a healthy global economy.

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While China's rapid growth has provided great opportunity and prosperity to many, it has not come without costs. Environmental damage and social tensions are common throughout the country – problems that the Chinese government are acutely aware of.

This report explores the efforts that are being made to transition to a more sustainable path, a greener economy, and the impacts these efforts are having on businesses operating in China.

The green economy: pushes and pulls on corporate China?

Christine Loh
Civic Exchange

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Foreword

For three decades, China has been industrialising, urbanising and expanding its role and importance in the global economy. Rapid development has propelled China to become the second largest economy and the largest carbon-emitting nation in this short time.

The traditional economic models and material consumption patterns that have underpinned global growth until now are unsustainable, not only in the face of severe global environmental degradation but also in light of planetary limits for absorption of pollution and greenhouse gases. A worldwide transformation is urgently needed to address the many environmental problems amid the rise of new consuming populations, as well as vast social inequities.

As China has become a major driver of global growth, its path to achieving sustainability is crucial not just for the Chinese people but for the rest of the world. There is a part for the accountancy profession to play in developing strategies and solutions that will assist in China's sustainability transformation.

This report provides an overview of China's rising population, growing demand for natural resources, and increasing production of pollution, as well as its efforts to clean up the environment and reduce carbon emissions. The Chinese authorities have clear ideas about how they want to adjust their growth models to both sustain growth and achieve social equity and sustainability. China's five-year planning process remains relevant, as it marks where and how the Chinese government will invest in the country's future. The current 12th Five-Year Plan includes ambitious projects to improve energy and water efficiency and reduce carbon intensity. China will also have to deal with many potential conflicts as it reaches outwards to secure natural resources.

This report would be incomplete without addressing China's role as the world's major manufacturer for all kinds of products. In the past three decades, China's growth and poverty alleviation coincided with the emergence of global supply chains. The key issues for multinational buyers with respect to manufacturing in China have to do with how to upgrade the environmental and social performance of a very great number of Chinese suppliers. As China's domestic market grows, it is critical that Chinese producers also improve their environmental performance.

Moreover, there is a growing demand for Chinese companies, international companies operating in China, and the global supply chains in which China plays such a central role, to disclose information about their businesses to investors, consumers and other stakeholders. There is a clear role for accountancy and other financial professionals to bring greater clarity to this necessary process.

The China story cannot leave out the Special Administrative Region of Hong Kong. It is not only China's international financial centre but also the hub for China's supply-chain activities. Its open and liberal environment provides a home for many NGOs that are very active in promoting the sustainability agenda.

ACCA has been actively involved with the corporate role in sustainable development since 1990. This report is part of ACCA's continuing commitment, and was written by the non-profit Hong Kong think tank Civic Exchange, which provides an Asian voice and perspective on where China is today in her sustainability path.



A handwritten signature in dark ink, appearing to read 'Helen Brand'.

Helen Brand
ACCA chief executive

Executive summary

China's population growth and economic development are putting enormous pressure on the demand for and supply of energy and water, and, as a consequence, on the environment. The World Bank's latest report on China, published in 2012, estimated China's level of environmental degradation and resource depletion to be approximately 9% of Gross National Income (a similar measurement to Gross Domestic Product).

Around 2007, China became the largest carbon contributor among nations. This has thrown China into the global limelight, particularly at UN-led annual climate change negotiations. While its government's position is that China's per capita emissions are still much below that of the most profligate energy users, such as the US and Canada, China is nevertheless making real efforts to curb emissions through a range of policy changes. This is not only to ward off international criticism but to serve its own interest since Chinese research shows that climate change will have major impacts on China.

The Chinese government's policies are intended to 'green' the currently fossil fuel-based 'brown' economy through a series of decarbonisation, energy-efficiency and water-saving policies. The government also wants to use the brown-to-green transition to create green jobs, as brown job opportunities are expected to reach a peak gradually before starting to fall in the future. This journey began in earnest with the nation's 11th Five-Year Plan (2006–10) and is continuing with the current 12th Five-Year Plan, with enormous financial resources devoted to implementing policies.

Decarbonising China's energy supplies faces many challenges. Firstly, coal will continue to be the dominant fuel source for the foreseeable future. China has substantial coal reserves, although coal's percentage in the country's fuel mix is expected to drop gradually as renewable and nuclear sources increase. Secondly, coal is responsible for 80% of China's carbon emissions and, as the total tonnage of coal used is still increasing, it will add to China's total carbon contribution. Thirdly, China will actively exploit non-conventional fossil fuels (shale gas, coal-bed methane and methane hydrate) because their enormous potential is just beginning to be exploited and will probably enter large scale production by 2025. Fourthly, China is importing increasing quantities of fossil fuels (and other natural resources) to satisfy demand, and its efforts to secure raw materials is redefining the geography of international relations (for instance, in Africa and South America) and creating new tensions, such as those among its Asian neighbours in the South China Sea.

Investment in new energy-related sectors is set to be around US\$770 billion over the period 2011 to 2020, including an estimated US\$231 billion for wind power. Nevertheless, China is going to continue to develop all forms of power – coal, hydro, nuclear, biomass, solar and wind – because it has such massive needs and energy is so crucial to the nation's continuing development.

Policies that complement China's decarbonising efforts include the closing down of small, inefficient coal plants and the building of more

advanced and highly efficient new ones, extending the energy grid, mandating energy efficiency and carbon reduction targets for industries and provinces, piloting emission-trading schemes, reforming energy markets and prices, and possibly even capping coal production in the next few years. At the same time, there are policies that aim to create 'green' transportation through improving the fuel efficiency of vehicles, developing hybrid and electric vehicles, building rail networks, and improving the energy performance of buildings. Examples of China's greening effort include 2004's setting of a fuel economy standard for passenger vehicles at 7.8 litres per 100kms, which is among the most restrictive in the world and, in 2012, a production and sales target of 500,000 electric vehicles by 2015 and more than 5 million by 2020.

Another significant challenge is around the energy–water nexus as water is needed for almost all forms of energy production (including mining, 'fracking' to extract hydrocarbons from previously uneconomic sites, electricity generation, carbon capture and sequestration) and energy is also needed to pump and treat water. Food production is also intimately connected with both water and energy. The lack of clean water supplies for industrial, agricultural and municipal use presents a real constraint on China's development. Improving water management has finally become a top policy priority in the 12th Five-Year Plan and specific improvement targets have been set and funds allocated for implementation.

The Chinese government is pushing Chinese companies, especially state-

owned enterprises under its control, to improve sustainability practices. The central authorities set the tone and direction of policy, which forms the foundation of regulation and enforcement. Over the past decade, the government has undertaken a number of measures that have:

- added accounting rules on pollution-related costs
- enabled details of companies violating environmental laws to be publicly released – a ‘name-and-shame’ measure
- amended the Company Law to emphasise social and moral responsibility and the Tort Law to hold polluters liable
- pushed companies seeking Initial Public Offerings to improve – environmental performance
- implemented green procurement policies
- developed green lending, credit, securities and insurance initiatives, and
- coordinated with Chinese stock exchanges to push state-owned enterprises to publish corporate social responsibility (CSR) reports.

In 2011, around a thousand Chinese companies published reports and the expectation is that reporting will become mandatory in the foreseeable future for listed companies. This is supported by the Shanghai Stock Exchange’s launch of a social responsibility index that comprises the

top 100 performers on the bourse. Various industry associations and federations have also responded to government policy by issuing CSR-related guidelines to assist their members to meet these requirements.

Government-led sustainability practices and reporting will improve China’s corporate practices. Achieving sustainability is as much a journey for Chinese companies as it is for foreign companies doing business in China and with Chinese firms, particularly in the export-production sector where China is dominant in the manufacturing of many consumer goods. The trend is towards increasing transparency along the supply chain, and suppliers and contractors are being asked to disclose more and more information on environmental practices. Typical efforts required by multinational buyers to ‘green’ their supply chains include reducing energy, water and natural resources consumption, reducing greenhouse gas emissions, increasing use of cleaner energy sources, decreasing pollution and waste, and treating waste properly.

Beyond environmental impacts, reputational risks for international brands also exist with regard to workers’ pay, working conditions and health and safety. Increasingly, non-government organisations are taking a ‘name-and-shame’ approach, and having some success in getting offenders onto the front pages of the global press. Strikes in 2010 not only led to substantial pay increases for factory workers but have also promoted labour rights development in China as a whole, especially with respect to trade union and collective bargaining development.

Even with higher labour costs, China is not expected to lose its edge in export manufacturing to cheaper emerging competitors because the export manufacturing structure is well developed and the quality of Chinese labour remains superior, especially for higher-value and more complex products involving technology.

There is no doubt that China’s efforts to green its economy are quite comprehensive, even though it still has a very long way to go to clean up its environment and reduce carbon emissions. The accountancy profession has a role to play in assisting Chinese business to adapt to the changing operational and legislative landscape. ‘Big 4’ accountancy firms are already providing sustainability and climate change services to their clients in China and providing assurance over non-financial reports and factoring in environmental and social risks into corporate valuations, but the level of service falls below that in more mature markets such as the UK and Europe. For the foreseeable future, ‘brown’ and ‘green’ activities will continue to co-exist and the curve of China’s carbon emissions is unlikely to reduce for another 10 to 15 years.

Hong Kong, the most developed city in China, has the potential to play an important sustainability role in the country’s evolution owing to its well-developed institutional capacity, including a liberal environment for the work of non-governmental organisations. Hong Kong is now part of a national vision in which the Pearl River Delta in Guangdong Province will change from low-value to high-value manufacturing, which includes cleaning

up the environment for 'green living'. This is important because Hong Kong is a key base for China's export production management, with many multinational companies (MNCs) having a presence in the city to coordinate their business. The Hong Kong government has proposed a carbon intensity reduction target that exceeds the national target, and is considering changing its fuel mix to reduce coal use and to improve the energy efficiency of its building and transportation sectors. This sets a national example that more developed regions should achieve higher targets, which can be incorporated into the 13th Five-Year Plan so that major municipalities on the mainland will follow suit. Most recently, the Hong Kong stock exchange acquired the London Metal Exchange. With the Hong Kong Mercantile Exchange also in operation, the city has added commodities trading to its menu as a financial hub and it may not be long before Hong Kong sets prices in the Asian time zone. The Hong Kong stock exchange is also encouraging environmental, social and governance (ESG) reporting, and the Hang Seng Index's Corporate Sustainability Index Series is positively influencing home-grown Hong Kong companies and mainland Chinese companies listed in Hong Kong to address sustainability in their operations and reporting.

1. Introduction

This report was commissioned by ACCA and written by Civic Exchange to identify how an increased focus on environmental and social performance at both the international and national levels is affecting the private sector in China and Hong Kong.

It explores the various factors that businesses need to consider – be they government policies aimed at reducing carbon emissions or pollution levels, demands from customers based outside the country for improvement of labour conditions in factories, or calls from investors for greater disclosure on environmental, social and governance (ESG) topics, to name a few. It will also highlight how accountants are able to assist companies in addressing the various risks and opportunities presented by this shift.

The report is aimed at the corporate sector, both within and outside China. The approach combines desk-based research with a number of contributions from experts from the private sector, civil society, investment community and accountancy profession.

It is divided into the following sections:

- Chapter 2 explores China's national policies, specifically the 11th and 12th Five-Year Plans, and how they are pushing for higher environmental and social standards
- Chapter 3 discusses China's role on the global stage, both in terms of its purchases of natural resources and in international negotiations
- Chapter 4 discusses the country's role as manufacturer to the world, and how multinationals based outside China can increase the sustainability of supply chains that are located in the country
- Chapter 5 explores trends in environmental, social and governance (ESG) disclosure in China
- Chapter 6 considers the role of accountants in the shift to a 'green economy' in China; this chapter has been authored by accountancy firm Pricewaterhouse Coopers (PwC)
- Chapter 7 sets out the report's conclusions and the key challenges and opportunities facing China in future.

2. China's national policies and the green economy

Greening energy supply and energy use lie at the heart of China's plan to make the transition from the 'brown' traditional coal-based economy to a 'green' one. A key objective is to decarbonise the Chinese economy and, at the same time, raise energy efficiency in all areas and improve environmental protection so that these developments become a new source of job creation and economic growth. China has also started to deal with its water problem, which has important energy and food implications. The changes began in earnest with the 11th Five-Year Plan (11FYP 2006–10) and are continuing with the current 12th Five-Year Plan (12FYP 2011–15).

China has distinct advantages and disadvantages that respectively favour and impede green development. The impeding factors are systemic in nature and thus present real challenges, although what China has achieved so far is impressive. This chapter addresses the following questions.

- How does the Chinese government formulate policy?
- How important are the 11FYP and 12FYP in greening China's economy?
- What are the key challenges facing China?
- What are the risks and opportunities presented by government policy for business?
- What role can Hong Kong play?

CHINA'S POPULATION AND NEEDS

China's very large and still rising population cannot be ignored in any discussion. Today, it has 1.34 billion people, representing 20% of the world's population. China has only about 9% of the world's farmland, of which only 15% is arable. By 2030, its population is expected to peak at 1.5 billion. Thus, China has to provide food, energy and water for another 160 million people within two decades. At the same time, China's national objective is to become a moderately wealthy society by then.

Since the 1980s, China's population rise and rapid industrial reform have led to worsening pollution, land contamination, over-depletion of groundwater, land subsidence, increasing desertification, and continuing biodiversity loss. Degradation is now affecting the quality of arable land. Chinese government estimates show that 40% of total arable land suffers from soil degradation.¹

Moreover, 47% of China's population is considered urban, and that percentage is expected to rise to 57% by 2020, and to about 70% by 2030.² Rapid urbanisation has led to land loss, and there have been many examples of illegal land grabs from farmers by corrupt officials, who have not paid adequate compensation, which have led to protests and unrests.³ That is why the Chinese government aims to recover land lost to illegal use, increase farmland for growing grain and raise production capacity during the 12FYP.⁴

WHAT IS CHINA'S TRUE GDP?

What is the environmental cost of China's rapid industrial growth and urbanisation? Different numbers have been offered. Chinese environmental officials attempted to prepare a narrowly calculated Green GDP for 2004, which was published in 2006. It showed that for 2004, China's environmental pollution costs were conservatively estimated to be US\$66 billion or 3.05% of GDP.⁵ While this exercise has not been repeated, other calculations showed that if ecological damage and resource depletion were also included, the costs would be much higher. In 2007, the World Bank's estimate was 5.8% of GDP but would have been 8–12% of GDP if the costs of erosion, desertification, soil decline and environmental degradation had been included.⁶ Some experts reckon China needs to spend 2–4% of its annual GDP to clean up.⁷ The 2012 World Bank report states that at its current level of development, China's environmental degradation and resource depletion is valued at approximately 9% of Gross National Income (GNI), a similar measurement to GDP.⁸

Most recently, the United Nations Environmental Programme (UNEP) created the new Inclusive Wealth Index (IWI) to assess changes in a country's productive base, including manufactured human and natural capital over time in order to show governments the true state of their nation's wealth and the sustainability of its growth. The index assessed 20 countries for the period 1990 to 2008, including China. While China's GDP has grown at an average of 10% per year, there was only modest growth in human capital and a steady deterioration in natural capital. In IWI terms, China has only grown on average by about 3% a year.⁹

CHINA'S GREENING ECONOMY

China has prioritised green economic development since the 11FYP.¹⁰ During the 11FYP, the equivalent of between US\$700 million and US\$1.4 billion was invested in clean energy with 50% spent on R&D for renewable energy,¹¹ which is leading to an increasing number of Chinese patents.¹² Efforts have continued with the 12FYP to boost energy efficiency in industry, transportation and buildings; develop hydro, wind, solar, biomass and nuclear energy; create a resource-saving and recycling 'circular' economy; and promote good environmental practices. Investment in new energy-related sectors alone is to increase substantially to about US\$770 billion from 2011 to 2020, including an estimated US\$231 billion for wind power.¹³

UNEP has defined a green economy 'as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities'. For UNEP, a green economy is one whose growth in income and employment is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services. These investments need to be catalysed and supported by targeted public expenditure, policy reforms and regulatory changes.¹⁴

In China, the term 'a green economy' refers to one that is making a significant shift toward producing economic value with less environmental impact.¹⁵ Judged against the UNEP definition,

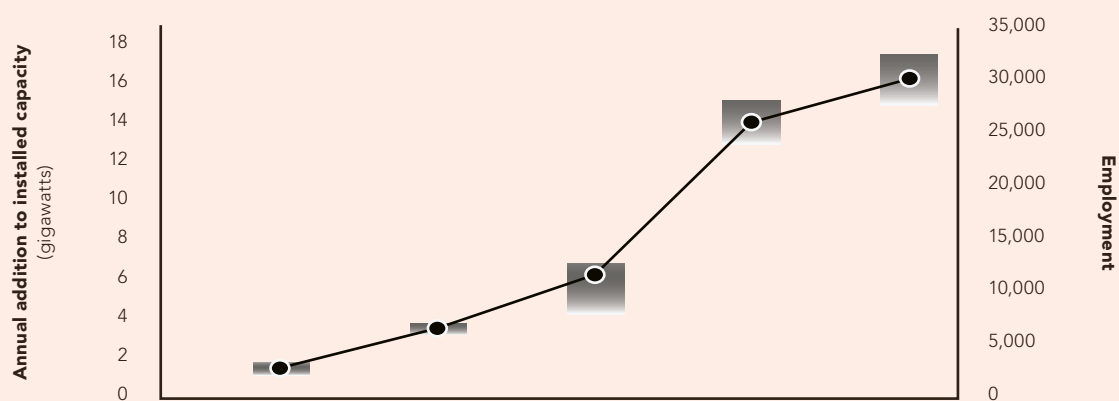
China is displaying many of the steps necessary for moving away from old 'brown' industries to new 'green' ones. Meanwhile, 'brown' and 'green' activities will continue to coexist for the foreseeable future, although China's green efforts are quite comprehensive. Thus, China sees itself as being on the path towards a green economy even though the latest World Bank report and the IWI, both noted above, show it still has a considerable way to go.

Another aspect of China's green agenda is to create green jobs in the new 'green' sectors. For example, in wind power generation and turbine manufacturing, 40,000 direct jobs were created on average annually between 2006 and 2010, and this sector is expected to generate 34,000 jobs annually during the 12FYP.

Box 2.1: China's five-year planning process

China uses its five-year planning process to align the economy with top policy goals. The plans are blueprints for implementation. They contain the leadership's policy philosophy and guidelines, as well as specific goals and targets to be achieved. The planning process is a cycle of policymaking that both connects to previous plans and leads to the next plan. A draft plan is produced by the policy – National Development and Reform Commission (NDRC) from many rounds of consultation before it is finalised and then ratified by the National People's Congress. There are reviews and even revisions over the course of five years. Meeting the FYP targets is a crucial source of political legitimacy for the Chinese Communist Party and the Chinese government.

Figure 2.1: Employment in China's wind power sector 2006–10



Year	2006	2007	2008	2009	2010	Total
Annual addition to installed capacity (gigawatts)	1.34	3.4	6.1	13.8	16	40.7
Employment	2,000–2,700	5,200–6,900	9,200–12,200	20,700–27,600	24,000–32,000	61,000–81,400

Source: Worldwatch Institute, 2011.¹⁶

CHINA'S 11TH AND 12TH FIVE-YEAR PLANS

The 11FYP and 12FYP marked China's shift away from GDP-led economic growth ('transformation of the economic model') through reliance on heavy industry and export production, to quality development ('scientific development'). The plans contain the Chinese leadership's diagnosis of and antidote to the underlying problems of the economy: over-reliance on heavy industry could constrict China within a 'middle-income development trap'; export-led growth is unsustainable; domestic demand is weak because

income is low; social inequality is unacceptably high; and environmental problems need addressing. Policy should make domestic demand the driver of economic growth, although growth should take into consideration the welfare of disadvantaged regions and people, as well as the need to decarbonise the economy, achieve high energy efficiency and protect the environment.

The 11FYP and 12FYP have various compulsory targets. While the 11FYP focused on energy and environment, the 12FYP gave climate change high prominence to reaffirming China's

pledges made at COP15 in Copenhagen in 2009 (see Chapter 3). Career promotions of party cadres and government officials are now tied to achieving specific targets.

The 12FYP is innovative – it attempts to integrate the economic, energy, environment and climate agendas to green China's economy, especially at provincial and city levels. It also promotes market measures.¹⁷

Table 2.1: Summary of environmental targets 11FYP and 12FYP

Target	11FYP proposed (end 2005–end 2010)	11FYP achieved (end 2005–end 2010)	12FYP proposed (end 2010–end 2015)
Energy intensity reduction	20 %	19.1%	16%
Carbon intensity reduction	n/a	16.2 %	17%
Sulphur dioxide emissions reduction	10%	14.29%	8%
Chemical oxygen demand (COD) reduction	10%	12.45%	8%
Ammonium nitrate reduction (new)	n/a	n/a	10%
Nitrogen oxide reduction (new)	n/a	n/a	10%
Five heavy metals reduction – lead, mercury, chromium, cadmium and arsenic (new)	n/a	n/a	15% from 2007
Water intensity (water consumed per unit of value-added industrial output) reduction	30%	37%	30%
Non-fossil fuels proportion of primary energy mix	(15% renewable energy by 2020)	8.3%	11.4%

Box 2.2: China's 12th Five-Year Plan, China's greenest ever

EXPERT COMMENT

The 12th Five-Year Plan shows the government's commitment to more sustainable economic growth. The prominence given to the environment is higher than ever before and ambitious targets have been established in a number of areas for the environment. It is crucial that the national will for green development be fully interpreted at local level and that environmental standards decided today are applied both to domestic policies and to China's 'Going Global' strategy.

Compared with the 11th Five-Year Plan, the 12th Five-Year Plan puts increased emphasis on the environment in the principles that underpin economic and social development. The plan lowered GDP growth to 7% and set binding environmental targets covering energy intensity, carbon intensity, use of non-fossil fuels, water intensity, forest coverage and pollutant control. Some of these (such as carbon intensity and non-fossil fuel energy) are included in a five-year plan for the first time. These targets will be allocated to local governments and sectors for implementation, indicating governmental efforts to balance growth with sustainability. We at WWF are encouraged by this 12th Five-Year Plan, which integrates clear binding environmental targets and follow-up measures. Specifically, in terms of the energy intensity target, we hope that local governments and enterprises will change their development model to surpass the 16% target, as increasing the rate of energy efficiency compared with GDP growth is critical to reducing carbon emissions.

The 12th Five-Year Plan focuses more on the well-being of the people and aims at driving economic development by increasing domestic consumption. WWF welcomes the focus on balancing social development. Nonetheless, as increased consumption might bring more pressure on natural resources, it is crucial that priorities will be given to resource-efficient production and sustainable consumption patterns in order to decouple economic growth from resource depletion.

Among the goals stated in the 12th Five-Year Plan, there is also the strengthening of China's 'Going Global Strategy', a concept developed 10 years ago to encourage Chinese companies to invest overseas. China's outward foreign direct investment (FDI) has surged in recent years and the trend is likely to continue. In the current five-year plan, ecological consideration is not yet emphasised in the 'going global' component. It is very important that the same strict environmental principles are integrated in both domestic development policies and overseas investments so that China's sustainable development can benefit other countries and contribute to protecting the planet's natural environment.

BOPING CHEN, SENIOR FOOTPRINT POLICY OFFICER, WWF CHINA

GREENING 'BROWN' ENERGY

China's huge energy appetite increases the country's energy security risk. It also has a major impact on global energy demand and prices, and produces much pollution and contamination at home, as well as increasingly large quantities of carbon emissions that contribute to global warming. China's energy picture is changing, however, because of the confirmation that it has large quantities of non-conventional sources of gas in the form of shale gas, coal-bed methane and methane hydrate, which can be extracted with improved technology. The ability to exploit non-conventional sources of gas is already reducing prices in North America and will affect energy prices worldwide. For China, it will lower its energy security risk and help to reduce carbon emissions compared with those from burning coal.

Thus, to 'green' the 'brown' in China's economy, policies are directed towards:

- formulating and setting mandatory targets
- consolidating the coal industry and upgrading technology to achieve higher efficiency
- reducing coal consumption growth, while exploring non-conventional gas sources
- increasing non-fossil fuel energy sources
- investing in domestic non-fossil fuels energy development
- improving China's overall energy efficiency through various means
- promoting price and market reforms.

China uses diverse methods to meet targets, including administrative means (eg accountability by officials), market-based mechanisms (eg contract energy management and piloting carbon trading), and financial incentives and support (eg investment in clean energy).¹⁸

Box 2.3: Is non-conventionally sourced gas a game changer for China?

EXPERT COMMENT

China is not short of energy. It has huge potential reserves of energy from conventional and non-conventional sources but these are typically located far from the point of consumption and development of the infrastructure through which to transfer these resources to market has lagged behind demand.

To make matters worse, China's hydrocarbons (coal, oil and gas) are generally contained in complex deep geological formations. As a result, domestically sourced energy is expensive to extract and deliver compared with imports.

China is well endowed with non-conventionally sourced gas in the form of shale gas, coal-bed methane (CBM) and methane hydrate. China has the largest reserves of recoverable shale gas in the world at 36.1 trillion cubic metres (m³) according to the US Environmental Protection Agency. This is significantly higher than the 24.4 trillion m³ held by the US. China has the third-largest reserves of recoverable CBM at 37 trillion m³ after Russia (87 trillion m³) and Canada, and China has discovered land-based deposits of methane hydrate on the Qinghai-Tibet plateau equivalent to 35 billion tonnes of oil equivalent (toe) and undersea deposits in the South China Sea of 18.5 billion toe.

Gas from all three sources could enter full scale production by 2025 and each could potentially change the energy situation radically if it can be extracted competitively. China has yet to master the extraction technology and so will have to rely on foreign partners. Shell and BP have formed partnerships with China National Petroleum Corporation and Sinopec respectively for shale gas. For now, China's priority is to capture CBM from deep mines to prevent it from being vented and counted against national GHG emissions.

Once extracted, gas must be distributed. China has built two major west-to-east trunk pipelines from Xinjiang in the north-east and a third pipeline from Sichuan in the south-west to east-coast cities. China will build three more major pipelines by 2020 to complete the national backbone. These lines will be primed with gas from domestic sources, from Central Asia or, at the seaward end, from imported LNG for transport to China's major cities.

Gas will therefore play a major role in reducing China's overall emissions profile and could assume a much greater portion of primary energy consumption than the 8% currently planned.

ROBIN HOW, PRINCIPLE, ICEBERG CAPITAL ASIA LIMITED

ENERGY AND EMISSIONS
REDUCTION POLICIES

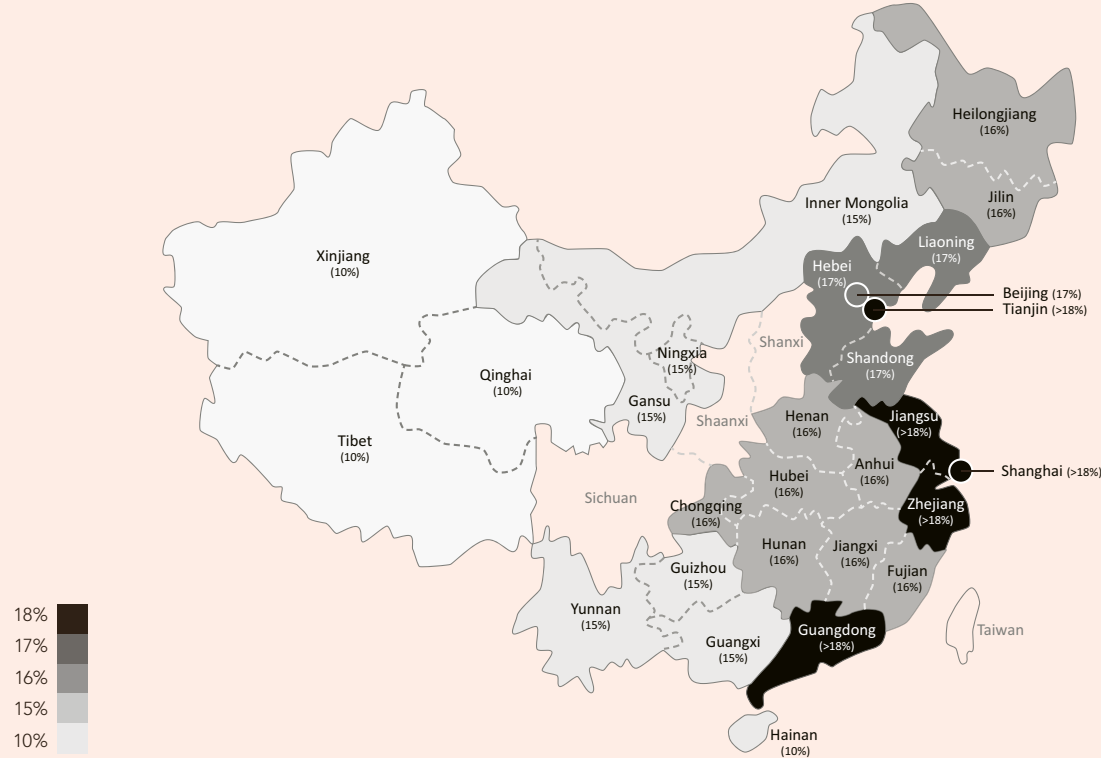
In the 11FYP the Chinese government made mandatory a 20% energy reduction per unit of GDP target by 2010, using 2005 as the baseline. The 12FYP set a new mandatory target of 16% energy reduction by 2015. Figure 2.2 shows province by province how the overall 16% reduction is to be achieved. The more developed municipalities and provinces are required to do more.

For the first time, the 12 FYP mandated a cut in carbon emissions per unit of

GDP by 17%, which was designed to support China’s international pledge to reduce carbon emissions per unit of GDP by 40% to 45% by 2020 as compared with the 2005 baseline. Guangdong, a major carbon-emitting province, has a carbon intensity reduction target of 19.5% per unit of GDP to be achieved by the end of 2015 and 45% by 2020, using 2005 as a base.¹⁹ These efforts are expected to save between 0.5 billion to 2.5 billion tonnes of carbon emissions. To put China’s effort in context, EU emissions reduction will be 0.5 billion tonnes in 2020 under the 20% target or up to 1.1

billion tonnes if that is increased to 30%.²⁰ In 2011, the first year of the 12FYP, China missed its planned targets. Energy consumption for each unit of GDP growth for the year dropped 2.01% in 2011, about 1.2% points short of the planned target, while its carbon intensity also missed the target owing to its close linkage to energy consumption. Government officials explained that drought had affected hydroelectric generation, and greater effort needed to be made in the coming years.²¹

Figure 2.2: Energy intensity reduction targets in China’s 12FYP (2011–15)



DEALING WITH COAL

China's reliance on coal has to be faced directly. China has 14% of global coal reserves and produced 51.1% of the world's coal in 2010.²² It relies on coal for 79% of its electricity generation.²³ Moreover, coal is responsible for 80% of China's carbon emissions.²⁴ In 2011, China produced 3.53 billion tonnes of coal, 8.7% higher than 2010, and consumed 3.48 billion tonnes, 7% more than the year before.²⁵

To deal with coal, China's policies focus on consolidating industry players, improving energy efficiency, reducing air pollutants, and capping coal production.

The 11FYP first began consolidation of the domestic coal industry to concentrate ownership of assets within a number of large state-owned enterprises. Small, old, inefficient and

highly polluting plants were closed, thereby reducing coal consumption. New plants are more efficient, and China is building some of the world's most advanced supercritical and ultra-supercritical coal plants.²⁶

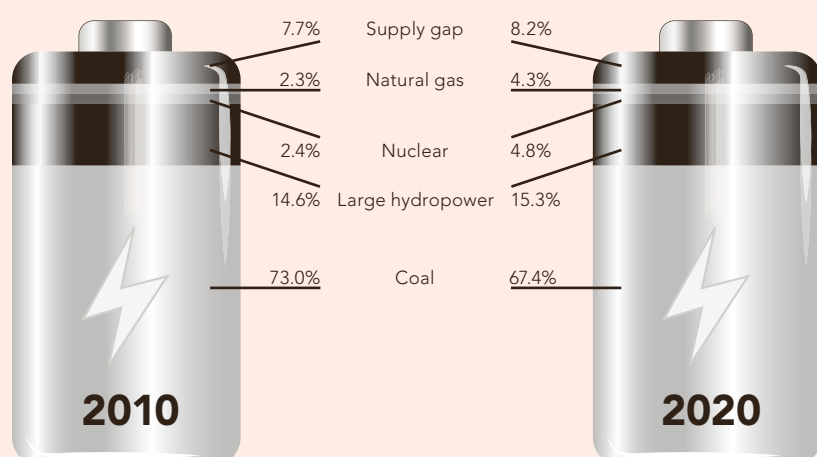
Along with other industrial sectors, the coal sector must also meet the energy and carbon intensity reduction targets noted above. In addition, the 11FYP had a mandatory target of a 10% reduction in sulphur dioxide (a key air pollutant from fossil fuels) and the 12FYP requires an additional 8% reduction in combined sulphur and other pollutants.²⁸ Moreover, China will probably set an absolute cap for coal use at 4.1–4.2 billion tonnes, with the new policy starting in 2015. Each province is expected to have a cap set for allowable tonnes of coal. While many details are still to be released, China is planning to curb coal consumption growth aggressively during the 12FYP.²⁹

INCREASING USE OF NON-FOSSIL FUELS

China committed to increasing the share of non-fossil fuels in its primary energy mix to 15% by 2020 as part of its COP15 pledge in December 2009 (see Chapter 3). This was translated into the 12FYP as an increase of non-fossil fuels from 8.3% to 11.4% by 2015 and 15% by 2020. Non-fossil fuel sources refer to wind, solar, biomass, hydropower and nuclear. Achieving these goals will help to restructure China's non-fossil fuels sector to achieve more scale and thus lower costs. Pricing reforms are also expected to progress but probably in fits and starts since the Chinese government is cautious about imposing higher cost burdens on consumers, to maintain social stability.

Complementary policies to enable China to reach these targets include requiring all taxpayers to share the incremental costs of non-fossil fuels nationwide, and electric utilities have to pay a favourable 'feed-in' tariff for the output of non-fossil fuels facilities. For example, China has introduced feed-in tariffs for rooftop and utility-scale solar power to increase solar deployment in coming years.³⁰

Figure 2.3: China's electricity mix, 2010 and projection for 2020



Source: Worldwatch Institute, 2011.²⁷

IMPROVING ENERGY EFFICIENCY ECONOMY-WIDE

A significant measure in 2004 was China's setting of a fuel economy standard for vehicles (36 miles/gallon for passenger cars) that is among the most demanding in the world.³¹ Since 2006, the energy efficiency of consumer appliances has been improved, and manufacturers and importers must label such appliances to show their energy efficiency.³² China's Building Code (2006) requires new buildings to have an in-use energy consumption level that is 50% below the average, and new buildings in leading cities such as Beijing and Shanghai must do even better.³³ The total floor area of China's existing energy-efficient building stock is estimated to be not more than 40 million square metres today, well short of target of 1 billion square metres of energy efficient floor space by 2015.³⁴

All these measures were aimed at realising the 11FYP target of reducing China's energy intensity by 20% between 2005 and 2010 so as to cut carbon by 1.5 billion tonnes. China achieved 19.1% by the end of 2010. There have been criticisms that China came close to achieving the energy intensity target only because it adopted drastic measures of enforced electricity brown-outs in several cities in late 2010.³⁵ Even so, China's achievement was considerable when compared with EU efforts – the total greenhouse gas (GHG) reduction in the EU between 1990 and 2009 was 0.957 billion tonnes.³⁶

PUSHING AHEAD IN 2012

Also noteworthy was the State Council approval, on 16 May 2012, for the provision of consumption subsidies totalling CNY34.3 billion for a year to encourage the purchase of energy-efficient appliances and vehicles, as part of a new economic stimulus package. Financial incentives of CNY26.5 billion can be used for replacing air conditioners, televisions, refrigerators, washing machines and heaters, while the rest can be used to give incentives for the trade-in of existing passenger cars for much more fuel-efficient ones, and for the installation of energy-efficient lighting, as well as of high-performance motors. The incentives are expected to be effective because an 'old for new' scheme put in place in 2008 did spur home appliances replacement but, since the scheme ended in 2011, sales have dropped. Thus, the 2012 subsidies directed at green appliances are expected to boost sales.³⁷

Green building construction is expected to account for 50% of China's new buildings by 2020. A preliminary government study showed that an amount of energy equal to 45 million tonnes of coal can be saved by building 'green' buildings during the 12FYP. All new government-funded buildings will have to be green by 2014, and green building construction will be subsidised according to a tiered grading system. For example, developers of a first-tiered building will be eligible for a subsidy of CNY80 (about US\$12) per square metre, while second-tier buildings will qualify for CNY45 per square metre.³⁸

Other major efforts in the 12FYP include:

- 10,000 Enterprises Energy Efficiency Programme
- greening transportation
- greening provinces and cities, and piloting emissions trading
- increasing forest area.

10,000 Enterprises Energy Efficiency Programme

China's industrial sector, dominated by large, state-owned enterprises, consumes 70% of the country's primary energy and emits the bulk of China's pollution. During the 11FYP, the 1,000 Enterprises Energy Efficiency Programme cut 242 million tonnes of carbon by 2010, equivalent to removing 38 large (1,000-megawatt) coal-fired power plants.³⁹ The 12FYP plan introduces a 10,000 Enterprises Energy Efficiency Programme to build on the success of the previous one.

Greening transportation

The development of hybrid and electric vehicles has become a priority since 2009.⁴⁰ Between 2009 and 2012, the goal was to deploy an average of 1,000 hybrid and/or electric vehicles for public service use in each of 10 pilot cities. By mid-2010, China had an estimated 5,000 alternative-fuels vehicles.⁴¹ According to the China Association of Automobile Manufacturers, China sold 31,300 units of alternative fuel vehicles in 2011, of which China produced 8,368 new energy vehicles and sold 8,159 of them. The locally produced ones comprised 5,655 electric vehicles and 2,713 hybrids. Of the total, passenger vehicles made up 61%, commercial vehicles 28%, and other types 11%.⁴² In April 2012, the State Council set a production and sales target of 500,000 electric vehicles by 2015, and more than 5m by 2020.⁴³

China will continue to invest in rail development, for both long-distance and urban mass transit. This includes high-speed bullet trains, and adjustments are being made, such as slowing down the expansion programme,⁴⁴ after various accidents in 2011. The 12FYP includes proposals for the construction of 21,750 miles of high-speed rail and a goal of connecting every city with a population greater than 500,000. There are also plans to improve subway and light rail in cities that already have urban transit systems.⁴⁵ High-speed rail services affect domestic air travel for distances of less than 500 kilometres. Within this decade, rail development will greatly change how the Chinese travel domestically – it will compete with airlines for routes of less than 500 km – and rail and airline operators are also showing signs of making cooperative arrangements under which airlines may abandon feeder flights that can be served by high-speed trains.⁴⁶

Greening provinces and cities, and piloting emissions trading

In 2010, NDRC declared Guangdong, Liaoning, Hubei, Shaanxi and Yunnan provinces and eight cities – Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang and Baoding – as low-carbon experimentation pilot areas. The goals are to develop low-carbon development plans, accelerate the switch to low-carbon industries and promote low-carbon consumption. While much is still in development, these places are at the forefront of experimentation with using

cleaner energy sources and greening transportation during the 12FYP.⁴⁷

China will also be conducting pilot cap-and-trade schemes in the cities of Beijing, Chongqing, Shanghai, Shenzhen and Tianjin, as well as in Guangdong Province (work being done in Guangzhou) and Hubei Province, with a view to wider deployment from 2015.⁴⁸ Tianjin has been considering emissions even before 2010,⁴⁹ and Shenzhen and Guangdong are aiming to roll out their pilots by 2013–14.⁵⁰

Figure 2.4: Green cities, provinces and emission trading pilot areas



Source: World Coal Association, www.worldcoal.org

Increasing forest area

Under the 11FYP, China had already improved forest cover. At COP15 in 2009, China pledged to increase forest cover by 40 million hectares and forest reserves by 1.3 billion cubic metres (from 2005 levels) by 2020. This has now been integrated into the 12FYP.

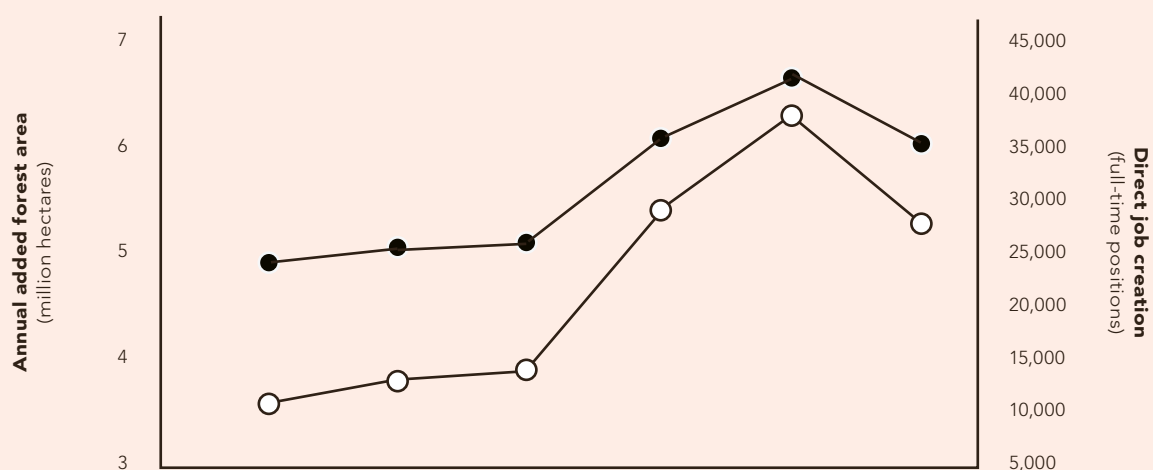
Achieving this target is expected to provide full-time employment for an average of 520,000 forestry workers and

generate 590,000 other direct jobs each year between 2011 and 2020.⁵¹

Human beings benefit from a multitude of resources and processes supplied by natural ecosystems, which collectively are referred to as ecosystem services. These include clean air and water, climate control, nutrient cycles and crop pollination. Beyond reforestation is the even more important issue of restoring

degraded ecosystems so that they can provide high-quality ecosystem services. China has various ecosystems restoration or compensation schemes and the range of programmes is broad, covering watersheds, forests, landscapes and biodiversity conservation. One of the best-known projects is the restoration of the Loess Plateau.

Figure 2.5: Job creation from forest management in China 2005–10



Year	2005	2006	2007	2008	2009	2010	Total
Annual added forest area (million hectares)	3.6	3.8	3.9	5.4	6.3	5.3	28.3
Direct job creation (full-time positions)	24,251	25,592	26,051	35,699	41,749	35,333	188,675

Source: Worldwatch Institute, 2011.⁵²

Box 2.4: Restoration of the Loess Plateau

The Loess Plateau in northwest China is home to more than 90 million people. Centuries of uncontrolled grazing, deforestation, and subsistence farming have caused widespread erosion and environmental degradation, and plunged the region into poverty. Moreover, the erosion of the plateau has led to the silting of the Yellow River. The Yellow River is hugely important to China. One in nine (over 130 million) Chinese live within the Yellow River Basin, and most of these people depend, directly or indirectly, on the river for their livelihood. Another consequence of erosion is flooding – the Yellow River, also known as ‘China’s Sorrow’, has flooded 1,500 times in recorded history.

A study in the early 1990s conducted by China’s Ministry of Water Resources with the assistance of the World Bank found that restoring ecological function on the plateau would be less expensive than continuously dredging the river. It also found that on much of the land, the ecological functions, such as soil retention, were worth more than the profits from continuing to exploit what was already a much-degraded region.

This study led to the creation of the 10-year Loess Plateau Watershed Rehabilitation Project in 1995, which set aside an area of 3.5 million hectares of land for restoration and sustainable agriculture. The project cost approximately US\$500 million, funded by the World Bank International Development Association. The investment per unit area for the Loess Plateau Project was just under US\$143 per hectare.

The project had a diverse range of positive results.

- More than 2.5 million people in four of China’s poorest provinces – Shanxi, Shaanxi, Gansu and the Inner Mongolia Autonomous Region – were lifted out of poverty, reducing the proportion of those living in poverty from 59% to 27%.
- Through the introduction of sustainable farming practices, farmers’ incomes rose from about US\$70 per year per person to about US\$200; employment diversified and the degraded environment was revitalised.
- Sediment flow into the Yellow River was reduced by more than 53 million tonnes during the life of the project and will continue to reduce for an indefinite period.
- Replanting and bans on grazing have increased the perennial vegetation cover from 17% to 34%. Local food supply has increased.
- The projects’ principles have been adopted and replicated widely. It is estimated that as many as 20 million people have benefited from the replication of the approach throughout China.

The Loess Plateau’s restoration helped to inspire other countries to invest in large-scale restoration projects. For example, the government of Rwanda, having seen the experiences in China, adopted its own restoration policy in February 2011.⁵⁴

Source: World Bank, 2007.⁵³

DEALING WITH WATER

Water is a critical part of energy production. Water is needed for almost all forms of energy production and energy is also needed to transport and treat water. Producing food requires both water and energy. Thus, there is a tight nexus between energy, water and food. Carbon capture and sequestration (CCS) technology, used to eliminate GHG, in coal requires a lot of water; and the technology, hydraulic fracturing, commonly called 'fracking' – used to release gas from unconventional sources – also requires substantial amounts of water. The water withdrawal and consumption for each power production technology (including solar and wind) varies, and governments, investors and energy producers will increasingly need to consider the adequacy of water supplies when making decisions on energy resource extraction and power generation.

As for food production, although 2011 was another year of record grain harvests in China, the impact of poor water quality was beginning to be noticed. Between 2012 and 2017, China is expected to lose 12 million tonnes of grain annually owing to heavy-metal contamination. Up to 20% of rice and wheat production will be affected by poor water quality. Water is now a top policy priority in the 12FYP. Following on from the 11FYP, there are new water intensity and water pollution-related targets (see Table 2.1), and the Chinese government plans to invest CNY4 trillion over the next 10 years in water-related projects.⁵⁵

Box 2.5: China's real liquidity crunch

EXPERT COMMENT

In February 2012, Hu Siyi, vice minister of China's Ministry of Water Resources, issued a 'stark warning' that water use in China had 'already surpassed what our natural resources can bear' and warned that the water crisis has become a bottleneck for sustainable development.

According to the National Bureau of Statistics of China, 11 of the 31 regions of mainland China have renewable water resources below 1,000m³ for each person, annually, a level considered by experts to pose a severe constraint on food production, economic development and protection of natural systems. These 'Dry 11' have average water resources of 311m³, which is a level comparable to that of Syria, yet their combined Gross Regional Product contribution to China's national GDP is a staggering 45%.

Already, 19% of the seven rivers and basins monitored for pollution and 35% of the 26 key lakes and reservoirs are essentially useless for both agriculture and industry. Experts estimate that if business continues with its previous practices in China, by 2030 the supply shortfall will represent 2.6 times the total municipal water use in 2009.

There are also energy and food security issues, with the Dry 11 accounting for 40% of China's total agricultural output. In China, 96% of electricity generation requires water. Energy security is further exacerbated by China's reliance on coal, where 47% of China's ensured coal reserves lie in the Dry 11.

In 2011, water came ahead of agriculture as the top policy priority. The Chinese government introduced a cap on water consumption of 670 billion m³ by 2020, and set aside CNY4 trillion for water infrastructure from 2011 to 2020. The 12FYP echoed this, targeting a 30% improvement in water efficiency, an 85% sewage water treatment rate for cities, and six new specific water pollutant reduction targets. A National Groundwater Plan was issued in November 2011, prohibiting both the sinking of new wells and other excessive groundwater use. In February 2012, the State Council took further steps in drawing up more concrete policies to protect and manage water in a new water management decree.

Considering that the Dry 11 account for 52% of total industrial output and China's position as 'the factory of the world', China's water crisis has global repercussions. Government policy response to the water crisis could change the way business, investments, manufacturing and food production are conducted, influence global consumption patterns and dictate trade flows.⁵⁶

DEBRA TAN, DIRECTOR, CHINA WATER RISK

ADVANTAGES AND CHALLENGES FACING CHINA

The way in which the Chinese government runs the country presents a number of key advantages and challenges. These are presented in the box 2.6.

Box 2.6: Advantages and challenges

China's advantages

1. Government ability to mobilise action on priority issues – 11FYP and 12FYP are examples.
2. Infrastructure is not locked into a high-carbon model – China can meet additional demand by building new green infrastructure and production capacity without eliminating existing physical capital.
3. Potential for creating green cities as China urbanises – new city infrastructure can adopt green choices.
4. Large home market allows scaling up of green sectors – China has a vast domestic market; size also drives down costs through economies of scale.
5. China has financial and human resources to invest in green sectors – China has high saving rates and investment, and has built impressive R&D capability. China is also a destination for foreign direct investment (FDI) in green sectors.
6. Good natural endowment for clean energy – China has good conditions for wind, solar, hydropower and biogas development.

China's challenges

1. Distorted prices of resource commodities – low prices of resource commodities such as land, energy, labour and water deter conservation and investment.
2. Over-reliance on administrative measures to reduce emissions – market means are underdeveloped in China.
3. Weak environmental protection – China's monitoring and enforcement of standards and regulations are inconsistent, particularly at local level.
4. Lack of competitive market environment for green sectors – the state sector dominates important parts of the economy, such as electricity generation.
5. Sector coordination challenges – many complexities in coordination between government, state-sector industries and the private sector, eg connecting wind power to grid.
6. Weak monitoring and enforcement of standards and offences remains a significant and widespread challenge.

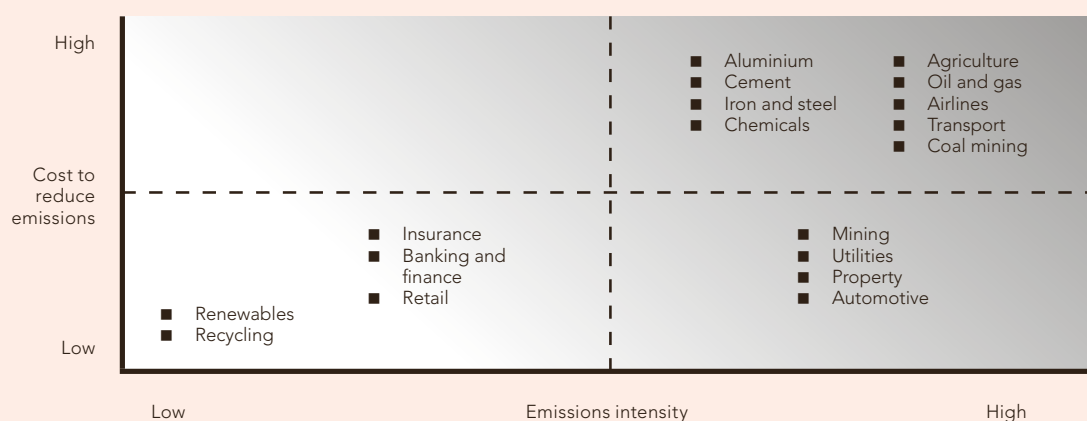
Source: World Bank, 2012.⁵⁷

IMPLICATIONS FOR BUSINESS

China's transition to a green economy presents a significant driver of change for businesses.

- Key sectors for development include non-conventionally sourced gas, the non-fossil-fuels sector, energy efficiency, smart grid development, green transport, and environmental protection.
- Foreign businesses have opportunities to supply green equipment and technologies in the above sectors.
- Chinese state-owned enterprises (SOEs) have interests in overseas investments in renewables, power generation and even coal mines – their challenges being acquisition pricing, approval by overseas regulations, etc.
- Chinese SOEs need various fund-raising services.
- In the 12FYP low-carbon sectors will benefit from increased investment and incentives.
- Financial investors have opportunities presented by China's significant capital expenditure (CAPEX) plans for clean energy.
- Businesses should assess provincial and cities' FYPs for opportunities, as they also have specific plans and targets to meet.
- Further consolidation is expected in the carbon-intensive sectors.
- Industry sectors have different cost profiles for emissions intensity reduction.
- The supply of adequate clean water to power China's energy sector is a critical factor business people should watch.
- China will invest CNY4 trillion over the next 10 years in water-related investments.
- New environmental taxes and the increasing cost of compliance will have a negative affect on business but will also provide opportunities for green technology, investment and market expansion.

Figure 2.6: Impacts of climate policy on business sectors



Source: KPMG Australia, 2010.⁵⁸

Hong Kong

HONG KONG

The Hong Kong Special Administrative Region is a developed city economy (per capita GDP exceeds Britain's although with wide income and wealth disparities) that is a part of China but operates a separate and distinctively different political, administrative, economic and legal system. The five-year planning system does not apply although, for the first time, the 12FYP has a chapter on Hong Kong and neighbouring Macao, the thrust of which is for them to cooperate with Guangdong Province to upgrade economic activities, including greening the southern region.

National vision of regional collaboration

Hong Kong's strengths are in its public and private institutions, which are well developed and extensive. Beijing's vision for Hong Kong is that it should continue to influence China's economic modernisation, particularly in south China, where Hong Kong companies have major investments.

Along that line of thinking, in 2008, the NDRC issued an Outline Plan for Reform and Development of the Pearl River Delta to articulate a national policy vision for the region to shift from low- to high-value manufacturing, upgrade technology and protect the environment.⁵⁹ In 2010, Hong Kong and Guangdong signed a special framework cooperation agreement, which includes

building 'a regional ecology and environmental protection regime', tackling air pollution, conserving ecosystems, prioritising green vehicles and promoting cleaner manufacturing.⁶⁰ The Outline Plan and cooperation agreement provides the policy backdrop for Beijing to prepare its 12FYP to support Hong Kong's status as an international financial centre, establish a financial cooperation zone, and support industries where Hong Kong has advantages (including environmental industries). In 2011, a consultation document specified areas of collaboration for building a 'low carbon development cooperation mechanism'.⁶¹

As a result, there is high-level political support for the region to explore cooperation. Opportunities include the following two projects.

(a) The expansion of the Cleaner Production Partnership Programme, launched in 2008/9, which provides subsidies to Hong Kong-owned factories in the Pearl River Delta for improving environmental performance. So far, the Hong Kong Productivity Council (HKPC), the facilitating arm, has engaged 56,000 factories and held 150 training sessions.⁶²

(b) The development of a regional emissions trading scheme for air emissions and carbon so that Shenzhen and Guangdong can use Hong Kong's financial services expertise in

developing regional capacity in carbon asset management and products (eg exchange-traded green funds associated with emissions-related products, exchange-traded green indexes).

Hong Kong's proposed low-carbon climate plan

The Hong Kong government issued a climate change action agenda in 2010 proposing a target of a 50% to 60% reduction in Hong Kong's carbon intensity in 2020, compared with the 2005 level, which would result in GHG decrease by 19%–33%.⁶³

The key strategy is to decrease the current reliance on coal-fired power. Under the proposal, coal would decrease from 54% of the fuel mix today to about 6% in 2020, and be eliminated by 2030. Coal would be replaced by natural gas (rising from 23% today to 40% by 2020) and nuclear electricity imported from Guangdong⁶⁴ (rising from 23% today to 50% by 2020). For renewable energy, the government proposed to go ahead with wind energy generation and for its share to increase from 1–2% to approximately 3–4% of the fuel mix by 2020.

The building sector is a major opportunity, which has yet to be fully exploited, for Hong Kong to reduce emissions. In 2010, ARUP, the design and engineering consulting firm, suggested that if 10,000 of Hong Kong's 41,000 buildings were retrofitted over ten years following best practices

Hong Kong

around the world, this could result in a reduction of almost 20% below the 1990 level of absolute emissions by 2020, which would be commensurate with the EU's committed reduction level⁶⁶. To achieve this, Hong Kong's Building Energy Code must be tightened beyond what the government has already done, as must energy-efficiency standards for electrical appliances. Other measures should include finding the right financial and incentives schemes to unlock capital for building retrofit, promoting appropriate energy service contracts, and raising awareness of what can be accomplished among the public. This is particularly important because the

sector contributes 90% of Hong Kong's GHG emissions. Figure 2.7 shows what makes up the building sector's GHG emissions.

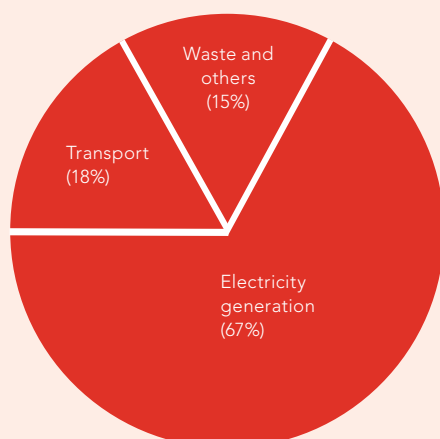
Other proposed strategies are to promote low carbon vehicles, cleaner vehicular fuels, as well as walking; and turning waste to energy.

Major spending on infrastructure (including environmental infrastructure)

Hong Kong is spending very large sums on building new infrastructure, such as a bridge to connect it to the Pearl River Delta, and a third runway for Hong

Kong airport. These projects are encountering environmental limits (especially for the air quality objectives), such that the project proponents will not be able to meet targets unless the government plays a major role in reducing the city's overall pollution. Another major project is the development of a waste treatment system that includes sludge treatment, incineration, waste to energy conversion from the incineration, and landfill extension.

Figure 2.7: Contributions to GHG emissions from the building sector in Hong Kong



Source: World Bank, 2012.⁶⁵

Hong Kong

Box 2.7: Hong Kong advantages and challenges

Hong Kong's advantages

1. Strong private sector – Hong Kong has a developed private sector and a wide range of professional services that can produce low-carbon outcomes.
2. Large investments in Pearl River Delta – Hong Kong businesses have substantial investments in the delta, which can have a transformative impact if maximised (such as via the Cleaner Production Partnership Programme).
3. Good collaboration potential – Hong Kong is a natural partner to collaborate with Shenzhen and Guangdong to achieve goals and targets.

Hong Kong's challenges

1. Insufficient local policy priority – Hong Kong has yet to move from rhetoric to making climate change and environmental protection integral to other policy areas.
2. Lack of policy ambition – various environmentally and climate-related standards and regulations are insufficiently tight to drive low-carbon outcomes; the authorities fear objections from vested interests.
3. Inability to devise a comprehensive policy to deal with replacing old and highly polluting diesel buses and commercial trucks.
4. Insufficient multi-stakeholder dialogue – the authorities have made insufficient use of their convening power to create dialogue to find solutions.

IMPLICATIONS FOR BUSINESS

Hong Kong's energy sector is a major user of professional services – Hong Kong's listed utilities have large investments in not only local but also mainland Chinese and international energy infrastructure worldwide. Their China investments include nuclear power plants, various other types of power plants, natural gas terminals, city gas supplies, and wind farms.⁶⁷

Hong Kong manufacturing small and medium-sized enterprises (SMEs) will need assistance as they improve their environmental performance.

The building sector is beginning to explore emissions reduction, and this can take off dramatically when the right policy incentives come.

3. China's international relations, natural resources and climate change

China's economy is growing so fast that it requires enormous quantities of energy and all types of natural resources to keep expanding. China's water demands are also growing, including for energy provision and food production. The country's increasing appetite has launched China outward to secure resources from around the world. China is also conscious that countries have been jockeying for a leadership position on climate change, signalling that the international order of the future may well revolve around a range of climate-related issues, many of which are related to how fast and well economies become green.

The global financial crisis that started in 2008 has unexpectedly hastened China's rise in the international market for resources, giving it new ways to exert influence, but it has also created geopolitical tensions.

This chapter addresses the following questions:

- What are the implications of China's enormous need for natural resources – particularly energy resources?
- How is the Chinese government adapting its foreign policy to its domestic development strategy?
- In what ways is China participating in international climate change negotiations, and in Rio+20?
- What is the emerging role for Hong Kong, especially with respect to commodities?

CHINA'S RESOURCE REACH

By the end of China's 12FYP in 2015, its economy is expected to have grown by 40% to US\$8.5 trillion.⁶⁸ Production of energy, food and many goods requires large quantities of industrial commodities. As domestic production can no longer satisfy growing needs, Chinese imports of natural resources have increased dramatically since the early 2000s.

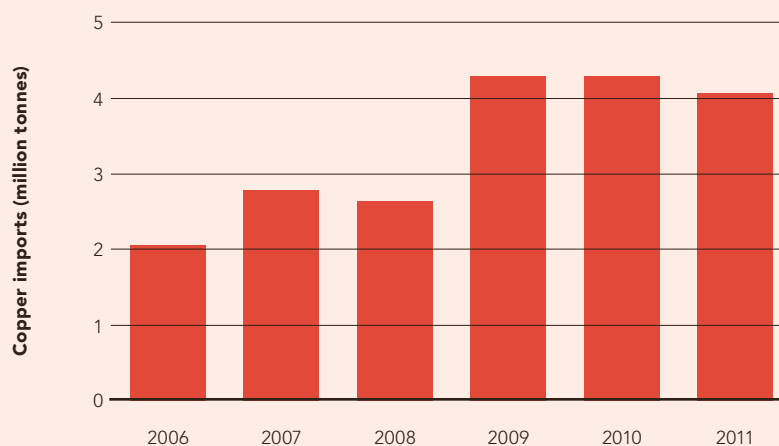
Notable import increases can be seen in many commodities, including oil, steel-making raw materials (iron ore, nickel and zinc), copper, alumina and grains. In 2002, the Chinese government launched the 'Go Out' campaign for Chinese companies, especially state-owned enterprises, to sign long-term contracts and acquire foreign assets in natural resources. In 2003, the government issued additional

guidance on mineral resources that included protecting investments in firms prospecting and exploiting resources outside China.⁶⁹

The buying and selling of resources has often involved states, state-owned entities and bilateral agreements, the structuring of which goes beyond purely commercial considerations to take account of national interests and state-to-state relations. Thus, commercial and diplomatic negotiations go hand-in-hand. China's interest is to secure a stable supply of resources at affordable prices and move those resources as needed. China's aggressiveness in acquiring resources can be seen in its increasingly large merger and acquisition (M&A) activities, worth approximately US\$26 billion in 2010 or 15% of global M&A in the upstream sector (investments down a company's supply chain).⁷¹

Resource-rich Australia and Canada are good shopping grounds for China. Recent examples include the signing of agreements between the Chinese and Australian governments in 2010, where Chinese state-owned companies would provide US\$8 billion to build a coal mine, rail line and a coal terminal at ports that are tied to exports to China over 25 years.⁷² Since 2010, Chinese state-owned companies have invested more than US\$16 billion in Canadian energy projects, including in oil sands. Canada currently sells most of its oil exports to the US but wants to diversify. The Canadian government has proposed the building of a cross-country pipeline to transport oil from oil sands to the Pacific Coast for shipment to China. If this happens, China is also ready to invest in the pipeline.⁷³

Figure 3.1: Rise in copper imports, 2006–11



Source: China Futures, 2011.⁷⁰

Box 3.1: China's energy security⁷⁴

Achieving energy security is a top priority for China since having sufficient energy to power development is critical to its future. An important lesson was reinforced with the global financial crisis, as well as turmoil in the Middle East and North Africa in 2011 – China must keep a diversified energy sources portfolio so as to minimise delivery disruptions and price fluctuations in the international energy markets.

In addition, energy, fiscal and monetary policies need to work together to enhance energy security. The global financial crisis presented China with exceptional opportunities to reduce its stake in US Treasury Bills by buying natural resources and other assets. With the fall in oil prices from US\$150/barrel to US\$40/barrel in late 2008 and early 2009, China secured significant quantities of energy resources, particularly from exporting countries where sellers wanted to generate revenue. For example, in 2009, China lent US\$25 billion to two Russian energy companies in exchange for an increased supply of oil for the next 20 years.⁷⁵ China also struck a deal with Brazil to supply up to 100 million barrels of oil a day in return for a loan of US\$10 billion.⁷⁶ China was also able to build up its strategic petroleum reserves when oil prices were favourable.⁷⁷

China is the second largest importer of oil in the world, after the US. By 2020, it is expected to be the largest importer.⁷⁸ In 2010 and 2011, China imported more than half the oil it consumed, most of which came from the Middle East and Africa. Natural gas imports are also increasing. As the cleanest fossil fuel, it is a good replacement energy source to keep coal use down, and consumption is likely to increase from its 2012 level of about 5% to 10% of China's energy consumption by 2020, with nearly a third of that imported. Half China's current natural gas is piped in from Turkmenistan, with Kazakhstan also being a major supplier. Russia is another important gas supplier but a 30-year supply deal has long been delayed over pricing disagreements.⁷⁹

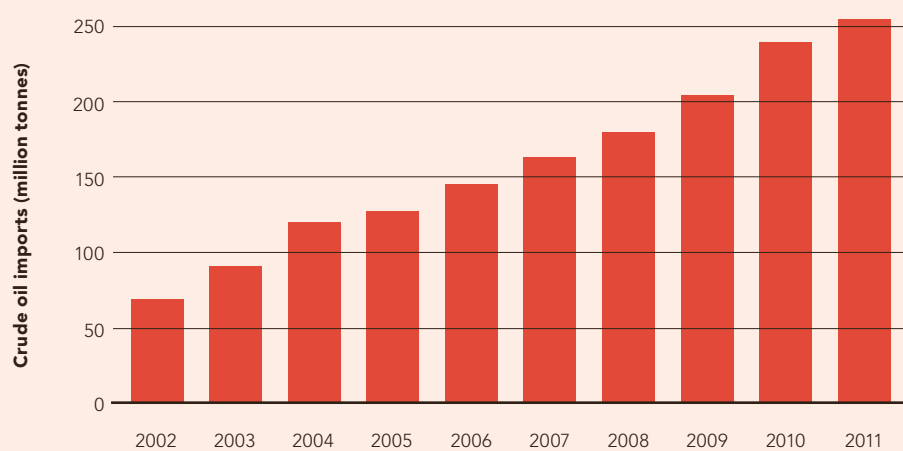
RESOURCE TENSIONS

The scale of China's worldwide search for resources has raised concerns about a global resource scramble, as others are also shopping or hunting for resources. At times, it has also ruffled the feathers of the US – the longstanding dominant player on the international stage. Examples of tension include the controversies about resources in the South China Sea, as well as the export of rare earths (where China is the major exporter).

South China Sea

The examples above illustrate the potential for competition in securing resources, but it is in the resource-rich emerging economies that the potential for conflict is most fierce, such as in the South China Sea, which has proven oil and gas reserves and where there are competing territorial claims by China (and Taiwan), Indonesia, the Philippines, Vietnam, Malaysia, Singapore and Brunei. Recent tensions have presented a challenge to the Association of South East Asian Nations (ASEAN) as to how to present a united front in dealing with China's assertiveness.⁸² China and the Philippines have current disputes in the South China Sea.⁸³

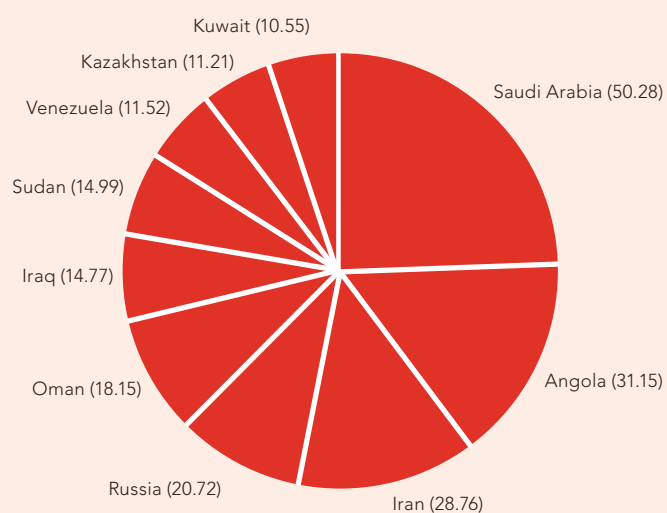
Figure 3.2: China crude oil imports by year



Source: *The Beijing News*, 2012.⁸⁰

Figure 3.3: China crude oil imports by country, 2011

Tonnage (in million tonnes)



Source: China Petroleum and Chemical Industry Federation, 2012.⁸¹

Rare earths

Another area of tension being fought over at the World Trade Organisation between the US, EU and Japan with China, concerns rare earth exports, where China has 36% of the world's reserves and controls 95% of the world's supplies. Rare earths are indispensable ingredients for powering the green economy, being used in batteries, magnets, wind turbines, hybrid cars, lasers, etc. They are also essential for telecommunications products, such as computers and mobile devices, and products with military application, such as precision-guided weapons. China came to dominate supplies because, in the past, it tolerated the environmental damage from extraction while other supplying countries cut back on production.⁸⁴ China has since improved its rare earths extraction operations. Since 2005, it has suspended the issuance of licences for prospecting and mining, adopted production caps, imposed tighter environmental standards, and cut back on exports since it is now a major consumer of rare earths. In 2010 and 2011, the further reduction in export quantities resulted in a jump in prices for some rare earths of more than 1,000%, igniting worldwide complaints. China's share of global exports may drop to 70% within five years as production elsewhere increases, but it will remain a dominant supplier for the foreseeable future.⁸⁵ The export quota for 2012 is reportedly similar to that for 2011.⁸⁶

Box 3.2: Risks and gains of Sino-African relations

A strong current in Africa is the expanding influence of China. Sino-African trade reached US\$126.9 billion in 2010. Through significant investment, China has helped African countries develop their oil industries in return for advantageous arrangements for China's purchase of oil and other resources. In 2010, Angola, Sudan, Libya and the Republic of Congo were among its top ten oil suppliers. Lesser suppliers were Nigeria, Chad, Algeria, Gabon, Equatorial Guinea, Liberia and Kenya.

China has actively courted African states with diplomacy, trade deals, debt forgiveness and aid. Relations with Angola, China's largest African oil supplier provides a good example of China's courtship. Its oil deals are characterised by loans and credit lines in connection with infrastructure projects. A series of loans and credit lines since 2004 has included funds for Chinese companies to build infrastructure such as schools, hospitals, bridges, roads and rail, to lay a fibre-optic network, and to train telecoms workers.

China's policy of enlarging commerce and not interfering with domestic and regional African politics is far from easy to navigate, as could be seen with Sudan. The civil war that began there in 2003 led to many deaths and mass displacements of people. China supported the government in Khartoum against rebel forces. As part of the ceasefire arrangements, a referendum was held in January 2011, resulting in a vote for the secession of south Sudan. South Sudan became independent in July 2011. Even so, the two states continue to experience border insecurity. China negotiated oil disputes between the two Sudans. Rebels loyal to south Sudan kidnapped a group of Chinese workers, bringing home to Beijing the complexities of local and regional African politics.⁸⁷

TORTUOUS CLIMATE NEGOTIATIONS

Worldwide emissions cannot be significantly curbed without meaningful contributions from all major economies. Yet, it has been extremely difficult for the countries of the world to agree on how to share the 'common but differentiated responsibilities' between the developed and developing world. This phrase means all countries have a common responsibility to protect the environment but also differentiated responsibilities because developed countries should play the leading role owing to their greater historical contribution to the problem and more advanced development.

The Kyoto Protocol is the multilateral treaty signed between 191 states as a commitment to fighting global warming by stabilising carbon concentrations in the atmosphere at a level that would prevent dangerous human-induced climate change. The protocol was entered into in 1997 and went into effect in February 2005. Under the protocol, 37 developed countries ('Annex I countries') committed themselves to specific reductions to cut emissions by 5.2%, relative to 1990, for the period 2008–12, while developing countries ('non-Annex I countries') gave general commitments to make improvements.⁸⁸ China is a non-Annex I country.

Even though China signed and ratified the Kyoto Protocol, it used to see international climate discussion as external pressure from developed countries to hinder the growth of developing countries. Since conducting

its own scientific research, however, China has realised how highly vulnerable it is to the impact of climate change. For example, climate change will reduce crops, shrink rivers and unleash floods and droughts, according to the latest Chinese government's assessment.⁸⁹

CHINA AT COP15 IN COPENHAGEN

The annual UN Conference of the Parties (COP) is designed to progress international negotiations on climate change. COP15 in Copenhagen in 2009 was supposed to complete negotiations on a new international treaty that would go into force when the Kyoto Protocol's first commitment period expires in 2012. China went to COP15 as the world's largest carbon emitter (23% of world emissions). Thus, its role is seen to be increasingly important in determining the success of the UN-led global negotiations. Just before COP15, China pledged to reduce its carbon intensity by 40%–45% by 2020, compared with the 2005 level. This pledge was subsequently included as a mandatory target in the 12FYP.

Negotiations at COP15 floundered and resulted in the non-binding Copenhagen Accord – a compromise because of disagreement among the most vulnerable states, major emitters and developed countries on how to proceed. The Accord did acknowledge that the world must not exceed a 2°C warming above pre-industrial levels by 2050, and that countries should continue to formalise emissions reduction pledges, with mitigation actions to be monitored nationally and reported, and that there would be an

assessment of the implementation of the Accord by 2015.⁹⁰ COP15 also emphasised the need for nations to lay the groundwork for credible emissions data collection and verification, which is a challenge for China and other developing economies.

The challenge of producing accurate emissions data can be seen from discrepancies between national and provincial statistics in China's annual carbon emissions data for the period 1997 to 2010. Research shows that national-level statistics indicate a 7.5% annual increase in emissions but provincial-level statistics give the increase as nearer to 8.5%. By 2010, this difference represents 1.4 billion tonnes of carbon a year. If China's emissions are indeed higher than previously thought, that does not in itself mean the climate outlook is worse, since net carbon levels in the atmosphere can be measured directly and are not in dispute. Other countries also face challenges in providing accurate data but the scale of uncertainty is possibly very large in China's case.⁹¹

CHINA'S 2011 EMISSIONS

China's vulnerability to climate change drives both domestic policy (as can be seen by the 11FYP and 12FYP) and international climate negotiations. As the biggest emitter, China knows it is no longer acceptable to say that its per capita emissions remain low, because its per capita emissions are now on par with those of France and Spain.⁹² Moreover, according to the IEA's latest report published in May 2012, China spurred a jump in global carbon emissions by 3.2% in 2011, offsetting falls in developed economies.⁹³

KYOTO'S UNCLEAR FUTURE

After Copenhagen, long-drawn-out climate negotiations continued in Cancun at COP16 in 2010 and Durban at COP17 the following year, where modest advances were made. For example, the Kyoto Protocol was extended into a second phase that will begin in 2013, and the Durban Platform was created to guide negotiations over a new climate regime that should cover both developed and developing countries by 2020. On the whole, the existing Kyoto Protocol commitments will not be met, and Canada renounced the protocol in December 2011 after

COP17, saying that the protocol was no longer relevant.⁹⁵

It is unclear at this stage whether the Durban Platform will indeed lead to a new global agreement that can curb carbon emissions successfully, since world consumption trends do not slow down while diplomats haggle. Meanwhile, the IEA notes that the 2°C temperature rise limit is close to being breached and the world will then be on a warmer, more dangerous, trajectory.⁹⁶ COP18 will be held at Qatar from 26 November to 7 December 2012, and negotiations are expected to continue to be difficult.

Box 3.3: International Energy Agency's report

Global carbon emissions reached a record high of 31.6 gigatonnes (Gt) in 2011, according to preliminary estimates from the IEA. This represents an increase of 1Gt on 2010, or 3.2%. Coal accounted for 45% of total energy-related carbon emissions last year, followed by oil (35%) and natural gas (20%).

The 450 ppm scenario of the IEA's World Energy Outlook 2011, which sets out an energy pathway consistent with a 50% chance of limiting the increase in the average global temperature to 2°C, requires carbon emissions to peak at 32.6Gt no later than 2017 (ie 1Gt above 2011 levels). In view of the latest 2011 data, the chance of keeping within the 2°C limit is fast fading.

According to the IEA, in 2011, a 6.1% increase in carbon emissions in countries outside the OECD was only partly offset by a 0.6% reduction in emissions inside the OECD. China made the largest contribution to the global increase, with its emissions rising by 720 million tonnes or 9.3%, owing primarily to higher coal consumption. Nevertheless, the IEA acknowledges China's recent efforts to improve energy efficiency and deploy clean energy, which are 'paying major dividends to the global environment'. China's carbon intensity fell by 15% between 2005 and 2011. Had these improvements not been made, China's carbon emissions would have been higher by 1.5Gt.⁹⁴

EU vs CHINA ON AIR TRAVEL

A major disagreement has arisen between China and the EU over air travel with respect to the European Union Emissions Trading System (EU ETS). From 1 January 2012, the EU began to levy a charge on flights in EU airspace, on the basis of carbon emissions. Non-complying airlines will be fined from 2013. The EU estimates the scheme will cause air fares to rise by €2 to €12 per passenger. China estimates the levy costs Chinese airlines about €95 million annually. Indeed, all non-European airlines are concerned about the levy as it affects their profit and loss. An added complication is that non-EU governments also see the levy as an infringement on their sovereignty, being an extra-territorial tax imposed on their carriers. Many governments, including the Chinese, have denounced it as a trade barrier.

On 6 February 2012, China not only barred its airlines from joining the EU levy scheme without government approval, but also prohibited Chinese carriers from using the levy as a reason for raising fares.⁹⁷ While most carriers around the world have submitted their 2011 carbon emissions data to the EU as the base for calculating levies under the scheme, Chinese airlines have not done so. In the worst case, non-complying airlines could be fined or even banned from flying to Europe although Chinese airlines are clearly going to march in step with their government. China, along with other governments, continues to call for negotiations with the EU.⁹⁸ Further wrangling can be expected in the coming months.

Box 3.4: Water–energy nexus and climate change

EXPERT COMMENT

According to the UN, over 90% of the world's population lives in countries that share water basins. Globally, there are some 263 trans-boundary lakes and river basins covering nearly one-half of the Earth's land surface and accounting for an estimated 60% of global freshwater flow. In addition, about two billion people worldwide depend on groundwater, which includes approximately 300 trans-boundary aquifer systems.

In Asia, the Qinghai-Tibetan Plateau, often referred to as the Third Pole, is home to the largest freshwater reserves outside the north and south poles. It is the source of some of Asia's main river arteries, which include the Indus, Ganges, Brahmaputra, Irrawaddy, Salween, Mekong, Yellow and Yangtze Rivers. With the exception of the Yellow and Yangtze Rivers, these rivers are trans-boundary. In combination, they are a major source of freshwater for the following countries: Pakistan, India, Nepal, Bangladesh, Burma, Laos, Thailand, Cambodia and Vietnam. There are no water treaties governing the management of these shared resources.

China's damming of rivers for hydropower has caused geopolitical tensions with its neighbours. As part of its plans to double its electricity generation capacity by 2020, China expects to double its hydroelectric power capacity. Areas suitable for tapping hydropower lie further south in China where the Qinghai-Tibetan Plateau slopes off into south-east Asia. To meet its energy and carbon emission targets China may have no choice but to dam the rivers feeding these main arterial trans-boundary rivers.

Climate change adds to these concerns as it exacerbates water scarcity. Freshwater resources in China are falling while water use is increasing owing to growing affluence. Droughts and floods have also hit the water-rich south. China's *Second National Assessment Report on Climate Change* issued in November 2011 warns that: 'climate change will lead to severe imbalances in China's water resources within each year and across the years. In most areas, precipitation will be increasingly concentrated in the summer and autumn rainy seasons, and floods and droughts will become increasingly frequent'.

Against a backdrop of potential water shortages, many fear China may resort to diverting the headwaters of trans-boundary rivers. China is already undertaking the South-to-North Diversion Project where rivers from the south are diverted to the parched North.

DEBRA TAN, DIRECTOR, CHINA WATER RISK

NORTH-SOUTH DIVISION AT RIO+20

Rio+20, officially known as the UN Summit on Sustainable Development, marked the 20th anniversary of the UN Conference on Environment and Development (commonly called the Earth Summit) held in Rio de Janeiro in 1992. The previous summit produced landmark accords, including a treaty on biodiversity and agreements that led to the creation of the Kyoto Protocol. The aim for the 2012 summit, which took place from 20–23 June, was to initiate a process for defining a new set of development principles around the role of the green economy. It also occurred at a time when the developed and developing nations were unable to reach a common understanding on key issues, as the COP meetings noted above have shown. The divide lies at the heart of international cooperation, including that necessary for technology transfer and finance.

China's position at Rio+20 illustrated the divide. China called for nations to uphold the principle of 'common but differentiated responsibilities' to guide international cooperation,⁹⁹ meaning that rich countries should stick with the 1992 understanding that they had the responsibility to do more than poorer ones. At the other end, developed countries wanted China and the larger emerging economies to take much more significant action, as their economies were growing quickly and emissions contributions were rising substantially and rapidly. Critics say the final Rio+20 Declaration, called *The Future We Want*, was long on rhetoric but short on new, specific commitments. The 53-page declaration merely called upon signatory, in general

terms, to introduce green economic policies to eradicate poverty, but there were few undertakings.

SILVER-LINING ON EXTERNALITIES ACCOUNTING

Nonetheless, a significant achievement was Paragraph 38 of the Rio+20 Declaration, which recognises the need for broader measures of progress than GDP alone. Paragraph 38 and Paragraph 47, which promotes corporate sustainability reporting, can together become transforming agents in greening economies in the next decade.

Since even before the Earth Summit in 1992, there has been growing recognition that GDP alone is not a sufficient measure of progress towards sustainable development. GDP looks at only one part of economic performance – output – but says nothing about the wealth and assets that underlie it. For example, when a country exploits its minerals or cut down its forests, it is actually depleting wealth. The same holds true for overexploiting fisheries or degrading water resources. Thus, relying on GDP alone to assess economic performance can be misleading, as countries could grow in the short term by running down their 'natural capital', thus endangering growth in the long term. The UN Statistical Commission has worked on a new method of accounting for natural resources such as minerals, timber and fisheries, and Paragraph 38 provides the basis for consideration for its implementation by countries.

Moreover, Paragraph 47 calls upon large or publicly listed companies to consider integrating sustainability

information into their reporting cycle. To coincide with the Rio+20 Declaration, UNEP and others put forward the *Natural Capital Declaration*, seeking signatories among financial institutions in the public and private sectors to work together to create the conditions necessary to maintain and enhance natural capital as a critical economic, ecological and social asset. This declaration was presented as a private sector finance response to the conference's 'green economy' theme, and it was developed on the basis of consultation with the financial community over the course of 2010 and 2011, including meetings in London, Nagoya, Hong Kong, Munich, Washington DC and Sao Paulo. Signatories included the World Bank, International Finance Corporation and mostly Western financial institutions. Among the Asian signatories were smaller Chinese banks – China Merchant Bank and Shenzhen Development Bank.¹⁰⁰

The World Bank announced at Rio+20 that it wanted to get at least 50 countries and 50 companies to commit to acting on natural capital accounting, and it is supporting countries in factoring their natural capital into systems of national accounts, through a global partnership called WAVES (Wealth Accounting and the Valuation of Ecosystem Services). The government of the Netherlands announced €2 million in support for WAVES at Rio+20. The World Bank persuaded 59 countries and 88 private companies to sign. The European Commission set 2020 as a milestone when natural capital and ecosystem services would be valued and accounted for by public authorities and businesses. Many European states also

pledged their support. Other supporting governments include the US, Costa Rica, Colombia, South Africa, Botswana, Gabon, the Philippines, Vietnam and Australia (but not China, even though it had pioneered Green GDP – see Chapter 2); and supporting companies include Walmart, Unilever, Puma, Dow Chemical, and Mars Incorporated among non-financial firms.¹⁰¹

IMPLICATIONS FOR BUSINESS

Business interests are keenly observing:

- China's ability to source natural resources and the impacts of this on global supplies and markets
- China's needs for professional services, such as for M&A deals in acquiring assets, joint ventures in shale oil and gas extraction, as well as for improving measurement, reporting and verification of emissions
- China's spending on the substantial investments earmarked for water-related projects
- how China will implement market-based mechanisms, especially emissions trading
- international relations flash points over natural resources and water security
- development of the UN's Climate Green Fund, and
- the evolution of natural capital accounting for countries and companies, and the engagement of China and Chinese companies.

China's enormous need for natural resources has led to a new resource-related diplomacy for its government. The building of large dams for hydroelectric power in the upper reaches of rivers rising in Tibet has also created tensions with down-river countries in south and south-east Asia. Arguments between the developed and developing countries over climate change are unlikely to abate at COP18 at Qatar, although governments from around the world know the 2°C window is closing fast now that the IEA has released carbon emissions data for 2011. Nevertheless, it is also realised that China's effort to reduce coal use, improve energy efficiency and achieve a low-carbon economy is critical for a global clawback on the rate of global warming.

Thus, key developments to watch include the evolution of China's progress towards a global new climate agreement by 2015, as stated in the COP17 Durban Platform.

Nations have backed a COP15 intention to raise US\$100 billion in cash by 2020 to create the Green Climate Fund. COP17 agreed that the fund should start operating from 2013, although it remains an empty shell with no new funding commitments as yet. The US wants to see a large role for private sector funding while the least developed countries and small island states argue that their vulnerability demands robust funding from developed country governments. The fund would be run by a 24-member board, split evenly between developing and developed countries. The World Bank would be the interim trustee subject to a review after three years and

would be accountable to the board. An independent secretariat would serve the board. A host country is expected to be chosen at COP18. The fund will provide money and other assistance to help poorer nations progress toward low-emissions power generation and adapt to the impacts of climate change, with a focus on the urgent needs of those nations most highly vulnerable to climate change.

Hong Kong

HONG KONG

While diplomatic and military affairs are the responsibility of Beijing, Hong Kong has substantial autonomy in all other aspects of its external relations, including economic and commercial relations, as well as customs control. Hong Kong is an active member of the World Trade Organisation (WTO), International Monetary Fund (IMF), World Customs Organization, World Meteorological Association, and Asia-Pacific Economic Cooperation (APEC), as well as trade bodies such as IATA.

Setting a climate precedent

Hong Kong officials attended COP15 in Copenhagen as part of the Chinese delegation in 2010, as UN-related negotiations are Beijing's responsibility. As noted in Chapter 2, the Hong Kong government issued a climate action agenda in 2010, proposing to reduce Hong Kong's carbon intensity by between 50% and 60% by 2020 (using 2005 as a baseline), which exceeded China's national target of 40% to 45%. This was seen as being right in Hong Kong because Hong Kong is China's most advanced city. This move set a possible precedent for the future – it may be possible in the 13FYP for more developed areas to exceed the national target because the major cities, such as Beijing and Shanghai, have already built much of the hardware infrastructure needed.

1. Sensitivity to energy supplies and prices

Hong Kong imports all its energy and food. To reach its carbon reduction target by 2020, Hong Kong will need to reduce coal imports and increase imports of nuclear electricity from Guangdong and of natural gas. The new administration that took over on 1 July 2012 will need to decide on the mix of nuclear and gas increases within the context of supplies and price. The national government has already guaranteed that it will continue to sell nuclear electricity to Hong Kong, as well as to supply piped gas imported from Turkmenistan, and for a natural gas terminal to be jointly built by a Chinese and a Hong Kong utility in Guangdong.

2. Water imports from Guangdong

Hong Kong imports about 80% of its fresh water from the Dongjiang, a major tributary of the Pearl River that provides water to China's southern-most provinces. Owing to heavy use and poor pollution control in many parts of the Pearl River Delta, droughts are not uncommon and parts of the river are also highly polluted. Water management is becoming more important under the 12FYP, and should the new Hong Kong administration be interested in opening discussions with its appropriate counterparts on the mainland, it may initiate collaborative management of the whole of the Pearl River Basin to protect the region's water security.

Hong Kong

3. Hong Kong enters the commodities business

Another interesting development is that the Hong Kong Exchanges and Clearing Limited paid £1.39 billion for the London Metal Exchange (LME) in June 2012: the Hong Kong bourse's first overseas acquisition. The price represented 180 times the LME's profit in 2011 but local officials threw their weight behind the deal because they said it would help to achieve the city's plan for developing commodities trading as part of China's 12FYP. Time will tell what synergies there may be.

The privately funded Hong Kong Mercantile Exchange started trading in 2011. While Hong Kong has traditionally traded only stocks, gold and silver, the entry of a locally operated commodities exchange allows for price setting in the Asian time zone. Investors in the exchange include Hong Kong, mainland Chinese (ICBC and COSCO) and Russian (EN+ Group) money. Products traded include a 32 Troy Ounce US\$ Gold Futures Contract. The exchange is usable by a wide range of market participants to execute hedging, arbitrage and other investing strategies. The Exchange also provides physical delivery in Hong Kong, meeting international standards and contract specifications tailored to market participants in Asia. The Exchange's US\$ Silver Futures Contract trades in units of 1,000 troy ounces, with the

option of physical delivery in Hong Kong. The Exchange plans to launch a CNY-denominated gold future contract in 2012, and also in the pipeline are CNY contracts in copper and other base metals as well as other futures contracts in energy, agriculture and commodity indexes.

4. Hong Kong and the EU airline levy

Unlike the mainland Chinese airlines, Hong Kong's carrier, Cathay Pacific, which flies to Europe, is complying with the EU carbon levy scheme, although it joins other non-European airlines in protesting that the levy is unfair.

4. China and supply chain sustainability

Supply chains form the network architecture for global trade, jobs dispersion and economic integration. Leading multinational companies (MNCs) are improving the environmental and social aspects of their supply chains in order to upgrade their sustainability performance. Sustainability initiatives require suppliers to meet certain performance standards. Although these requirements are often set with global standards in mind, the impacts are significant for Chinese manufacturers and exporters because, for many common consumer goods, China may account for from half to over two-thirds of production (raw materials, intermediate processing or export). In other words, many global supply chains pass through China at some point.

The key aspects of China's supply chain in the move towards sustainability involve improving environmental and labour standards. Relevant laws will tighten further over time, thus companies that are doing the most in these areas should outperform others. This chapter addresses the following questions:

- How are consumer demand and tightening regulation promoting sustainability in supply chains?
- How are companies operating in China adopting better practices with regard to the environment and labour standards?
- What is the role of NGOs in monitoring business practices?
- What is Hong Kong's role as supply chain orchestrator, trader and a logistics provider?

MAKING SUPPLY CHAINS SUSTAINABLE

A number of forces have been transforming global supply chains in recent years; two, in particular, are prompting producers and brand owners to rethink how they approach supply-chain sustainability. The first, and more important, is the changing concept of 'value', and the second is the potential risks from various disrupting factors.

For many years there have been consumers who have asked questions about how the goods and services they buy have been produced. These 'conscious' consumers wanted information so that they could assess whether a product or service was aligned with their social values. For example, they wanted to know if a product or service is provided in a way that was less harmful to the environment than alternatives, or produced by workers who were not exploited. In more recent years, with the explosion in the use of communications technologies, the general public have also been able to access a wide range of information. Today, one need not have a special interest or special means to find out what is happening in production on the other side of the world. Coupled with increasing awareness about climate change and social inequities, communications technologies have created a new generation of conscious and empowered consumers.

These changes among consumers have also radically changed the risk equation for brands. As recently as the 1990s,

brand owners met such special interest needs as they arose. Today, MNCs have realised that the trend towards an empowered and socially aware consumer – and the regulation that may follow as a result of public pressure – is a permanent one. In view of such developments, brand owners have every reason to approach sustainability proactively, strategically and innovatively. Thus, they are now trying to make products that have value not only because of their 'hard' qualities, such as design, function and utility, but also because of their 'soft' values – what products are made of and where the raw materials come from, and how products are made – because consumers today increasingly care about all these aspects. This is driving the demand for hyper-transparency in disclosure, with a growing amount of information being given to stakeholders (see Chapter 5).

The second factor is that businesses today need to respond quickly to rapidly changing exogenous, potentially disrupting conditions, such as extreme weather and natural disasters, instability of supply and pricing of natural resources (eg electricity, water, raw materials) and changing technology.

What this all means is that supply chains have to be much more flexible and more efficient in multiple dimensions, aside from the traditional considerations of cost and speed. To perform well, companies have to be able to provide verified information about every step in a production chain. In other words, traceability takes centre stage.

IMPROVING ENVIRONMENTAL PRACTICES

Consumer-driven changes

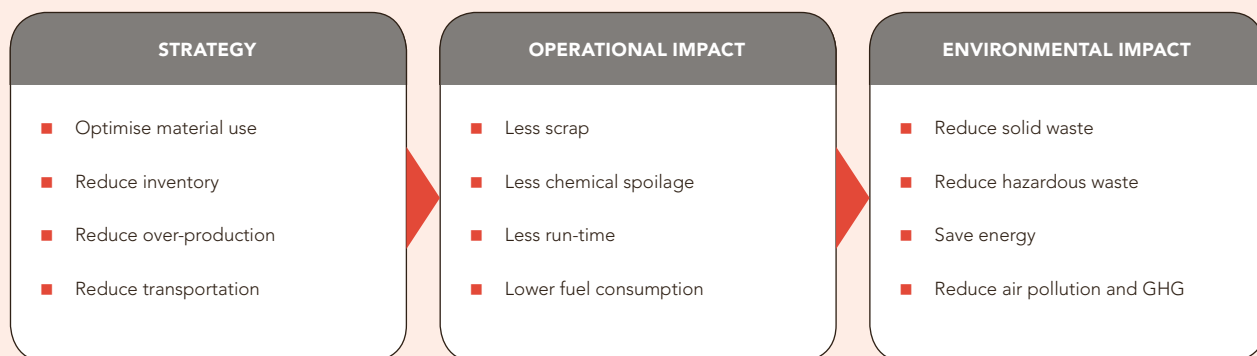
Consumers are demanding that products should be greener, and this is reflected in consumer surveys. For example, a Boston Consulting Group survey published in 2009 polled over 9,000 consumers worldwide, including in China, and found that 73% of them considered it important that companies are environmentally responsible, and respondents said they were willing to pay a 5% premium or more for green products.¹⁰² Yet, brand owners know that it is far from easy to extract the green premium from consumers even as their expectations rise.

How are brand owners greening their supply chains to meet rising expectations? They must persuade their own organisations and many suppliers, including those in China, to reduce the environmental impacts throughout the value chain, including product design, material selection, manufacturing process, transportation of goods, and the recycling, reuse and disposal of used goods. Typically, the goals include reducing energy, water and natural resources consumption; reducing GHG emissions, increasing the use of cleaner energy sources; decreasing pollution and waste; and treating waste appropriately (see Figure 4.1).

Regulatory pressure

The Chinese government has also been putting regulatory pressure on industries operating in China. Government policies prohibiting environmentally damaging production methods, as well as increasing liabilities for pollution, have been put in place. China's Torts Law, which took effect in October 2010, sets out the general principle that a polluter will be held liable for the pollution that it causes. If a company's discharges or emissions are proved to cause pollution, and if it causes damage or loss to others, then regardless of whether the polluting company is at fault, the polluting company is liable for the damage or loss. The polluting company must prove

Figure 4.1: Operational impacts of green supply chains¹⁰³



Source: US EPA.¹⁰³

that its pollution did not cause damage or show conditions under which it bears no liability or lesser liability. There are three types of environmental liabilities under Chinese law – administrative, civil and criminal.

Administrative liability

This is the most common liability imposed by the Ministry of Environmental Protection (MEP) against corporate violators of environmental regulations. Liability depends on the severity of the violation, and may result in a warning, fine, confiscation of gains, an order to stop operation, revocation of operating licence or permit, or even complete termination of an operation.

Civil liability

The Torts Law provides that a polluter is held liable for the pollution it causes. A corporate violator may be liable for the elimination of the hazard caused and compensation for damages.

Criminal liability

Criminal liability is set out in the Criminal Code, which criminalises polluting acts, such as dumping of hazardous waste. A corporate violator may be fined, and persons directly responsible for the offence (such as the general manager, board member, safety manager, etc) may be punished according to relevant provisions.

Government intervention and innovation

Apart from regulation, the Chinese government is using business mechanisms to enforce environmental regulations on Chinese industrial companies, especially polluting and energy-intensive industries, such as in mining, steel making and cement. These types of company pay higher fees of various kinds and do not get tax incentives. In addition, the Green Credit programme¹⁰⁴ restricts loans to firms with a poor environmental record; and government procurement favours more environmentally responsible suppliers.

The use of mandatory disclosure to initiate public pressure on polluters and local authorities is an important innovation, because the central authorities in Beijing face many challenges in ensuring that the law is enforced in the provinces. In 2007, the State Council issued the Open Government Information Regulation, which went into force the following year. The MEP then used it to issue the Environmental Information Disclosure Measures, which since May 2008 have required lower-level authorities and industries to disclose publicly a range of environmental information. The purpose of the measures is to enable NGOs and the media to monitor local violations. Indeed, Chinese NGOs are exposing polluting suppliers to consumers, international buyers and the media with the aim of putting pressure on polluters to change their behaviour.

IMPROVING SOCIAL AND HUMAN RIGHTS PRACTICES

Almost all jurisdictions in Asia, including China, have labour protection laws that set minimum wages, maximum working hours, overtime payment, and benefits (such as maternity leave), as well as health and safety standards. Most countries are also signatories to the conventions on labour set by the International Labour Organization (ILO), including the core conventions that address freedom of association and collective bargaining, discrimination, forced labour and child labour. National labour laws usually overlap with these conventions. The ILO sets the minimum age for employment at 15 years old and allows an exception of 12–14 years for light work that does not threaten the health, safety or education of the child in developing countries. In practice, there are frequent breaches. In China, the minimum working age is 16. Table 4.1 summarises China's labour laws.

Many international companies, and certainly the owners of leading brands, also have codes of conduct for their own operations and those of their suppliers, which recognise local and international labour law, and enjoin their suppliers to follow both. Corporate codes may also enforce a higher standard: for instance, some brands are now asking suppliers to work towards paying a 'living wage' after acknowledging that often the minimum wage fails to provide a reasonable income to live on.

In a climate of open information, where consumers are aware and NGOs are empowered and networked, there is significant reputational risk to brands, and ultimately investors, due to non-compliance by suppliers. Supply chains may be disrupted by social or environmental non-compliance, and widespread knowledge about degraded supply chain conditions may also have a lasting and material damage on a company's brand value and marketability. Thus, MNCs are taking more proactive measures in this regard:

they not only require suppliers to commit to their codes of conduct, but they also regularly audit suppliers' facilities (using either their own staff or third parties, announced and unannounced); use various means and information sources to verify audit feedback; and enrol suppliers in education, training, and other programmes (see below).

The strikes that shook the factories of the Pearl River Delta in Guangdong in 2010 provide an example of what can happen. The strikes marked a departure from the past. In 2004 and 2005, a wave of strikes occurred in factories in Shenzhen, which played an important role in the local government's decision to increase the minimum wage. Similarly, in 2008, labour disputes were settled by discreet negotiations.

Things took another turn when 17 suicides took place between January and August 2010 at Foxconn's factory in Shenzhen, which makes electronic products for many brands and is a major supplier of iPads and iPhones for

Apple. Its management announced three salary increases within a month, which nearly doubled the pay of assembly line workers to about CNY2,000/month.¹⁰⁵ Apple worked with Foxconn and other suppliers to launch an employee assistance programme at its Shenzhen facility to give free psychological counselling to workers, including a 24-hour hotline giving advice on their personal and professional concerns.¹⁰⁶ In May 2010, workers at a Honda factory in Nanhai demanded better pay and eventually got a pay rise of 35%.¹⁰⁷ Their success helped set off a wave of strikes in the automotive sector and other industries in China.

Analysis shows that the younger workers are better educated than the previous generation of factory workers – most of them have a high school diploma and are 'netizens' (keen users of the internet). They are much less accepting of monotonous assembly work at low pay. Strikers used SMS and weibo (Chinese Twitter), filmed activities using mobile phones and launched

Table 4.1: China's labour laws

Employment contracts	Minimum mandatory leave	Minimum wage	Termination	Unions	Minimum working age and normal retirement age	Retirement benefits	Paid maternity leave
Employers and employees are required to have written contracts although oral contracts will not be invalidated by courts	5–15 days	Set locally according to standards laid down by the central government	Employees, of at least 10 years' standing, are protected against dismissal without cause.	Companies that fail to form unions upon employees' request or encouragement of All-China Federation of Trade Unions (ACFTU) could face penalties	Minimum working age 16. Normal retirement age: male 60, female 50	No uniform retirement benefits programme	12 weeks

Web-based discussion sites to promote their cause. As news of these events spread, the internet helped to spread workers' grievances nationwide. They also examined Chinese labour laws to buttress their demands, and they turned to law professors for help. The events probably prompted Chinese premier, Wen Jiabao, to state in June 2012 that workers' salaries should be increased; and in July, the ACFTU adopted a decision that the development of trade unions in companies should be encouraged, as should collective bargaining over salaries.¹⁰⁸

As China Labour Bulletin (CLB), a leading labour rights NGO, notes: manufacturers could pay their workers better. Moreover: 'one of the most important lessons learnt from both workers and management in recent years is that strikes can be enormously costly, especially for companies dependent on a highly complex and integrated supply chain'.¹⁰⁹

Some reports noted the Honda strike shut-down of four vehicle assembly plants in China, which caused daily losses of CNY240 million. A Honda manager estimated that the total loss during this period amounted to several billion yuan.¹¹⁰

Box 4.1: Current state of China's workers' movement

Official statistics show that the labour disputes handled by Chinese arbitration and mediation institutions in 2010 amounted to 1,287,000 disputes, which was 3.85% higher than the previous year.

Beyond arbitration and mediation, the China Labour Bulletin (CLB) stresses that while there are no publicly available figures for the number of labour-related strikes and protests in China each year, it believes the figure of 30,000 protests by workers is a reasonable estimate.¹¹¹

The workers' movement has developed rapidly in recent years against a background of economic recovery and a shift in government policy away from high-paced, export-driven growth towards a domestically driven, more sustainable model. In CLB's view, while the Chinese government's overall response continues to be a mixture of mediation, conciliation and coercion, some jurisdictions, such as Guangdong, are seeking to develop new, more flexible and realistic strategies for resolving labour disputes.

CLB has identified several key characteristics and trends of the workers' movement.

- A new generation of migrant workers has emerged as a key driving force of the movement. They have become the core of China's new working class. In light of their better education, they are less accepting of harsh working conditions and are articulate in pursuing their demands.
- The ability of workers to organise is improving, and they are assisted by labour rights groups, lawyers and academics, as well as journalists and netizens.
- Protests can erupt across specific regions and industries, as was the case in the automotive industry in 2010.
- Workers are seizing the initiative by initiating strikes for higher pay, better working conditions, and, fundamentally, more respect. Many demands for higher pay have stemmed from economic necessity but others from a sense of being denied a fair share of the company's profits.
- Worker protests are becoming more successful in obtaining higher pay and improved conditions.
- Protests have initiated basic collective bargaining, and this will have longer-term impact.

CHINESE WORKERS' RISING PAY

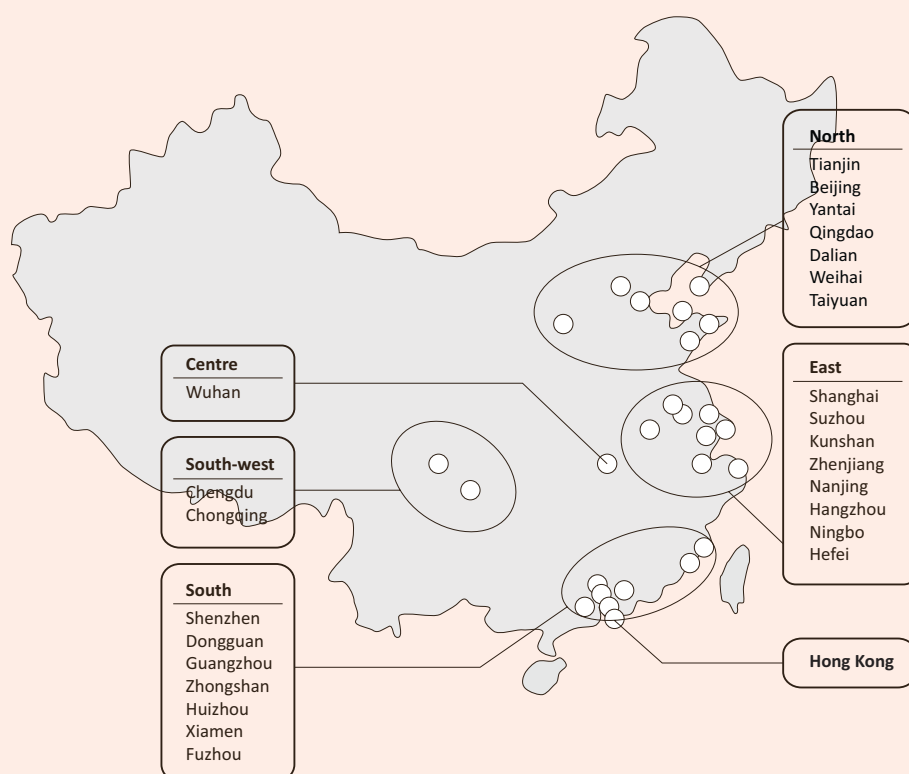
According to data released by the National Bureau of Statistics in April 2012, the average monthly wage of the estimated 159 million migrant workers in China increased by CNY359 to reach CNY2,049 in 2011, representing a 21% increase. Data also showed that these workers are increasingly finding work in the hinterland, away from the traditional manufacturing eastern coastal areas. Employment growth in the inland central regions reached 9.6% and in the western regions 8.1% in 2011.

By contrast, employment growth in the Pearl River Delta and Yangtze Delta regions – China's key manufacturing areas – was stagnant. Nevertheless, the four big coastal provinces of Guangdong, Zhejiang, Jiangsu and Shandong still employed nearly half of all the migrant workers last year, whereas the central and western regions employed only 17.6% and 16.7% respectively. While the trend is towards more employment in central and western China, it will take some years before inland provinces can catch up with the coastal provinces in terms of

overall wage levels, job opportunities and environmental and social standards.¹¹² Figure 4.2 shows China's key manufacturing regions.

The pay levels noted above are not minimum wage levels. Only 9.5% of China's workforce takes home the minimum wage and these are usually employees in farming and construction. Average manufacturing salaries, at around CNY2,000, are 1.5 times the minimum wage because overtime pay raises these workers' take-home pay to 50% above the minimum wage.

Figure 4.2: China's key manufacturing hubs



WILL PRODUCTION MOVE TO LOWER-COST COUNTRIES?

China still leads the world in manufacturing labour capacity and this is not about to change in the foreseeable future. Even though wages may be lower in other parts of Asia, China's strengths as a manufacturing hub are unique and not limited to cheap labour.

CLSA Asia-Pacific Markets, an independent brokerage and investment group, notes three key strengths:

- demographic (abundant labour force, high literacy rates)
- geographic (proximity to material suppliers, partners and supply chain)
- economic (historically low wages and cheap currency).

It concludes that while the aggregate sum of south Asian and ASEAN workforces is on a par with China's working population, literacy rates are much higher in China, which is crucial for some sectors, especially in more specialised manufacturing, for example, where technology is involved. Productivity in China is also higher, even in factories employing low-skilled labour. Moreover, China already has an established technology supply chain and relocation is easier said than done. China has built good transport infrastructure over the years, which is yet another strength given that supply chains today often connect dozens of raw material and component parts suppliers; logistics and parts availability are key, and China has both in relatively good supply. While wages are higher in China, labour costs are a relatively small part of total costs. Lastly, while the Chinese Yuan has strengthened, currencies are appreciating elsewhere in Asia as well.¹¹³

IMPROVING SUPPLY CHAIN PERFORMANCE AND SUSTAINABILITY

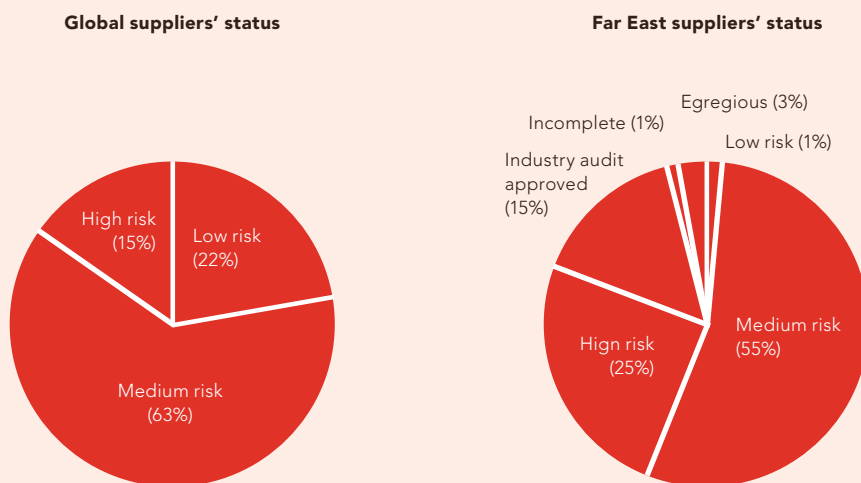
Two decades after the first appearance of social and environmental codes of conduct, most brand owners realise that the challenge of raising suppliers' social and environmental performance will not be met by audits alone, or even primarily. Nonetheless, today, many supply chain sustainability efforts still devote many of their resources to audits or proxies, such as supply chain scorecards. Part of the issue is that audits have evolved as a reasonably effective response to labour standards, where regulations exist and breaches can be identified.

Since the 1990s, many MNCs have developed and implemented various tools and programmes to minimise the aspects of reputation risk linked to potential environmental violations and poor labour conditions in their supply chains. Supply chain compliance programmes aim to ensure that suppliers meet minimum standards. MNCs issue codes of conduct or standards for suppliers to show what they expect of these firms. These codes then provide the framework for 'audits'. MNCs give manuals to their suppliers explaining what is expected from them and the audit process. Typical MNC codes cover topics such as environmental compliance, legal compliance for wages and benefits, freedom of association and collective bargaining, occupational health and

safety, and no forced or child labour. MNCs may also provide training or other forms of capacity building to help suppliers achieve compliance. Audits are carried out to verify the adherence of suppliers to the codes. An MNC may have its own internal audit teams or it may employ the services of accredited and internationally recognised auditing firms to conduct audits periodically.

Walmart's 2011 auditing in the Far East region, which covered China, Hong Kong, Taiwan, Japan and the Philippines, provides a sobering example (see Figure 4.3). Only 1.4% of the supplying factories were in the low-risk category (meaning that they performed well against Walmart's standards and would not need to be audited again for two years), while 55%

Figure 4.3: Walmart's global audit results 2011



were considered medium risk (ie would need to be re-audited after a year), 24.9% high risk (to be re-audited after 180 days), and 15.5% consisted of a combination of low to high risk but where the suppliers had to be re-audited according to industry programme schedules. This left 0.9% where the audits were incomplete and to be re-audited as soon as possible, and 2.8% which failed and were considered 'egregious'.¹¹⁴

The high percentages in the medium-risk and high-risk categories show that many suppliers continue to struggle to meet environmental and labour standards. The low-risk factories represent the more advanced suppliers that have developed management systems to deal proactively with issues and risks. Meanwhile, existing practices and organisations must adapt to meet the new challenge of environmental sustainability and better working conditions.

Aside from compliance on product safety codes and regulations on use of toxic substances, most supplier codes of conduct focus on adhering to local environmental law, but are rather sparse on key environmental dimensions such as energy use, water consumption, waste and so on. In large part this is because performance standards and

Box 4.2: Walmart in China

China hosted a gathering of more than 1,000 suppliers in Beijing in 2008 to explain its environmental policies and its desire to cooperate with suppliers in improving energy efficiency in 200 factories in China by 2012. Walmart has also identified top suppliers with whom it can work to reduce GHG. Currently, factories enrolled in Walmart's programme include 185 factories supplying sports, hardware, crafts and stationery products, 95 factories supplying home products, 24 factories supplying shoes, and 9 factories supplying apparel, and consideration is being given to scaling up the programme. Partnerships were also built with the NGOs Business for Social Responsibility (BSR) and Environmental Defense Fund to co-develop energy analysis tools.

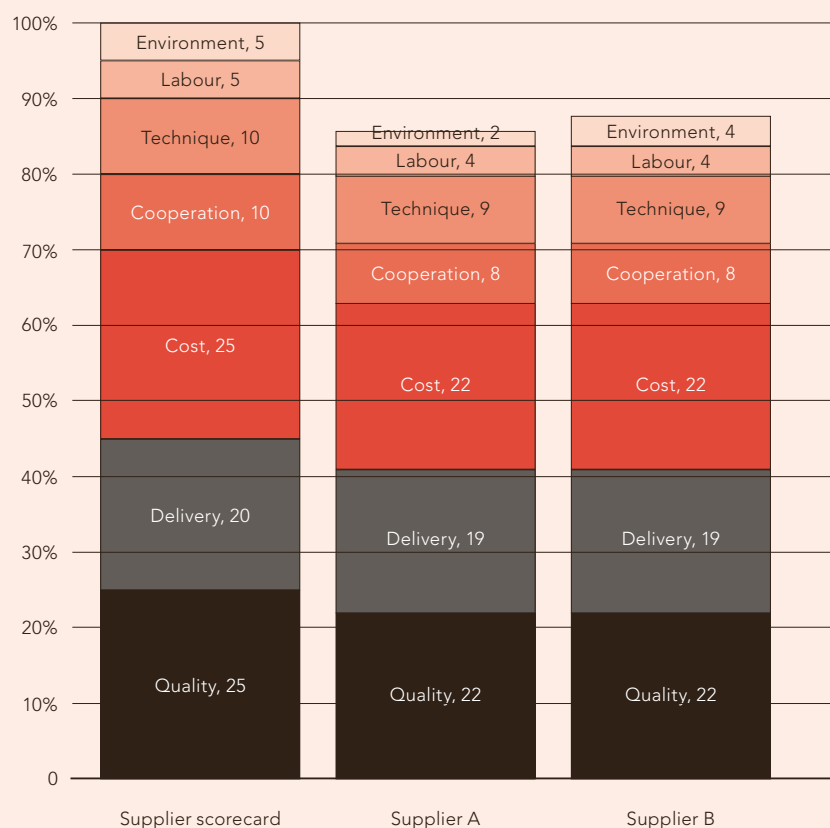
In the area of energy efficiency, Walmart concludes that: 'Energy infrastructure in China proved to be an early and on-going challenge for us. Most factories lack good energy metering systems, many generate power onsite leaving them with inadequate records of energy consumption, and few had ever been asked by a customer to share such information.'¹¹⁶

In 2011, Walmart completed the installation of a roof-mounted solar-energy system at a store in Shenzhen, which provides 18% of the store's electricity needs and has the potential to reduce GHG by 430 tonnes annually.¹¹⁷

For waste, Walmart is working with a Chinese partner to compost 360 tonnes of organic waste from 10 stores in Beijing, where the partner takes the waste and converts it into protein feed and fertiliser additives. This by-product is then used by farmers to grow organic produce and feed livestock. Together with other initiatives, Walmart diverted 52% of its operational waste from landfills in 2011.¹¹⁸

Figure 4.4: Sample supplier scorecard

While suppliers A and B have identical scores in all other categories, supplier B is awarded the contract because of better environmental performance.



Source: World Resource Institute and Institute of Public and Environmental Affairs, 2010.¹¹⁵

targets are still evolving; even less clear are the best ways to achieve targets once they are set. This is something that MNCs are also learning for their own operations, and is a reason why, with the exception of the world's largest leading companies (eg 'Global 100'), most companies have yet to announce targets beyond 'best efforts'.

Yet, all parties agree that there are many opportunities for improving environmental performance, and that improving efficiency will in some respects be cost effective and beneficial for the supplier. Thus, supplier empowerment becomes key – suppliers must be educated to identify their own opportunities and given space and resources to take advantage of them. As a result, brand owners are boosting efforts to build capacity in suppliers, and to facilitate sharing of best practices among their suppliers, and sharing tools for achieving results. Forcing longer-term business relationships between brand owners and their suppliers supports the factories in effecting change and investing in efficiency and pollution prevention measures and equipment.

COLLABORATION FOR HIGHER PERFORMANCE

Some of the collaborative industry initiatives are particularly helpful for smaller suppliers who struggle to improve performance. Even so, key problems remain for small suppliers. These include:

- coping with MNC buyers' varying requirements; they all have different demands, which make compliance challenging; indeed, some are suffering from 'audit fatigue'
- lack of financial incentives from multinational buyers, such as buyers' unwillingness to change purchasing commitments and commit to long-term contracts with firms making investments in improvements
- limited access to finance by SMEs, which often cannot secure formal bank loans
- lengthy green investment pay-back periods, such as for improvements in energy and water efficiency, where the pay back may take several years; this may be too long for some suppliers
- rising operational costs, especially in natural resources and wages, which dissuade suppliers from making improvements, and
- intense domestic and global competition from thousands of local and overseas firms, which puts constant pressure on suppliers to cut costs; this can affect environmental performance.

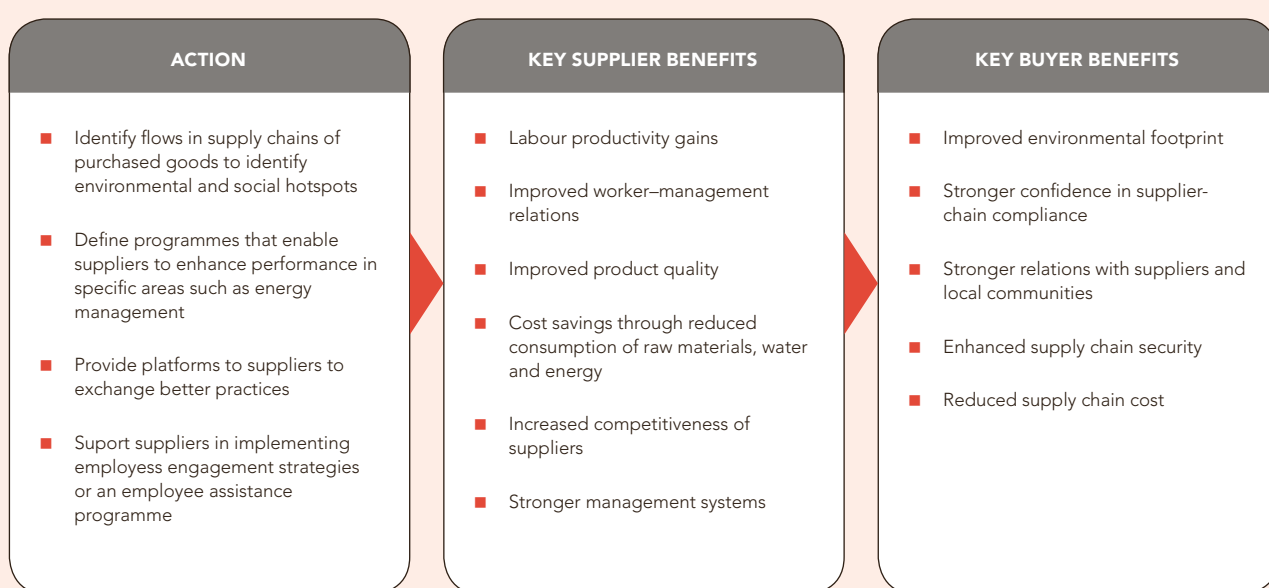
Box 4.3: Li & Fung

Headquartered in Hong Kong, Li & Fung is a supply chain manager serving over 2,000 leading international brands. Today, its key functions are spread across 40 economies worldwide and include product design, compliance and quality assurance, sourcing, logistics and distribution. Early on, the company recognised the importance of embedding sustainability into its operations and supply chain so as to meet its customers' and society's rising expectations. Li & Fung runs a two-pronged sustainability programme – one focusing on its own operations and facilities, and the other targeting the 15,000 third-party suppliers who comprise the sourcing network. Thus, the company has announced objectives on energy and GHG efficiency and reducing water and paper consumption; it has also committed to green offices and received Leadership in Energy and Environmental Design (LEED) or equivalent certifications in its facilities in Bangladesh, Hong Kong, London and New York, among others. These sustainability efforts increasingly provide a basis for knowledge sharing with the supplier network, as well as a source of employee motivation and engagement.

The company's supply chain strategy recognises the importance of social compliance and good environmental practices as a basis for improving suppliers' overall competitiveness. Thus, it has over 140 vendor compliance staff who undertake over 9,000 audits annually on behalf of customers, as well as a growing bank of capacity-building tools and training programmes designed to empower suppliers to improve their performance and the firm's sustainability. It recently upgraded its Supplier Code of Conduct and published it with a supplier compliance manual and best practices suggestions. There are also five bands for evaluating supplier compliance. A series of online tools and guides addressing the key areas of energy, GHGs, waste, water, health and safety, human resource management and lean manufacturing will be launched next.

In addition, the company is active in a number of industry organisations that work to share best practices among brand owners and suppliers as well as to establish standards and metrics for supply chain sustainability. These include the Sustainable Apparel Coalition, BSR Working Groups, and programmes by multilateral institutions such as the ILO and IFC. Many challenges faced by Li & Fung in this field are common in the industry, and the whole industry has much to learn, even while markets continue to transform at a very rapid pace and supply chains extend into new frontier emerging markets. Standards are also rising, and performance criteria for inclusion in various environmental, social and governance (ESG)/sustainability indexes are rising. According to Li & Fung, these are healthy trends that indicate growing acceptance of sustainability as a regular part of business operations and growing awareness of its importance. For Li & Fung the sustainability story – in supply chains and beyond – is just beginning.

Fig 4.5: MNCs' business case for collaboration



Major suppliers, such as Li & Fung (which sources about 58% of its production from China), see the sustainability movement positively because it has made them review their processes to become environmentally efficient. This has helped them to save costs, as well as driving operational efficiency on a continuous basis. In an environment of volatile raw material prices, companies that are resource efficient have an advantage.

Thus, some MNCs are attempting to address directly some of the small suppliers' concerns listed above by engaging continuously with such suppliers to help them overcome specific resource or capacity problems, and ensuring that the benefits of supplier upgrades are shared. For instance, MNCs will help suppliers to identify and create efficiencies in work processes, environmental management or other areas. Objectives of the

collaboration include both environmental and workplace results, which should lead to stronger management of suppliers' operations. This approach ensures that suppliers will eventually assume ownership of the collaborative programmes with the MNCs.

BSR has several China-related projects that provide good examples of this approach.

- The Energy Efficiency Partnership – this consists of a group of 11 members (including Starbucks, Levi Strauss & Co, Electrolux and Li & Fung), which are working with 80 of their China-based supplier factories to help them identify and implement energy-saving practices.
- The China Training Institute – this is a BSR project to help Chinese suppliers to improve their performance through capacity training in environment, health and safety issues. Since 2004, it has provided training to factory managers in diverse sectors, including footwear, apparel, high-tech and toy manufacturing.
- HERproject – this is a factory-based, peer-education training programme focused on improving women's health in the supply chain of 17 members (including Li & Fung, Timberland, and Marks & Spencer) in key producer countries, including China.
- Mills & Sundries Working Group – this collaborative initiative has created a common assessment and reporting process for textile mills and sundries suppliers: the second- and third-tier suppliers of MNC apparel companies. By creating one standard approach, the working group reduces costs to suppliers and allows MNCs to compare performance.

Box 4.4: BSR

EXPERT COMMENT

In the last few years, global consumer-facing companies have begun to take the environmental impact of their supply chains more seriously, both in reporting impacts and in engaging with suppliers. The motivation comes from multiple sources: investors are asking about carbon and water footprints through mechanisms such as the Carbon Disclosure Project; NGOs and media are raising awareness about connections to environmental pollution; and consumers are becoming more aware of the environmental footprints of their purchasing decisions. In addition, employees themselves have an increasing interest in ensuring that the companies they work for are minimising social and environmental impacts.

Thus, the business case for 'green' supply chains is multifaceted, and for MNCs is closely linked to revenues, share price, employee satisfaction, and overall brand value. BSR works with companies to identify and effectively address environmental challenges in their supply chains, whether on their own or through collaborative initiatives, which enable companies to combine resources and jointly exert more influence on shared suppliers.

LAURA EDIGER, ENVIRONMENTAL MANAGER, BSR

BSR provides the business case for these initiatives, as shown in Figure 4.5 and Box 4.4. In essence, collaboration has proved to be a successful way of reducing costs and sharing good practices.¹¹⁹

What the BSR examples show is also the trend to intra-industry collaboration among MNCs. Some of the MNCs see achieving sustainability as a large and fast-moving challenge. Collaboration is attractive because, by sharing information and best practices, they can make collective progress. They can combine resources and reduce duplication of effort, as well as enlarging their influence to deal with difficult problems. Companies have also realised that broad industry initiatives can also inform dialogue with government, towards either better policy or new regulations. Past experience shows that the most successful efforts have been based on sharing knowledge and know-how, adapting emerging technologies, and practical, proactive policies. Thus, in many sectors, MNCs are sharing information and pooling resources to develop standards, innovate and benchmark for sustainability.

ROLE OF NGOS

NGOs, which have always played important roles in monitoring practices and realities in the areas of environment and labour standards, have also emerged as potential partners with business. Certainly, there are many NGOs that have honed techniques and are widely networked so as to be able to investigate poor behaviour and 'name and shame' MNCs for supply-chain violations. Indeed, NGOs often target the best-known brands in order to pressurise owners to change their behaviour by exposing them through the international media.

A recent high-profile example of name-and-shame tactics is that of the Chinese NGOs that banded together in April 2012 to accuse 46 MNCs and Chinese brand owners and retailers of sourcing from suppliers that have violated Chinese environmental laws by discharging polluted water. The brands included Adidas, Armani, Calvin Klein, Carrefour, Nike and Zara. The many violations included building hidden discharge channels, discharging untreated sewage and pretending to operate sewage facilities when in fact they were not.¹²⁰

At the same time, NGOs have also realised that lasting change may require moving beyond a pure 'name and shame' approach. Today's NGOs have also accumulated significant knowledge

and technical expertise on environmental improvements, and are now seeking to have this knowledge implemented for the good of industry. In other words, they are seeking collaboration for improvement, and while they retain their right to 'name and shame' this more nuanced approach reflects a maturing of relationships between NGOs and business.

IMPLICATIONS FOR BUSINESS

There are increasing consumer and investor expectations that supply chains will be sustainable. Second- and third-tier suppliers are now increasingly being included in supply chain management programmes and asked to provide more information about their operations. More parts of the business chain are being affected – from design and marketing to shipping and retail.

MNCs with sustainability agendas must now co-opt, cajole and coerce different parts of their supply chain to move in the same direction, but they are mindful of the risk of pushing too hard because consumers have yet to exhibit a great willingness to pay for sustainability and because governments have had mixed results on enforcing compliance.

The compliance process represents substantial opportunities for professional service providers to assist MNCs and suppliers, and for the environmental technology industry.

Hong Kong

HONG KONG

Hong Kong is one of the world's leading manufacturing and commercial centres. Most MNCs have a buying presence in Hong Kong to deal with Hong Kong-based suppliers. Its manufacturing sector has undergone a substantial restructuring process during the 1980s and 1990s by relocating production across the border to mainland China. Hong Kong companies take advantage of land and labour availability across the border and some keep high value-added and technology-intensive production in the city itself.

Hong Kong is a networked supply chain hub

Hong Kong's manufacturing businesses are mainly SMEs. Of the territory's nearly 11,700 manufacturing businesses in existence at the end of 2010, 98% employed fewer than 100 people. These SMEs and their local and mainland-based supply chains are linked through a highly flexible and efficient subcontracting network that is able to respond quickly to buyers' changing demands.¹²¹

Hong Kong produces for MNCs and owns many brands

While many SMEs produce for MNCs at both the low and high end, some of them also own brand names, such as Esprit and Giordano. Many well-known international brands, such as Polo Ralph Lauren, Tommy Hilfiger, Brooks Brothers, Michael Kors, Harvey Nichols, Charles Jourdan, and Guy Laroche, are now owned by Hong Kong companies. In addition, there are companies such as Li & Fung, which are innovative global supply chain companies.

Government and business support for sustainability

Hong Kong companies have had to meet the challenge of China's continuing efforts to regulate production to meet higher labour and environmental standards. The Hong Kong government-financed Cleaner Production Partnership Programme, managed by the Hong Kong Productivity Council (HKPC, see Chapter 2) is an example of official support to help SMEs upgrade.

Moreover, HKPC has significant multidisciplinary expertise in many industrial processes, including energy management. In 2011, Walmart collaborated with HKPC to improve the energy assessment of factories' retrofit measures and their energy reduction. By also collaborating with other Hong Kong-based firms, Walmart believes it is on its way 'to building a foundation for profound and lasting change'.¹²² Thus, Hong Kong-based expertise plays an important role in improving global supply chain sustainability.

Hong Kong

There are private sector efforts too. For example, the Sustainable Fashion Business Consortium, launched in 2008, was formed by a group of Hong Kong companies in the textile and apparel sector to promote sustainable practices across the fashion supply chain.¹²³

A first such agreement in the transportation area was made by key members of the Hong Kong Liner Shipping Association and the Hong Kong Shipowners' Association, working with the think tank Civic Exchange and the Hong Kong Environmental Protection Department. The parties signed a voluntary Fair Winds Charter in October 2010, whereby signatories committed to switching to the use of a cleaner fuel while at berth in Hong Kong, for a period of two years starting on 1 January 2011. This lowers air pollution and improves public health. Hong Kong is now looking at regulating emissions at berth in the near future and is working with the mainland

authorities to explore turning the whole of the waters of the Pearl River Delta into a low emissions zone.¹²⁴ Longer-term, the efforts to reduce pollution and carbon emissions from ships will also improve supply chain sustainability.

Many NGOs operate in Hong Kong

Local and international NGOs based in Hong Kong are active monitors of supply chain activities (including China Labour Bulletin and BSR mentioned above). For example, in 2004, Oxfam began to report on the garment industry, and issued reports in 2008 and 2009 on the sector's labour standards. In terms of risk management, Hong Kong companies need to improve their sustainability practices because they are under increased pressure from MNCs to comply with codes of conduct and standards, and as Hong Kong brands are selling in international markets, they will come under increasing scrutiny from international consumers, NGOs, trade unions and media.¹²⁵

Another example is the collaboration between the Beijing-based Institute of Public & Environmental Affairs with Hong Kong-based think tank, Civic Exchange; in March 2010 they reported that 175 companies listed on the Hong Kong stock exchange had committed environmental violations in mainland China. The two organisations called on the Hong Kong stock exchange to follow the mainland's stock exchange's practice of requesting listed companies to disclose information regarding investigations made by environmental agencies concerning violations and any penalties imposed.¹²⁶

5. Environmental, social and governance issues of Chinese companies

Companies are facing increasing pressure to engage in disclosure in China. Pressure is coming not only from the Chinese government but also from customers, investors, stock exchanges, NGOs and the media. Chinese companies are expected to be much more transparent as they gain influence globally with their pursuit of natural resources worldwide and acquisitions of foreign brands, and as they build up Chinese brands.

The Chinese authorities have used a variety of methods to persuade state-owned enterprises and larger entities to improve their environmental practices but the scope has now widened to include social performance. The Chinese authorities are likely to push harder still given that a third of the mandatory targets in the 12FYP relate to the environment, and 12FYP also contains specific social goals to be achieved. This chapter addresses the following questions.

- What is the state and evolution of corporate disclosure in China?
- What is the role of stock exchanges in promoting ESG disclosure?
- How does the reporting from Chinese companies compare with that of companies around the world?
- What is the state of ESG disclosure in Hong Kong?

EVOLUTION OF CORPORATE REPORTING

For more than two decades, growing awareness of environmental issues, combined with increased governmental and NGO pressure, has led many MNCs to revise their corporate environmental responsibilities and to issue environmental reports. The mostly voluntary nature of these has meant that they have differed widely.¹²⁷ Common reporting methodologies include those based on compliance issues, on inventories of toxic substance release, and on performance. Pressure has continued to mount for companies to widen and improve the scope of reporting to include social impacts of corporate decisions. Today, leading companies in developed economies report on environmental, social and governance issues that often include identifying material issues and impacts, disclosure of risk assessment, governance structures and other systems that are in place, in addition to engaging with stakeholders.

There is no industry standard for these reports, whose contents are nonetheless generally similar. A company may call its report a 'corporate social responsibility' (CSR) report, 'corporate responsibility report', 'corporate citizenship report', 'sustainability report' or 'environmental, social and governance' (ESG) report. A company prepares its report in order to communicate with its many

stakeholders and Figure 5.1 shows how a company may understand its relationships with affected and affecting stakeholders.

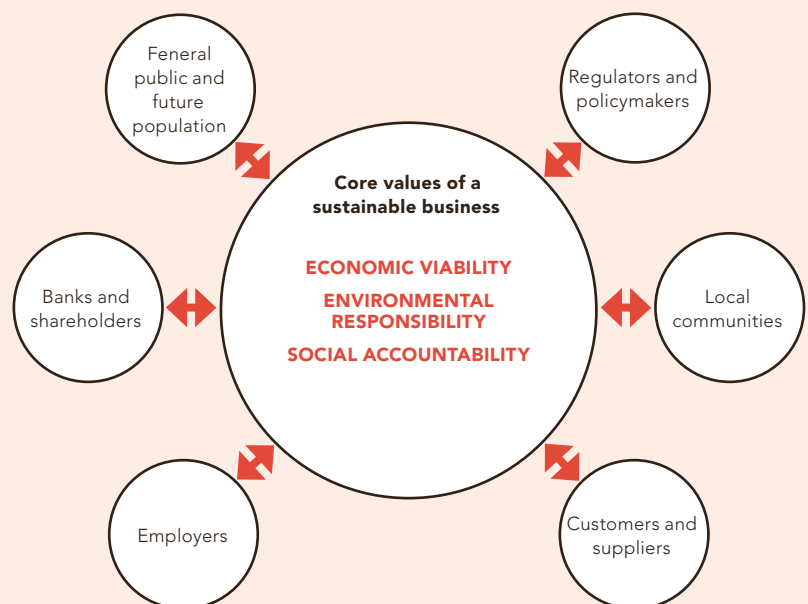
The Global Reporting Initiative (GRI), a multi-stakeholder initiative, has designed a common framework for ESG reporting, which has been adopted by many companies.¹²⁹ While the reporting trend is growing around the world, it is unbalanced – generally such reporting is widely practised in developed countries among listed companies but this is not yet the case in developing countries.

Other reporting initiatives include the Carbon Disclosure Project (CDP), a reporting system through which companies disclose greenhouse gas emissions, water management and climate change strategies, and the Climate Disclosure Standards Board (CDSB), which acts as a forum for collaboration on how existing standards and practices can be linked to financial and climate-change-related reporting and respond to regulatory developments. Some companies have committed to the United Nations Global Compact, an initiative to align corporate strategies and operations in the areas of environment, labour, human rights and anti-corruption. There are also OECD Guidelines for Multinational Enterprises on business ethics, as well as the ISO26000 Guidance on Social Responsibility, which proposes integrated reporting

that links an organisation's strategy, governance and financial performance with the social, environmental and economic context within which it operates. The latest addition comes from the UN's Rio+20 efforts to promote the importance of corporate sustainability reporting and encourage large companies to consider integrating sustainability information into their reporting cycle, as noted in Chapter 3.

Chinese companies are likewise affected and the number of reports from them is growing. According to SynTao, a Chinese CSR consulting firm, about a thousand Chinese companies produced some kind of special report in 2011.¹³¹

Figure 5.1: Corporate relationships with stakeholders



Source: ACCA, 2001.¹²⁸

Box 5.1: Integrated ESG and financial reporting

EXPERT COMMENT

ESG data can be an integral part of legally required financial reporting. For corporate directors and executives who are beginning to develop an ESG reporting system, the goal can be to communicate concise, reliable and material ESG information in the annual report. Having an integrated report that combines ESG performance with what is legally required is a superior way of presenting significant information. Integrated reporting provides information in a holistic and coherent way so that time-constrained shareholders and other stakeholders (customers, employees, suppliers, civil society organisations, for instance) can make better-informed decisions.

Within the company, integrated reporting forces corporate directors and executives to prioritise ESG drivers or key performance indicators (KPIs) of intrinsic value, otherwise the report could run into hundreds of pages. This material priority approach gives managers the option of allocating additional resources for further targeting of specific stakeholders (customers and environmental NGOs, for example) at a later stage.

What about ESG reporting for small and medium-sized enterprises (SMEs)? They might not be persuaded by the 'positive NPV long-term project approach', ie an ESG reporting system may cost you now, but the benefits will accrue over the years. Nonetheless, ASRIA (the Association of Sustainable and Responsible Investment in Asia) argues that 'the ability to approach long-term institutional investors with a coherent, positive story based on integrated financial and ESG disclosure outweighs the administrative burden of establishing ESG reporting systems'.¹³⁰

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CORPORATE REPORTING IN CHINA

The initial effort for China was in environmental reporting but the scope has widened. Chinese authorities used various methods to persuade companies to disclose, including laws, regulations, indexes and ratings, as well as 'naming and shaming' polluters. While companies began to report as a result of official encouragement, they are also responding increasingly to demands from investors and financial institutions for wider information on risks, as well as to the need to create a good brand image.

Chinese companies first focused on developing capacity in reporting on their financial performance. With the establishment of the Shanghai and

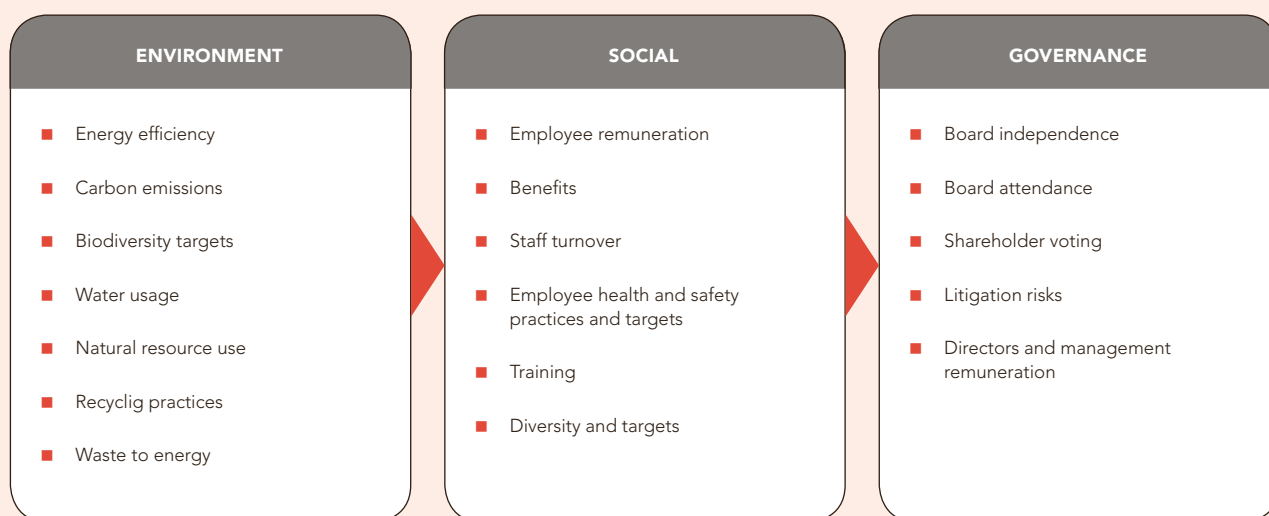
Shenzhen stock exchanges in 1990, and the growing desire of Chinese companies to raise capital via listings in Hong Kong or elsewhere, improving their financial reporting to comply with international standards was critical. Successive revisions of China's accounting laws began to stipulate how pollution-related costs should be attributed and disclosed.¹³² Other laws passed in 2003 require local environmental agencies to release to the media periodically the names of companies violating environmental laws. The companies named then have a set period of time to disclose their environmental performance.¹³³

The China Securities Regulatory Commission (CSRC) requires Initial Public Offerings (IPO) prospectuses to

analyse environmental risks of projects for which the listing entities wish to raise money. Other governmental regulations issued in 2003 require companies seeking to list or refinance to meet pollution emissions standards, which have been designed to push companies in highly polluting businesses to improve their environmental performance.¹³⁴

In 2006, Article 5 of China's Company Law was revised to provide that in conducting business operations, a company must comply with laws and administrative regulations, and widely accepted standards of social and business ethics. It must act in good faith, accept supervision from government, consider the general public as wider stakeholders in their

Figure 5.2: Common indicators for ESG reporting



activities, and bear social responsibilities. Following that, a series of 'green regulations' have come into effect since 2008. A notable example in 2008 is CSRC's regulations, which requires companies involved in heavily polluting industries to undergo environmental assessment by the Ministry of Environmental Protection (MEP) when applying for IPOs. The IPO can only proceed with a permit issued by the MEP.¹³⁵

A few Chinese companies have had their IPOs delayed while they complied with environmental regulations. An example is Gold East Paper, a large company that applied to list on the Shanghai Stock Exchange in August 2008. The MEP delayed its listing owing to allegations from NGOs that the company regularly harvested forests illegally and dumped waste water above allowable limits. The MEP issued a circular detailing its investigations, taking into account NGOs' concerns. The company finally passed the MEP audit in August 2009 and subsequently listed.¹³⁶

Chinese banks may also be playing a part in greening the economy. According to a report on the Environment Record on Chinese Banks, published by eight Chinese NGOs, there is a 'growing tendency' for Chinese banks to reduce loans to companies that are highly polluting. The report, which tracked the environmental performance of 16 Chinese banks, also found that despite the lack of consistent reporting, Chinese banks appeared to be seeking to lend to more environmentally friendly projects. This would be in line with general government policy under the 12FYP.¹³⁷

Box 5.2: Reporting trends of 2011 in China

EXPERT COMMENT

The number of CSR reports in China has been increasing since the 2000s. In 2011, over 1,000 CSR reports were published – around 30% growth compared with 2010. Of the reporting companies, 58% are state-owned, followed by domestic private enterprises. Though over 180 multinational companies released CSR reports, they only represented a small percentage among all reporting companies.

Statistics also indicate that 60% of the reporting companies are listed. Among them, 54% are listed on the Shanghai Stock Exchange, 34% at the Shenzhen Stock Exchange and the rest are from overseas stock exchanges such as in Hong Kong and New York.

Although the number is increasing, the quality of CSR reports remains poor. Most reports tell only positive stories without any negative information, which makes them unreliable. Some look like well-designed photo albums rather than serious CSR reports with material ESG data.

Recently, SynTao conducted research on reporting materiality by listed companies and identified the following problems: (1) key quantitative data are largely unavailable, particularly data that are material to corporate operation; (2) data sets are not comparable as there is no real standardisation on data collection, and different companies are using different standards.

These problems actually prevent stakeholders from making good use of CSR reports. Investors and research analysts cannot do in-depth analysis with insufficient data while corporate CEOs cannot use these reports to benchmark their corporate sustainability performance. Therefore, enhancing material quantitative data is the key to improving CSR reports in China. Various stakeholders such as stock exchanges, NGOs and media are expected to contribute to this process: stock exchanges make clear requirements on indicator levels; NGOs and media can act as watchdogs to name and shame bad reporting.

GUO PEIYUAN, CO-FOUNDER, SYNTAO CO. LTD.

Continuing pressure from the Chinese government for Chinese companies to report can be seen from even the State-Owned Asset Supervision and Administration Commission (SASAC), which manages state assets. The SASAC published a report in 2011 about the status of reporting and disclosure by 117 state-owned enterprises. According to the report, 71 companies published 2010 CSR reports in 2011, 21 of them for the first time. Of the 71 published reports:

- 62 (87%) were called CSR reports and 9 (13%) sustainability reports
- 43 (61%) companies disclosed negative information about themselves
- 49 (69%) used the GRI framework to prepare their reports
- the average number of pages for the published reports was 69, and
- 7 companies sought third-party assurance for their reports, while 25 invited experts to make public comments on their reports.¹³⁸

Box 5.3: Sustainability reporting in China

EXPERT COMMENT

According to two research papers produced by GRI Certified Training Partners, Golden Bee and Syntao – organisations that teach others how to report effectively within GRI's framework – the number of published sustainability reports in China has set new records. According to the GRI Sustainability Disclosure Database and GRI's research, 164 reports that used the GRI Guidelines were published in China in 2011; a 180% increase from 2010, and a 607% increase from 2008.

Unfortunately, many of these reports still lack the reliability, balance and credibility that an organisation's key stakeholders – such as employees, suppliers, community, government, and partners – expect an organisation to provide. Even so, there are strong indicators that the quality of reports will improve significantly over time:

- (1) there is strong commitment by the government to push for increased environmental and social disclosure
- (2) there are increased expectations and awareness among the general public, consumers, and media, both domestically and abroad
- (3) financial markets are asking companies to disclose more environmental, social and governance (ESG) data
- (4) there is current discussion among local Chinese government and business/industry associations regarding development of their own corporate social responsibility guidelines – a discussion which focuses and increases the sustainability dialogue among different stakeholders in China.

KAYING LAU, DIRECTOR, GLOBAL REPORTING INITIATIVE FOCAL POINT CHINA

STOCK EXCHANGES' EFFORTS IN PROMOTING DISCLOSURE

In 2006, the Shenzhen Stock Exchange issued CSR guidance for listed companies. In 2008, the Shanghai Stock Exchange issued notices and guidelines stating that listed companies should promote sustainable development and social responsibility.¹³⁹ In 2009, the Shanghai Stock Exchange and China Securities Index Company Limited (an index provider backed by the Shanghai and Shenzhen stock exchanges) launched the Social Responsibility Index – the constituents of which consist of 100 listed stocks in companies that are recognised for their social responsibility performance. Today, the Shanghai Stock Exchange also expects companies to produce CSR reports that are separate from their annual reports.¹⁴⁰

In September 2010, the MEP issued a consultation document regarding their draft guidelines, *Guide to Environmental Information Disclosure of Listed Companies*, targeting 16 polluting sectors. The new proposal requires that listed companies should publish annual environmental reports; make periodic disclosure of pollutant emissions, environmental compliance, and management information; and release details of environmental accidents within one day of the incident. Failure to comply would result in penalties.

Box 5.4: Sustainability indexes and stock exchanges

There are a number of stock exchanges wrestling with ESG issues, both as regulatory bodies and as trading platforms. Exchanges are taking a more active role in enhancing disclosure of material ESG issues by their listed issuers.

The Dow Jones Sustainability Indexes (DJSI) are a set of global sustainability benchmarks. These indexes track the stock performance of the world's leading companies in terms of economic, environmental and social criteria. The indexes take a 'best-in-class' approach and serve as benchmarks for investors, who can integrate sustainability considerations into their portfolios, and provide an engagement platform for companies that want to adopt sustainable best practices. China Mobile is the only mainland Chinese company included, and has been for four years running. Another major global index provider, FTSE, recognises better corporate environmental and social practices with its FTSE4Good Index Series. The DJSI and FTSE4Good are becoming increasingly stringent in their assessment of corporate performance (see Box 5.9 on ESG disclosure in Hong Kong regarding the efforts of the Hang Seng Sustainability Index). Stock exchanges in China and Hong Kong participated in the Sustainability Stock Exchanges (SSE), an initiative that first began in 2008 with investors calling for a debate with stock market listing authorities on corporate disclosure of material sustainability information. In 2009, the first SSE global dialogue took place in New York, and major global stock exchanges were surveyed about their sustainability practices.

In March 2012, an SSE report noted that the business case for promoting sustainability initiatives was not generating revenue but enhancing issuer credibility, and that emerging market exchanges 'were more likely to view ESG credentials as a competitive differentiator and reputation-enhancing factor'. The report also stressed that stock exchanges overwhelmingly acknowledged their responsibility for encouraging greater corporate responsibility on sustainability issues. The call for greater and improved ESG disclosure is led by institutional investors although: 'there was clearly a need for ESG disclosure that was relevant in the local context, investors had not consistently specified what disclosure was expected of companies and how they integrated it into their investment decisions, leaving the exchanges to feel their way through this new topic generally unaided by existing market expertise.'¹⁴¹

The SSE report called on (i) policymakers to set a roadmap for the development of an international policy framework for consistent ESG disclosure by listed companies across markets; (ii) exchanges and regulators to work with policymakers, and to work with listed companies on ESG disclosure; and (iii) investors to complement their dialogue with stock exchanges with further robust dialogue with governments and regulators, as well as to define clearly the ESG factors considered in their investment decisions and to demonstrably reward/punish issuers on ESG factors through their decisions.¹⁴² The report noted that 'China reveals that the speed at which reporting requirements harden will depend on the market response'.¹⁴³

INTERNATIONAL RANKINGS AND CHINESE COMPANIES

International organisations are also ranking the world's largest listed companies by environmental performance. For example, Newsweek started its corporate green ranking in 2009 with 100 companies, using information released by the companies. Each was given an overall score made up of weighted scores in three sub-categories: environmental impact (45%), environmental management (45%), and environmental disclosure (10%). In 2011, the list was expanded to 500 companies of which 32 were Chinese, consisting of 13 financial and 4 telecommunications firms. Of these, only the Bank of China made it into the top 100 performers, in 92nd place.

Only four Chinese companies received an overall green score of 60 out of 100¹⁴⁴ – thus, they still have a way to go to be among the best in the world but such ranking helps to stimulate internal action to improve their brands. Most Chinese companies are learning about reporting but it will become increasingly important because of the abovementioned government initiatives and the companies reaching beyond their own national borders.

Table 5.1: Newsweek's 'Green Ranking' of Chinese companies 2011

Global ranking	Name	Sector	Overall score	Environmental impact (45%)	Environmental management (45%)	Environmental disclosure (10%)
92	Bank of China	Financial	67.4	76.8	71.7	6.3
105	Industrial Bank	Financial	66.3	87.6	59.1	2.5
151	Agricultural Bank	Financial	62.9	81.5	56.8	6.3
185	ICBC	Financial	60.3	76.3	53.1	20.8
202	China Mobile	Telecoms	59.6	65.6	53.7	58.7
211	China Construction Bank	Financial	59.1	73.5	55.1	12.5
226	Ping An	Financial	58.5	79.7	48.9	6.3
243	CMBC	Financial	57.5	76.8	49.1	8.8
249	China CITIC Bank	Financial	57.2	70.7	52.4	18.8
263	PICC	Financial	56.4	84.7	40.6	0
275	China Merchants Bank	Financial	56.0	72.8	46.1	25.0
281	Bank of Communications	Financial	55.8	76.3	44.9	12.5
293	China Telecom	Telecoms	55.1	73.6	48.8	0
294	CPIC	Financial	55.0	76.7	42.8	12.5
298	China Life	Financial	54.8	79.7	40.6	6.3
333	China Unicom	Telecom	52.7	73.6	43.6	0
359	Baosteel	Materials	51.3	47.9	64.7	6.3
367	China Unicom (HK)	Telecom	51.0	73.6	39.6	0
415	Sinopec	Energy	47.8	57.6	47.3	6.7
421	China Resources Enterprise	Retail	47.6	45.4	58.9	6.3
429	China Railway Construction	Construction	46.7	56.9	44.1	12.5
444	Dongfeng Motor Group	Vehicles	45.6	53.7	47.5	0
455	CSR	Construction	44.4	55.7	42.9	0
460	China Railway Engineering	Construction	44.1	56.5	40.1	6.3
464	Communication Construction	Construction	43.7	56.6	37.7	12.5
472	Daqin Railway	Transport	42.9	50.8	43.2	6.3
478	Midea	Consumer	40.8	54.8	35.8	0
482	PetroChina	Energy	39.7	47.4	38.1	11.9
487	CHALCO	Materials	36.2	26.1	52.8	6.3
488	China Coal Energy	Energy	35.9	12.9	53.9	58.6
491	Tingyi Holding	Food	41.4	31.9	38.0	0
492	China Shenhua Energy	Energy	30.7	9.0	49.7	42.6

Source: 'Newsweek Green Rankings', *The Daily Beast*, 15 November 2011.

KPMG's International Survey of Corporate Responsibility Reporting 2011 noted that of the 250 largest global companies, 95% now report on their corporate responsibility activities, which was 14% higher than in 2008. China's effort was described as 'a full-out sprint to catch up to the traditional leaders in this field' and that almost 60% of China's largest companies already report on corporate responsibility metrics'.¹⁴⁵

Fortune magazine provides another perspective on Chinese companies' progress in reporting, when compared with MNCs, through its China Domestic CSR Top 10 companies and Global CSR Top 10 companies (see Table 5.2).

Among Chinese companies, COSCO and Sinopec retained their first and second positions from 2011 to 2012, while China Mobile slipped several places, and six companies that were not there in 2011 appear in 2012's Top 10. Baosteel and two oil and petrochemical companies are among the top ranks but Chinese automobile companies are absent. Among China's electronic companies, only ZTE could be included. Multinational electronic firms do well among the Global Top 10. Since many of them source from China, there is the question of the sustainability of their supply chains (see Chapter 4), which was probably not considered in these rankings. Had supply chains been considered, these companies might not have been ranked so high because Chinese NGOs, led by Institute of Public and Environmental Affairs (IPE) listed as polluters the five electronic companies in the Global Top 10.¹⁴⁶

DISCLOSURE ON WATER

China Water Risk notes that only two companies, one on the Chinese and one on the Global Top 10 lists, have signed the UN CEO Water Mandate: Baosteel and Dow Chemical. Both have disclosed water-specific GRI indicators. In general, Chinese companies provided less water-related GRI information than their global counterparts. Only three among the China Top 10 have water-related GRI information in their CSR report or on their website, compared with seven on the Global Top 10 list. The three Chinese companies with water disclosure data are the top three companies: COSCO, ZTE and Baosteel.¹⁴⁷

Table 5.2: Fortune Chinese and Global CSR Top 10s

CHINA				GLOBAL			
CSR rank 2012	CSR rank 2011	China 500	Company name	CSR rank 2012	CSR rank 2011	China 500	Company name
1	1	35	China Cosco	1	15	73	Sony
2	13	47	ZTE	2	7	22	Samsung
3	5	16	Baosteel	3	4	1955	Intel
4	4	1	Sinopec	4	9	24	Ford
5	14	5	China Railway	5	22	365	3M
6	18	17	Pingan Insurance	6	24	152	Dow Chemical
7	29	2	PetroChina	7	N/A	79	BMW
8	15	32	TISCO	8	5	71	BASF
9	2	3	China Mobile	9	8	143	Nokia
10	43	8	China State Cons Eng	10	3	89	Toshiba

Source: Fortune Top CSR Companies, Fortune 500 and Fortune China 500.

ESG REPORTING IN CHINA

In September 2010, China launched its first ESG index. Known as the CSI ECPI China ESG 40 Equity Index, it is made up of 40 domestic Chinese companies and is a collaboration between the Chinese Securities Index Company, and ECPI, a European ESG research and indexes company. The index was set up because of the growing demand from institutional investors for this type of screening in China and other emerging markets. Index constituents are screened using a best-in-class approach, allowing investors to track the companies in China that are recognised for their sustainability performance.

In 2011, RepuTex, a carbon and ESG analytics firm, ranked the following Chinese companies as the top 10 performers in their ESG performance (see Table 5.3).

Table 5.3: Top 10 RepuTex-rated Chinese companies

Company	Sector	Rating	Description
Baosteel	Materials	A	Satisfactory
Shanghai Pudong Development Bank	Financial	A	Satisfactory
Guangzhou Development Industry (Holdings)	Utilities	A	Satisfactory
China Vanke	Financial	A	Satisfactory
ICBC	Financial	A	Satisfactory
Industrial Bank	Financial	A	Satisfactory
Qingdao Haier	Consumer	A	Satisfactory
TBEA Co	Industrial	A-	Satisfactory
Yunnan Baiyao Group	Healthcare	A-	Satisfactory
China Unicom	Telecom	BBB+	Moderate

Table 5.4: Fortune Top 10s for water disclosure

CHINA						GLOBAL					
CSR rank 2012	Company name	Water objectives	GRI water*	CEO water mandate	CDP water **	CSR rank 2012	Company name	Water objectives	GRI water*	CEO water mandate	CDP water **
1	China Cosco	N	Website	N	N/A	1	Sony	N	Website	N	AQ
2	ZTE	N	Y	N	N/A	2	Samsung	N	Y	N	NF
3	Baosteel	N	Y	Y	N/A	3	Intel	N	Y	Y	AQ
4	Sinopec	N	N	N	N/A	4	Ford	N	N	N	AQ
5	China Railway	Y	N	N	N/A	5	3M	Y	N	N	AQ
6	Pingan Insurance	N	N	N	N/A	6	Dow Chemical	N	N	N	IN
7	PetroChina	Y	2010 only	N	NR	7	BMW	Y	2010 only	N	NF
8	TISCO	N	N	N	N/A	8	BASF	N	N	N	AQ
9	China Mobile	N	EN10 only	N	N/A	9	Nokia	N	EN10 only	N	NF
10	China State Cons Eng	N	N	N	N/A	10	Toshiba	N	N	N	AQ

*GRI water indicators: basic measures used were GRI, EN8, EN9, EN10, EN21.

**CDP water disclose: AQ=answered questionnaire, NP=not public data, IN=provided information, N/A=not surveyed, NR=not responded.

Source: China Water Risk, Fortune Top CSR 100, CSR and sustainability reports, CDP water disclosure project, UN CEO water mandate.

Box 5.5: China's major ESG issues

The most exposed sectors in China are in manufacturing, mining, transportation, financial services and construction, according to a report released in 2011 by SynTao, a Chinese CSR research company. Through tracking media reports about 1,818 Chinese companies, manufacturing ranked top in 2010 because of controversies in that sector.

For example, Foxconn, the computer components provider, was among the most exposed because 17 of its employees committed suicide, after which the media began to focus on manufacturing companies, looking at labour conditions. The most exposed companies are PetroChina, and Sinopec, the petrol and chemicals group. PetroChina was dropped from the portfolios of ABP, the Dutch pension fund giant, because of the activities of its parent company CNPC in Sudan and Myanmar. Among the 10 companies generating the most ESG risk alerts, Sinopec, PetroChina, China Mobile and China Life Insurance are included. Other large companies with multiple risk alerts included Industrial and Commercial Bank of China (ICBC), China Railway Group, China Construction Bank and Agricultural Bank of China.

The top five ESG issues were occupational health and safety, corruption and fraud, environment and industrial hazard, business ethics and product safety. Following the 12FYP, which includes explicit references to environmental and social objectives, SynTao believes the government will put greater emphasis on corporate management of ESG performance, and responsible investing more generally:

As one third of the targets in the five-year plan are now related to the environment, we expect companies in the near future to become more strictly bound by environmental regulations and investors to benefit from corporate monitoring and assessment of extra-financial factors.¹⁴⁸

CHINESE INNOVATIONS IN ENVIRONMENTAL DISCLOSURE

China has developed two risk-management innovations in recent years to improve the country's overall environmental performance.

The first innovation is mandatory pollution liability insurance. This policy was piloted in 2006 in the coal industry, expanded in 2009, and is expected to be widely implemented by 2015. The insurance covers costs related to pollution, which may include the costs of brownfield restoration and clean up, and liability for injuries and deaths caused by pollution. The principle reason for mandatory insurance is to ensure that third parties affected by environmental accidents are properly compensated. While post-accident compensation is important, it is arguably more important that a company should reduce pollution risk before it buys insurance.¹⁴⁹

The second innovation has already been mentioned in Chapter 4 where the Chinese authorities are using mandatory disclosure to initiate public pressure on polluters and local authorities to ensure that the law is enforced in the provinces. The MEP's Environmental Information Disclosure Measures have had a significant impact because of their effect in enabling NGOs to track environmental violators and 'name and shame' them (Box 5.7).

A specific instance is Zijin Mining Group, a major listed company. On 3 July 2010, Zijin Mining released 9,100m³ of contaminated waste water from its copper plant in Fujian Province into the local river. The company failed to disclose the leak within the mandatory reporting period. The county government was a significant shareholder in the company and was complicit in the late notification. In addition, the local enforcement authorities had not acted on this and previous pollution incidents. The incident resulted in highly critical media reports of the company both domestically and internationally. Investors reacted negatively to the delayed disclosure. Zijin Mining's share price dropped 20% by 19 July. Mine managers were detained, and the mine was forced to close for rectification. The company had to invest in water treatment facilities and pay compensation.¹⁵⁰ The company was also fined US\$4.5 million.¹⁵¹ In 2010, the company ranked first on a MEP list of 11 companies with severe environmental problems.¹⁵²

In 2010, the MEP released a circular requiring various environmental departments to conduct environmental reviews and ensure disclosure of environmental information of companies listed in China. The MEP is continuing to push for change. It is planning to create a database of sources of environmental risk of major economic sectors in China by 2015.

Box 5.6: CLSA Asia-Pacific Markets' remarks about Zijin Mining

'Investors who have followed our corporate governance scores would have noticed that [Zijin Mining] ranks a low 86th out of 100 in its sector with poor marks for transparency and social responsibility. At the same time, this was a company that we had historically given a zero-out-of-10 score for its environmental performance based on a long history of polluting events. However, the financial penalty concluded by the [authorities] was light. We believe the [authorities] selected rules that imposed modest fines, possibly due to its close relation with Zijin and the company's CNY100m donation to develop alternative local water sources. The penalty could have been much larger if more serious rules were applied...the conclusion is that for the time being China isn't going to witness...shareholder-value destruction'. CLSA Asia-Pacific Markets, November 2010.¹⁵³

INTERNATIONAL NGO ACTIVITIES IN CHINA

A large number of NGOs outside China provide information about many aspects of Chinese activities, including those of Chinese companies. It is only possible to mention a few here.

All the major environmental NGOs have some sort of presence in China: these include WWF, Greenpeace, The Nature Conservancy, The Climate Group and National Resources Defense Council. In the labour area, China Labour Watch and China Labour Bulletin are both well known and provide in-depth reports about labour-related issues. Human rights NGOs also touch upon labour matters, since these relate to workers' rights, in particular worker safety, freedom of association and collective bargaining.

Other NGOs, such as Saferworld, are concerned with the security implications of China's booming economic relationships, in particular with Africa. For example, Saferworld argues that China is now an important player in African conflicts, both as an arms supplier to African states, and by contributing troops to UN peacekeeping missions and anti-piracy efforts.¹⁵⁶

Box 5.7: NGO and media pressure on polluters

The fact that polluters must disclose certain information has enabled NGOs to monitor environmental violations. For example, China's Institute of Public & Environmental Affairs (IPE) uses disclosed official data to set up online databases of air and water violations. In addition, IPE and the US's Natural Resources Defense Council have developed a Pollution Information Transparency Index (PITI) – a name and shame mechanism – to rank 113 municipal governments across China on their performance across various categories of environmental disclosure. In the first report published in 2009, PITI showed early environmental information transparency but results varied widely. The 2010 report showed modest overall improvement (mainly in the better developed coastal areas and major cities), but data disclosure of enterprises remains inadequate and some places regressed, although some worked with NGOs on disclosure and showed improvement.¹⁵⁴

In April 2012, IPE together with four other NGOs released a report showing that global fashion brand owners have been sourcing textiles from repeat polluters in China. Having investigated 6,000 officially blacklisted textile suppliers, IPE found many of them did business with international companies including Carrefour, Marks & Spencer, Esprit, Calvin Klein, and Armani.¹⁵⁵

The work of these NGOs is widely reported in the Chinese media and frequently discussed among government, environmental and corporate circles. While their work is vital, the impact of NGO actions is still relatively limited because government willingness and capacity to enforce the law remains patchy in China.

The central authorities in China also use environmental disclosure to put pressure on local agencies to improve their regulatory and enforcement performance. The latest example is the requirement, imposed in March 2012, for cities to disclose the level of air pollutants, as part of China's tightening of the nation's air quality standards. The most developed cities and regions are first in line to disclose and adopt tighter standards (Beijing/Tianjin, Shanghai/Yangtze River Delta, and Guangzhou/Pearl River Delta). Releasing pollutants levels has created both domestic and international media reports about China's very poor air quality, which the authorities accept as a way for China to progress more quickly towards improved air quality management.

IMPLICATIONS FOR BUSINESS

Increasing public interest in the role of business in society is driving greater sensitivity and awareness of environmental, social, governance and ethical matters. Pollution, worker's rights and corruption are highlighted frequently in national and international media. Growing political and government involvement will drive new rules, regulations and incentives with ESG objectives. Companies will expose a higher level of pertinent internal data to stakeholders. Data aggregation and analysis can be highly sophisticated today and will become ever more so, as there will be continuous access to real-time information on products, companies, supply chains and economies. Buyers, consumers and the public will use such information for whatever purpose they see fit. Companies need to realise that, if they accept goods and services from suppliers that do not meet their codes of conduct, they are complicit in sustaining poor practices.

The Chinese authorities will continue to release more data and information about every aspect of China's economy, and Chinese companies and markets will also continue to become more transparent, as part of a global trend, although there are transitional difficulties.

Hong Kong

HONG KONG

Hong Kong is the listed home to many Chinese companies, as well as its own home-grown businesses. Whether Chinese or locally evolved, the companies listed on the Hong Kong stock exchange are, in terms of disclosure and reporting, among the best rated in China as a whole. Hong Kong is also the operating base for a number of innovative organisations promoting the broader sustainability agenda. ASRIA has already been featured above. Contributions below from the Business Environment Council, as well as RepuTex, provide a fuller picture of ESG disclosure and performance in Hong Kong.

Box 5.8: The Hang Seng Corporate Sustainability Index Series

As the research partner to the Hang Seng Index's Corporate Sustainability Index Series, RepuTex undertakes yearly ESG analysis on Hong Kong and Chinese listed companies. The Index Series is in its third year and its importance has become obvious. Companies are keen to stay on the index while others want to get on it. This is a healthy trend because the agenda is going well beyond the top performers into home-grown local and Chinese companies.

From 2010 to 2012, the performance of mainland Chinese companies has been found to be weaker than those in Hong Kong. Nevertheless, the consistently large number of overall B (at risk) range ratings indicates that the majority of companies in Hong Kong and China continue to take a compliance-based approach to ESG risk, on the basis of the minimum disclosure of information required to satisfy listing rules and regulations. Interestingly, since the inception of the Index two years ago, findings indicate that the ESG performance of constituents within the Index continues to strengthen annually, particularly with respect to social impact and workplace practices.

Hong Kong

Box 5.9: ESG disclosure in Hong Kong

EXPERT COMMENT

ESG disclosure has gained wider acceptance among Hong Kong companies in recent years. Previously, companies in Hong Kong focused primarily on philanthropy and community programmes, driven by the desire to enhance reputation. The business sector is now responding to the demands of investors to be more inclusive of environmental issues, social impacts, labour standards and corporate governance. Laggards are investing in disclosure following a number of recent market developments.

In particular, Hang Seng Indexes introduced the Hang Seng Corporate Sustainability Index Series in 2010. The choice of Index constituents is based foremost on market capitalisation and trade volume, supplemented by a comprehensive ESG rating process developed by RepuTex, a carbon and ESG analytics firm. The initial criticism of the Index was that sustainability leaders and laggards appeared side-by-side. The market is now maturing and there is increasing interest from companies wishing to be included in the Index. ESG disclosure has evolved into a matter of competitive advantage, and inclusion in the Index helps meet investors' expectations. The Index Series is compelling companies to improve ESG disclosure, which over time should result in operational efficiencies and more sustainable ways of conducting business. Investors also want to identify resource efficiency.

In 2011, Hong Kong Exchanges and Clearing Ltd introduced an ESG Reporting Guide for listed companies in Hong Kong. The Guide seeks to clarify what the exchange expects from issuers in terms of ESG disclosure. Similarly to the GRI standard, the Guide covers disclosure on workplace quality, environmental protection, operating practices, and community involvement. In December 2011, the exchange issued a public consultation on the Guide and the results are pending. The expectation is that it will go ahead with the Guide and append it to the listing rules, which should nudge issuers towards annual disclosure of ESG issues. Even though the document is introduced only as guidance and initially remains voluntary, the exchange provided strong indication that companies may need to disclose on their material ESG impacts on a 'comply or explain' basis in the near future. For companies that are already issuing an annual ESG report there would be little impact, while for other issuers it may take up to three years to have all the required data ready for disclosure. The Guide is significant because it requires all companies to take sustainability of their business seriously.

In addition, issuers in Hong Kong continue to receive a number of related requests for ESG data from international rating agencies. The CDP, for instance, has in 2012 taken the step of establishing a stronger presence by locating staff in Hong Kong to manage the CDP programmes for the region. The demand for ESG data is strong in Hong Kong – and it is now up to the companies to follow suit in satisfying this thirst for information.

HENDRIK ROSENTHAL, DIRECTOR – POLICY AND RESEARCH, BUSINESS ENVIRONMENT COUNCIL LTD

Hong Kong

Table 5.5: In RepuTex's September 2011 report, the following are the top 20 ratings of Hong Kong listed companies

Company	Sector	Rating	Description
HSBC Holdings	Financial	AA	Stable
MTR Corporation	Industrial	AA	Stable
CLP Holdings	Utilities	AA	Stable
Swire Pacific	Financial	AA	Stable
Cathay Pacific	Industrial	AA	Stable
Lenovo Group	IT	A+	Satisfactory
Power Assets Holdings	Utilities	A+	Satisfactory
Hang Seng Bank	Financial	A+	Satisfactory
HK Exchanges & Clearing	Financial	A+	Satisfactory
Li & Fung	Consumer	A+	Satisfactory
Shun Tak Holdings	Industrial	A	Satisfactory
Hutchison Telecoms	Telecom	A	Satisfactory
Shangri-La Asia	Consumer	A	Satisfactory
Sun Hung Kai Properties	Financial	A	Satisfactory
Orient Overseas International	Industrial	A	Satisfactory
Hang Lung Properties	Financial	A	Satisfactory
Hang Lung Group	Financial	A	Satisfactory
BOC Hong Kong Holdings	Financial	A	Satisfactory
China Agri-Industries Holdings	Consumer	A	Satisfactory
China Merchants Bank	Financial	A	Satisfactory

Source: Martha Grossman, director ESG research, RepuTex (HK) Ltd.

6. The evolution of the accountancy profession in China

The accountancy profession in China has a comparatively short history, with training of Certified Public Accountants (CPAs) only starting in the early 1990s, driven largely by the reform of the state-owned enterprises (SOEs) at this time. Before this, accountants were traditionally trained simply as bookkeepers and cashiers. Despite the complexity and size of the Chinese economy, the profession has evolved at great speed. Accounting standards introduced in 2007¹⁶² have converged, in principle, with International Financial Reporting Standards (IFRS), followed soon after by standards for internal controls¹⁶³ and extensible Business Reporting Language (XBRL). Leading accountancy institutions have been set up to guide the development of the profession, with ACCA establishing their Beijing office in 1998. A gradual localisation of the Big 4 in recent times is resulting in strong local Chinese career accountants coming up through the ranks of these firms. This chapter examines how the accounting profession is changing in response to the requirements of the green economy, using PwC as a case study.

We are witnessing an evolution within the profession in China that is perhaps more about the inevitability of change itself, than about the influences of the green economy. This change is not limited to the unique experiences of China, but is instead a response to the evolution of businesses around the world. While corporate reporting does need to change to reflect the influence of the green economy, this is a necessity that is being driven by the need for a company's health to be assessed more broadly than just

through an analysis of the P&L. There is growing acceptance that company accounts need to include risk considerations, demonstration of internal controls, governance, and of course social, ethical and environmental considerations.

While the environmental issues China faces are truly enormous, the country is not being forced into a game of 'catch up' with the rest of the world in its transition to a green economy. China is making this transition at the same time as other countries and, thus, there is great hope that it can evolve to a similar level and at a similar speed. The benefits to China in doing so are enormous as the extremely fast economic expansion since the early 1980s has very clearly been at the cost of the environment. Slowly, the drive for economic growth is becoming better balanced with other considerations, with the recent 12th Five-Year Plan providing clear evidence that the government is orchestrating this shift.

In turn, China's accountants are developing their skills, methodologies and services to support the corporate sector as it evolves to meet the demands and opportunities of the green economy, at the same time as their peers the world over. But while this suggests a comparatively level playing field for adaptation to the green economy for accountants everywhere, the story of the accounting profession itself is still one of growth and evolution in China.

The progress of the profession in China is not, however, without its challenges, as the delicate balancing act between

the government's socialist market model rubs up against auditor expectations of considerable operational transparency; the conflict between the two raises the possibility of compromised audit quality and risk management procedures. There is also a need for greater emphasis on training within the local accountancy profession, not only to support the evolution of the industry itself, but also to ensure that it can keep pace with and adapt to the demands of the green economy. With growing awareness across the corporate world in China of the implications of the green economy on the way it does business, it is vital that the accounting profession is cognisant to these changes in order to remain relevant to its clients and the market in which it operates.

While the Hong Kong, Shenzhen and Shanghai stock exchanges have all introduced guidance on CSR reporting and encouraged companies listed on their exchanges to report on social, ethical and environmental performance, the capital markets themselves are not promoting a green agenda yet and there has been little interest shown by the Chinese investor community to date. While there is increasing noise and publicity in the media, particularly with respect to environmental concerns, it tends to be netizens raising the concerns rather than the investor community, thus pushing Chinese companies to think about brand and reputation but not necessarily encouraging wholesale behavioural change.

Box 6.1: CEO thinking on sustainability

PwC's Annual Global CEO survey,¹⁶⁴ now in its 15th year, aims to inform and stimulate the debate about how businesses are facing today's challenges.

The survey, for which PwC annually polls over 1,000 CEOs in 69 countries, last year included 122 CEOs in China and 38 CEOs in Hong Kong. This 'China Cut' of the CEO survey has for the past two years revealed the perhaps surprising evidence that Chinese CEOs are more concerned about climate change than their global counterparts and, importantly, that they are more likely to have factored the related risks into their strategic planning.

The overwhelming majority, 85%, of China and Hong Kong CEOs told us they would actively support new government policies that promote 'good growth', that is economically, socially and environmentally sustainable.

Interestingly, China/HK CEOs were more than twice as likely as their global counterparts to cite the lack of a global agreement on climate change as having 'triggered specific changes to strategy, risk management or operational planning'. This is perhaps a reflection of the anticipated impact of China's domestic emissions reduction policy. Seven in ten China CEOs report that they are using environmentally friendly technologies to increase their operational efficiencies.¹⁶⁵

Among China/HK CEOs, 33% cite climate change as one of their key global risks, ahead of 27% of CEOs in the global sample. They are more likely to take action on it too: 28% report having factored climate change risks explicitly into strategic planning, against 26% of CEOs globally.

Four in ten companies plan to increase their investment in addressing the risks of climate change and protecting biodiversity over the coming three years. This evidence suggests that Chinese/HK CEOs are starting to move towards global leadership in climate change mitigation. It remains to be seen, of course, if these plans will be realised.

EVOLUTION OF THE BIG 4 IN CHINA

For the Big 4 accountancy firms, a continuing evolution in their service offerings has supported their global growth stories and ability to add value and remain relevant to clients and the markets in which they operate around the world. Nonetheless, the Big 4 are essentially accountancy firms, and their entry into China was driven by the audit and assurance opportunities this huge market presented during the 20th century. If the past decade is considered, China's economic growth continues, and with it has come a greater level of sophistication among domestic companies, increasing operational and regulatory complexity and increasing competition across markets. Accountancy firms have responded to these changes and the needs of clients with a diversification of their service offering and, in doing so, have continued to remain relevant and to add value to both domestic and international clients.

The emergence of the green economy calls for new skills, and different, unique specialisations.¹⁶⁶ In the case of PwC, the approach has been to evolve its core business by overlaying sustainability considerations where appropriate and of greatest value to clients, by embedding and adding value rather than creating a stand-alone specialist consultancy. A need for specialist skills does still exist and a small business unit of environmental and climate change professionals acts as the centre point of a 'hub and spoke' resourcing model – a small, centralised and specific pool of expertise of environmental scientists, engineers, carbon market specialists and environmental economists charged with both supporting clients directly as they adapt to the green economy, and building awareness and highlighting the importance of embedding sustainability considerations in the firm's core services offering.

HUB AND SPOKE MODEL – HOW TRADITIONAL LINES OF SERVICE ARE ADAPTING TO THE GREEN ECONOMY

It is becoming increasingly clear that the main impact of the green economy on how accountancy firms' support for their clients is evolving is that it has prioritised collaboration (across all lines of business) and creativity (in responding to a client's needs). It is becoming less and less acceptable simply to provide a tax solution that considers one aspect of a company's business, or discuss the audit of a company's financial statements without also considering the implications of non-financial performance data.

This section looks at the four main services provided by accountancy firms in China, and how firms are adapting them to address the challenges of the green economy.

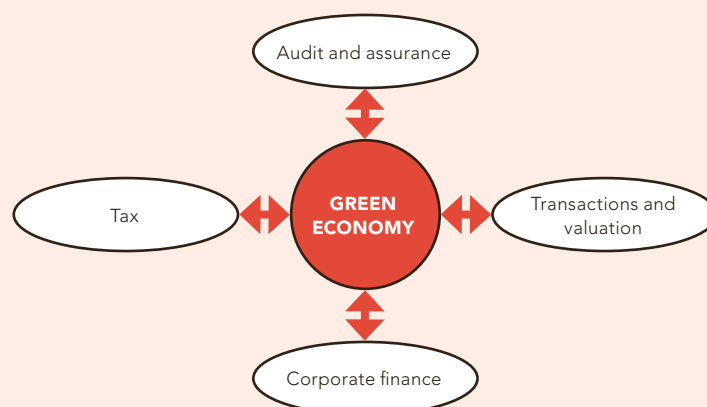
AUDIT AND ASSURANCE

An aspect of the green economy that fits well with the accounting profession is sustainability reporting and assurance. Exponential growth in sustainability reporting over the last 10 years saw the number of Chinese companies publishing reports jump from just two in 2002 to almost 1,500 in 2010.¹⁶⁷ A central driver of this surge has been the release of various guidelines, some mandatory, aimed at State Owned Enterprises (SOEs) and listed companies: The China Banking Regulatory Commission (CBRC) issued mandatory CSR reporting guidelines in 2007¹⁶⁸ for major domestic financial institutions, soon followed by the State-owned Assets Supervision and Administration (SASAC) in early 2008 with guidelines for SOEs.¹⁶⁹ In addition, all of the Shanghai,¹⁷⁰ Shenzhen¹⁷¹ and Hong Kong¹⁷² stock exchanges have issued guidance around social and environmental disclosure for listed companies.

Despite this steady progress and some positive drivers in place, the level of sophistication and depth of reporting remains patchy and selective, and motivations from the companies themselves in reporting beyond compliance requirements are generally more aligned with generating positive publicity for the company than full disclosure. However, China is not an exception in this practice, as this reflects the state of sustainability reporting in many markets around the world.

So what does this mean for the accountancy profession in China, and where do the opportunities lie? From a consulting perspective, perhaps reflecting the immaturity of the market, there has been little interest in report development support and direction for sustainability strategy – Chinese companies are still trying to work this out themselves rather than asking for

Figure 6.1: The core services of accountancy firms and their links to the green economy



help. Excluding compliance requirements, companies are generally still being reactive to sustainability issues, spurred into action by negative publicity or accidents rather than their own motivations and an appreciation of the value and importance of social, ethical and environmental considerations in their business strategy and operations. Following a scandal, a Chinese company is more likely to 'go to ground' and keep very quiet, rather than publicly responding to the issue or seeking assistance in changing behaviour or improving practices.

Each year is seeing a steadily increasing level of interest in sustainability data assurance, as a couple of different motivations emerge. For leading Chinese brands, considerations of prestige and branding, comparisons

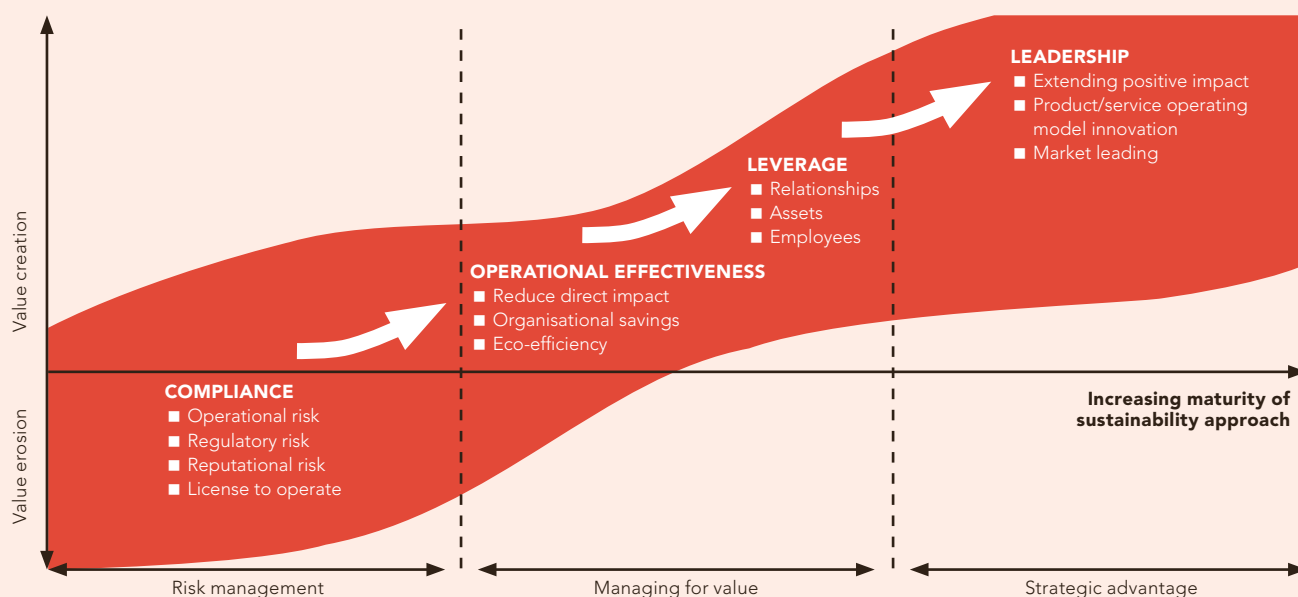
with international competitors, and operations and aspirations in international markets are all driving an interest in sustainability assurance. In contrast, for large SOEs, particularly in the oil and gas, petrochemical and mining industries, partnerships and joint ventures with international peers who have higher standards with respect to sustainability, and environment, health and safety, and have similar expectations of their Chinese counterparts, are leading to increased uptake of assurance services.

However, as Michael Yap, a partner in PwC Beijing's Energy, Utilities and Mining group remarked in considering the evolution of the accountancy profession in China with respect to sustainability data assurance: 'For the Big 4, sustainability is not a unique new

product for the assurance business, as the core skills of the service still require applying the same methodologies. Instead it is an organic transformation of mindset rather than skills sets – for clients, regulators, and for the accountancy profession itself.' In many respects, the introduction of non-financial accountancy standards as a result of the Sarbanes–Oxley Act of 2002, in going beyond financial reporting and into considerations of the operations and compliance of an organisation, was the start of this transformation.

In China, accountants have an important role to play in transforming their clients' stance with respect to sustainability assurance from 'reactive to receptive'. They can help their clients to rapidly move up the sustainability maturity curve, as illustrated in

Fig 6.2: The sustainability maturity curve



Source: PWC, 2011.¹⁷³

Figure 6.2, moving from actions driven by necessity of compliance to a position of sustainability considerations as a true value driver across the business.

In PwC China's assurance practice, increasing client interest in sustainability assurance services has driven an internal capacity building effort. This has involved supporting partners and staff as they have become more familiar with applying the ISAE3000 standard to provide assurance over non-financial information. Thus, it is not subject matter expertise that defines the Firm's services in this area, but rather the ability to adapt to the needs and issues of the client, and deliver credible assurance services to the same standards as expected of financial statement assurance engagements.

However, as interest in other assurance services, such as carbon assurance, increases, there will be a need for auditors to work very closely with technical experts, given the complexity of this type of work.

This approach is echoed in the firm's Hong Kong office. Gayle Donohue, PwC Hong Kong's partner responsible for integrated reporting, recognises the need for accountants to work in new and different ways to offer the new services that are required by clients. The Hong Kong firm has implemented a 'Partnering Initiative' on Sustainability and Climate Change that sees accountants working with engineers, economists and other specialists within the firm. 'Auditors need to come out of their little risk-averse box' says Donohue in order to meet clients'

needs in this arena. Whereas ISAE 3000 defines the 'rules' for auditing of non-financial information, the exact procedures that should be followed are being defined by firms tackling large numbers of engagements for the first time. The formal audit opinion could be different in each case as the protocols and practices are developed. It remains to be seen whether the processes and controls around sustainability data will evolve to be as rigorous as those around financial data. The move towards integrated reporting puts the sustainability data within the purview of the CFO, so it is reasonable to expect that they might be. This is particularly true for greenhouse gas emissions where there is already a direct link to financial impact.

Box 6.2: Sustainability assurance

The first sector in which PwC China has gained significant traction for sustainability assurance is financial services. Specifically, PwC has provided assurance over data in the sustainability reports of four Chinese banks: Bank of China, China Development Bank, China Construction Bank, and Shanghai Pudong Development Bank. In the Chinese markets, financial services appears to be the first sector to have recognised the value of 'Big 4' assurance over their sustainability data. The driver for them is market forces – there is no legislative requirement for them to do it – and, in particular, our clients report that they perceive a marketing value in following their international competitors. They also report that the process of submitting their data for assurance allows them to improve their internal management reporting and data management.

TRANSACTIONS AND VALUATION

There is perhaps the greatest level of interest in services to manage and mitigate the impact of environmental, social and ethical risk in transactions and due diligence. This is largely because Chinese laws cover all significant aspects of environment, health and safety with relatively stringent requirements. These laws can be all encompassing, such as the 1989 Environmental Law of the People's Republic of China,¹⁷⁴ or more specific in areas such as water, an example being the Ministry of Environmental Protection's 2008 Law of the People's Republic of China on Prevention and Control of Water Pollution (amended).¹⁷⁵ In addition to regulation set by central government, those set by the provinces, autonomous regions and municipalities are generally much more stringent and detailed, as they take centrally announced regulation and develop more specific measures, standards and thresholds, as evidenced by examples from Guangzhou's Environmental Protection Bureau, including Regulations on Prevention of Automobiles Discharges (2007)¹⁷⁶ and

Decision on De-nitrification of Key Industrial Enterprises (2009).¹⁷⁷

Environmental due diligence (EDD) interest in the China market has historically been driven by the mining and resources sector, reflecting the weighty environmental issues associated with operations in this sector. In recent times, interest has spread to industrial manufacturing, chemicals, food and beverage production, and the automotive industry – all operations with potentially damaging environmental footprints and subject to increasing scrutiny in China as awareness of the broader implications of their production and operating processes grows.

This interest is being driven by two key considerations. First, historical liabilities related to environmental factors are having an increasingly significant impact on valuation, and from the perspective of the acquirer, these need to be addressed at the point of contract. Second, anticipating future risk and building in contingency to address issues associated with legislation and regulatory changes also need to be

incorporated as future potential costs and built into the asset valuation at the contract negotiation stage.

For some Chinese and foreign companies operating in China, EDD is a useful tool in enabling them to move beyond domestic compliance requirements and, instead, move their company's operations to a level more aligned with international standards – whether their own internal standards or globally recognised ones. Nonetheless, companies still need to evaluate the cost/benefit balance of trying to comply with regulations and the implications that might have on the company's brand, reputation and share price.

The market's increased appetite for EDD services has led to greater interaction between the Valuations and Sustainability teams at PwC. However, the highly specialised nature of EDD services, which invariably require the skills of a trained environmental scientist, ensures that collaboration across business units within the firm remains a core element of providing a successful service.

Box 6.3: Environmental due diligence

Whereas five years ago, environmental due diligence was generally the preserve of the more socially aware investors such as development banks, increasing public and media attention and a number of high-profile exposés of corporate malpractice have led to an increase in the size of PwC's EDD practice and a 'mainstreaming' of the type of client engaging EDD services. One such example is 'Project Three,' for which we performed an acquisition due diligence on a machinery company in China. Having identified potential soil contamination in Phase 1, we moved to a Phase II Environmental Site Assessment to investigate potential risks associated with the soil contamination. This risk-based approach focused on potential mitigation measures for the associated risks, which resulted in considerable savings for the client.

CORPORATE FINANCE

For corporate finance, the evolution of the green economy in China is first and foremost about the development of a relatively new and volatile industry sector – greentech – and the flow of business deals that has come with China's emergence as a global greentech leader. The greentech sector includes companies that produce products and services that seek to minimise environmental impacts.

As The China Greentech Report 2012¹⁷⁸ documents, despite the macroeconomic challenges that China's greentech markets are facing, there are strengthened greentech policies (most clearly evidenced in so many aspects of China's 12th Five-Year Plan), growing public engagement on environmental issues, and outbound investment trends – US\$60.1 billion in 2011.¹⁷⁹ In addition, although in 2011 China dropped to second place in its total investment in greentech, the amount that was invested – US\$45.5 billion¹⁸⁰ – still reflects a huge amount of activity in this sector, contributing to a very active deal environment. As a consequence,

technical greentech industry knowledge has become a key element of the skills set required to operate with authority in this area, particularly with respect to the wind, solar and hydro sectors.

The development of China's greentech sector in recent times has brought with it increased outbound investment and, for many Chinese investors leaving the familiarity of their domestic market for the first time, an increased need for support in every aspect of the deal lifecycle. The example of a recent Chinese consortium acquisition of a European wind farm operation demonstrates the level of collaboration that is occurring, and the breadth of supporting services that clients are calling on beyond the structuring of the contract itself, with the provision of due diligence, legal structuring and other advisory services also being provided by PwC teams in China and several locations in Europe.

TAX

The complexity of the Chinese tax landscape requires a high level of adaptability and flexibility, as policy and legislation tend to be very broad and relatively less specific in scope when first issued by the central government. Although subsequent circulars do bring clarity to the requirements, further complexity is created for business as provinces will often differ in their interpretation and application of those circulars.

While, currently, there is no overarching environmental tax regime within the Chinese tax framework, there are environment-related elements, such as tax incentives, subsidies and tariffs, that target a range of industry sectors and are aimed at promoting the development of the greentech sector in particular. Examples include a national Feed-in Tariff (FiT) for solar power, set at CNY 1/kWh and wind farm tariffs across the country ranging from CNY 0.62/kWh to CNY 0.978/kWh.¹⁸¹ Provincial-level governments are utilising the tax regime as a source of funding for pollution mitigation

programmes such as the plans of Jiangsu and Guangdong provinces to add a sludge treatment surcharge to water prices to cover the cost of sludge treatment operations.¹⁸²

For tax professionals, the link between the green economy and China's taxation regime is dominated by the inevitability of a comprehensive environment tax in the not too distant future. Whether this takes the form of industry-specific resources taxes or carbon taxes, or is more holistic in its application and impact, domestic and foreign companies alike operating in China will need the support of tax specialists to help them understand their liabilities in this new business environment and navigate through the complex legislation.

However, the biggest issue facing the Big 4 in China is the need to diversify their tax offering, driven in large part by the need to differentiate their services from local competitors who generally compete on price. With their international networks and their ability to draw upon a wealth of experience in supporting clients with carbon taxes and the implications of emissions trading schemes in other markets, the Big 4 have a big role to play in mitigating the risk and uncertainty that the evolving green regulatory landscape is creating.

In Hong Kong, PwC's tax partner, Colin Farrell, believes that companies tend to be slow to act on forthcoming legislation, 'Until the tax is actually introduced, it is very difficult to get clients to engage and plan for changes.' His view is that until the precise details of the planned emissions trading schemes or taxes are announced, companies will not engage professional services firms to help them to plan. However, auditors and advisers need to prepare for what is likely to be considerable demand from clients for advice on how to reduce their liabilities and take advantage of opportunities at the time when the legislation is introduced.

LOOKING TO THE FUTURE

The Big 4 accounting firms in China have enjoyed incredible business growth over the last several decades, mirroring that of the Chinese economy, but it seems change is in the air, as the growing confidence and experience of the local accounting firms creates increasing competition in the market. Thus, the strategic decisions the Big 4 take in terms of directing their business at this juncture may well determine their future long-term success. While the core services of the accountancy firms will continue to find demand in China's evolving green economy, the Big 4's advantage will be their ability to overlay

sustainable business considerations, along with knowledge of the issues and opportunities that an increasingly resource-constrained, energy-scarce and polluted marketplace creates for their clients. This understanding, and an innovative solution-driven approach that moves beyond simply providing technical accountancy solutions, will ensure that the accountancy profession continues to add value and remain relevant to its clients.

We are entering a time where companies the world over are being forced to take a more holistic view of their business operations, and Chinese companies are not immune to this shift. So what does a Big 4 accountant look like in China's future green economy? Their emphasis on superior technical accountancy skills and their ability to provide a high-quality service will not have diminished, but with these will come a more holistic service approach, that is as integrated as the integrated reporting trend companies and the accountancy profession alike will need to adapt in the long term. Accountants will need to move beyond the controlled comfort of their technical skills to analyse the market so as to offer proactive, holistic solutions incorporating assurance, tax and advisory services. In this respect, the experiences of the accountant in China will be no different from those in most markets around the world.

Box 6.4: CLP Holdings – moving towards integrated reporting

EXPERT COMMENT

CLP is the first Hong Kong-based company to take part in the International Integrated Reporting Committee's (IIRC) pilot on integrated reporting.¹⁸³

As stated by the IIRC, 'integrated reporting brings together material information about an organisation's strategy, governance, performance and prospects in a way that reflects the commercial, social and environmental context within which it operates. It provides a clear and concise representation of how an organisation demonstrates stewardship and how it creates and sustains value.'

CLP's approach in 2011 was to include more of the social and environmental aspects of its performance in the annual report than previous reports. Complementing the integrated report is a separate on-line Sustainability Report, which continues to report these aspects in greater detail. It was important for CLP to continue to publish the sustainability report, as materiality is different for the various target audiences. The annual report focuses on addressing shareholders and investors, while the sustainability report addresses stakeholder groups with more in-depth interest in social and environmental performance.

The move towards integrated reporting goes hand in hand with the quest for an even more rigorous approach towards the assurance of environmental, social and governance (ESG) data in the sustainability report that could be synchronised with the approach applied to the financial data included in the annual report. Although CLP already has two levels of technical assurance on data such as greenhouse gas emissions, it commissioned PwC in 2011 to carry out assurance using ISAE3000 for the first time on selected ESG data that is deemed most material to the company. This is seen as the first step towards understanding the alignment of processes and controls required to see that the robustness of the ESG data is on par with that of the financial data.

'The discipline of reporting economic, social and environmental performance has helped us think in a more structured way. Specifically, it is contributing to our assessment of the fit and interrelation of these elements of our business. In that regard, integrated reporting doesn't merely improve the way we report on past performances, it has also influenced the way we look ahead and the decisions that we will have to make in the future.'

PETER GREENWOOD, GROUP EXECUTIVE DIRECTOR, STRATEGY, CLP HOLDINGS.

7. Conclusion: contrasting realities

The broad picture of China's development over the past 30 years is well known. All forms of pollution and degradation have grown in tandem with the economy. While economic success is accelerating pressure on ecosystems and the environment, there are also massive investments in cleaning up, developing green technologies and creating jobs. How can the two contrasting pictures be reconciled?

This concluding chapter looks at China's complex realities both from an internal perspective and from an external viewpoint. This chapter also discusses the growing worldwide demand for corporate transparency and puts in context the improvements Chinese companies are making. Moreover, consumers are demanding much higher levels of information about the products and services they buy, which is having an impact on MNCs' global supply chains, many of which run through China. China and its special administration region, Hong Kong, are intimately involved in the global nexus of business activities. As a result of its size and rapid development, China's success in evolving a green economy is in everyone's interest.

GREEN ECONOMY – BIG PICTURE

The Rio+20 agenda discussed the green economy in the context of resource scarcities, sustainability, poverty eradication and international environmental governance, noting that the goal is to change conditions to ensure long-term societal stability and well-being. Discussions at Rio noted that a 'green economy' should include social and environmental sustainability. Indeed, there was a sense that the current economic and business model developed in the 19th and 20th centuries on the basis of material production and consumption is not sustainable, as the world heads towards nine billion people living on a planet under ecological stress. The UN's new Inclusive Wealth Index, published to coincide with Rio+20, captures the zeitgeist by showing that countries with fast-growing GDP, such as China, also have shrinking natural capital as the environment deteriorates. This research shows clearly how economic capital is being traded for natural capital, resulting in growth that is unsustainable.

Leaving the business-as-usual way of economic development behind is not easy. The current practice is based on longstanding economic theory, accounting rules and established auditing practices that ignore potential areas of risk and liability in relation to sustainability issues. This is changing as, since the 2008 global financial crisis, there is wider support for government policies to avoid corporate malpractices and promote good corporate governance. In addition, companies are increasingly expected to focus not only on the bottom line but also on their social responsibility.

CHINA'S POPULATION, ENERGY AND WATER

Chinese modernisation policies are coherent and ambitious. China's 11FYP and 12FYP represent a policy tipping point away from a 'brown' to a 'green' economy, although much more still needs to be done.

China's population will continue to rise before it peaks at 1.5 billion around 2030. Only China and India have more than a billion people. The next most populous country is the US with 312 million people and only slightly bigger in size (in geographical terms) than China. China's reliance on coal will remain substantial, which means China's energy needs and resultant GHG emissions are also going to rise before they peak. Understandably, China is keen to explore its non-conventional oil and gas deposits, as well as importing more natural gas because it is a much cleaner burning fuel with air-quality and lower-carbon benefits. Beyond fossil fuels, China will continue to expand its nuclear, hydropower, solar and wind capabilities. It is in China's national interests to achieve energy security with sufficient supplies at prices that do not disrupt economic and social activities.

Beyond energy, increasing water scarcity is a major development constraint in China. The country only has 7% of global water resources, and its per capita water resource is one-third of the world average. The country's challenge is to meet the rising water needs of its large population and industrial sector without compromising its ability to feed an ever-increasing population.

INTERNAL AND EXTERNAL PERSPECTIVES

Scale of development

The scale of infrastructure development in China is breathtaking. It is welcomed by some but a source of concern for others, both internally and externally. For example, China is gearing up to build 56 new airports by about 2015 (taking the total to beyond 230 airports) to handle 450 million passenger trips per year.¹⁵⁷ Internal travel and the domestic tourism industries will grow but this will also impose huge pressure on the environment. Another example is the continuous opening-up of remote areas. In Xinjiang province, highways and roads are being built so that its rich mineral resources can be accessed. From one perspective, this is seen to be positive, as 338,000 jobs are expected to be created in 2011¹⁵⁸ but mineral exploitation will also lead to massive environmental degradation even if the latest technologies are used for extraction.

At the same time, China is prepared to spend massively in the 12FYP on de-sulphurisation and de-nitration technologies to reduce air pollution from coal plants. In the past few years, China has already increased its municipal wastewater treatment rate by 24% to 75%,¹⁵⁹ and it has substantial plans for dealing with wastewater treatment in the next few years. China generates about 60 billion tonnes of wastewater per year, not all of which is properly treated, and the quantity will rise to 80 billion tonnes in a few years. Considering this trend, there is no option but to increase investment in wastewater treatment. Then there is solid waste to deal with too. Some cities are investing in new facilities where

incinerators will convert thousands of tonnes of waste to produce energy each day.¹⁶⁰

Civil society development

Plans, targets and significant capital are essential to deal with the environmental problems noted above, but another of China's key challenges is supervision and strict enforcement of the law. In a society where the rule of law is still developing, policymakers are using civil society monitoring to expose unlawful activities. This report has provided examples of how Chinese NGOs are using modern communications technologies and the internet to broadcast pollution violations, as well as to highlight workers' demands about pay and working conditions. Chinese NGOs are becoming more and more sophisticated and their reports and information are picked up by local and international media, which are often related to some aspect of the global supply chains pinpointing ultimately to MNCs. The rise of civil society in China is a long-term trend and is seen to be positive, both internally among many stakeholders, and externally.

Transparency challenge

The transparency challenge boils down to the traceability of products through their entire lifecycles and reporting on them in sufficient detail to satisfy demanding consumers and other stakeholders, including investors. Chinese businesses will have to provide much greater levels of transparency as they expand their global reach. This affects both large and small companies. The large state-owned enterprises are having to provide higher levels of information about their operations through both government encouragement domestically and stock

exchanges outside China where they are listed. Also, international media rank Chinese companies' performance. The SMEs in manufacturing are upgrading their operations because their supply chains' buyers are demanding improvement in their social and environmental performance, and Chinese NGOs are keeping an eye on violators and making violations known locally and internationally.

International relations

No economy can keep increasing material output and consumption without serious environmental consequences. It is not easy for China to pull back because this is still the de facto mode of growth for the world. While China accepts it must curb its emissions as quickly as possible and find a different material consumption equilibrium, Chinese policymakers are uncomfortable with criticism, particularly from the West, and with arguments that China must make even more strenuous efforts when the high-consuming developed economies in the West have yet to adopt a sustainable path. Climate change negotiations are unlikely to get easier in the run up to COP18 at Qatar.

Moreover, as China reaches out to secure raw materials around the world, new tensions and alliances are emerging. A noteworthy example is the Arctic, where China has no territorial claim, unlike the South China Sea, but it is building alliances with countries of the High North to advance its interest there. Chinese official remarks to date emphasise China's concern about the environment and climate change and for the Arctic to remain a 'global commons' with non-Arctic states having access to the region.¹⁶¹

CONCLUSION

China is not alone in its environmental experience – human beings everywhere have altered natural ecosystems.

Biodiversity has declined everywhere in the world, and releases of GHG arising from human activities are now altering the long-term composition of the atmosphere, resulting in climate change that may tip civilisation as we know it today from a climate ‘sweet spot’ into one that is much less hospitable to human life.

Sustainability will not be achieved without broader and deeper forms of accountability (across companies, sectors, economies and generations) and these new forms of accountability cannot be achieved without new forms of transparency and stakeholder engagement. The new green economy will need to incorporate the cost of externalities such as GHG, ecosystem services and water into the structure of the marketplace. The green economy will need to shift to low-carbon energy systems, produce much higher agricultural output without increasing the amount of land or water used, halt deforestation, restore ecosystems, improve resource efficiency and provide non-polluting mobility.

While there are indications that governments and major businesses are adopting greener policies and practices, they are motivated primarily by self-interest (achieving security and being competitive), which have so far not provided strong enough incentives

for a fast transition. The Chinese government is not a laggard in setting policies, and it is pushing Chinese companies to do better.

Many MNCs say sustainability is important in a wide range of areas, including new product development, reputation building, and overall corporate strategy. Yet, the uncomfortable truth is that most companies are not taking a proactive approach to managing sustainability. Companies need to seek opportunities to invest in sustainability or embed it in their business practices and the MNCs are most able to take the lead.

How do disclosure and reporting fit into this? They should open up business thinking to a wider societal agenda, spur new management systems, create co-learning across global supply chains, transform habits and paradigms, and ultimately inform the global push towards more sustainable forms of development. They should make visible previously invisible effects or costs and thus enhance the power of market forces to distinguish between superior and inferior performers.

Accountants have an important role to play in the shift to a green economy. The core skills of accountants will be necessary for developing new metrics for measuring progress and accounting for natural capital, for better management of financial flows to promote green growth and to improve the environmental and social performance of economic sectors.

In the next decade, market and business transparency will become universally accepted across the world as critical to sustainable value creation. Data aggregation and analysis will be much further along the way than today – the performance of products, companies and even economies will probably be powerfully visualised against the background of global limits, footprints and targets. Sustainability performance may well be as important as financial performance. The UN’s efforts at Rio+20 to promote natural capital measurements for countries, as well as corporate sustainability reporting, and with the European Commission’s agreement to implement them possibly by 2020, will give the movement a very substantial push.

Afterword

EXPERT COMMENT

I see two main forces driving the development of company reporting in China, its rapid sprint through national development and its growing role on the international stage. The national development of urbanisation and industrialisation continue at a breathtaking pace. With them China faces significant local environmental challenges, notably air and water quality. In addition, its new urban aspirant population want higher-quality living conditions.

The growth of state targets for social and environmental improvements, on the one hand, and industrial growth on the other, are responses to these pressures and are already affecting business operations. At the global level the international community, through the UN, has established three processes of measurement: global sustainable development goals, national beyond-GDP measures, and acceleration of best practice corporate sustainability reporting. These efforts are indicative of global attempts to define, agree, consistently measure and act on materiality. These processes apply further pressures to the Chinese economy and its businesses.

Also, Chinese banks now populate the ranks of the world's most powerful financial institutions. They have money to invest, and the Chinese companies that have the potential and ambition to operate on the global stage, beyond the Chinese borders, will need to demonstrate increased ability in risk and reputation management to satisfy these powerful lenders. From these trends it appears as if China's accountancy growth and reporting innovation are set to increase very rapidly. China's transformation from factory of the world to clean economy will depend on it.

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