

Sustainable China Trade: A Conceptual Framework

Aaron Cosby
Associate and Senior Advisor
Trade and Investment
International Institute for
Sustainable Development
acosbey@iisd.ca

April 2009

Sustainable China

Trade:

A conceptual framework

Aaron Cosbey
Associate and Senior Advisor
Trade and Investment
International Institute for
Sustainable Development
acosbey@iisd.ca

April 2009

This paper is produced as part of the Sustainable China Trade Project. The project is a joint effort of IISD and the Development Research Centre of the State Council of China, with research jointly conducted by Chinese and international experts. It seeks to help define the characteristics of a sustainable trade strategy for China - a strategy that helps contribute to environmental, social and economic improvements, primarily in China but also globally. Such an outcome is in line with the scientific concept of development first put forward at the 16th National Congress of the Communist Party of China in 2003, and with many of the goals of the 11th Five-Year Plan. The project will produce a series of eight working papers focusing on specific aspects of a sustainable trade strategy for China and a synthesized volume covering the body of work. The Sustainable China Trade Project is generously supported by the Swiss Agency for Development Cooperation.

© 2010 International Institute for Sustainable Development (IISD)

Published by the International Institute for Sustainable Development

IISD contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change and energy, measurement and assessment, and natural resources management, and the enabling role of communication technologies in these areas. We report on international negotiations and disseminate knowledge gained through collaborative projects, resulting in more rigorous research, capacity building in developing countries, better networks spanning the North and the South, and better global connections among researchers, practitioners, citizens and policy-makers.

IISD's vision is better living for all—sustainably; its mission is to champion innovation, enabling societies to live sustainably. IISD is registered as a charitable organization in Canada and has 501(c)(3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC) and Environment Canada, and from the Province of Manitoba. The Institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations and the private sector.

International Institute for Sustainable Development
161 Portage Avenue East, 6th Floor
Winnipeg, Manitoba
Canada R3B 0Y4
Tel: +1 (204) 958-7700
Fax: +1 (204) 958-7710
Email: info@iisd.ca
Website: www.iisd.org

Table of Contents

1.0 Introduction.....	1
2.0 Defining Sustainable Development.....	2
3.0 Domestic Trends.....	5
4.0 International Trends	8
5.0 A Strategic Framework for Sustainable Trade.....	16
5.1. Sustainable Trade in Goods.....	16
5.1.1. <i>The environmental impacts of traded goods</i>	17
5.1.2. <i>The economic sustainability of traded goods</i>	19
5.1.3. <i>Social impacts of traded goods</i>	23
5.2. Sustainable Trade in Services.....	24
5.2.2. <i>Environmental impacts of services trade</i>	25
5.2.2. <i>Economic impacts of services trade</i>	27
5.2.3. <i>Social impacts of services trade</i>	28
5.3. Sustainable Foreign Direct Investment	29
5.4. Sustainable Outward Direct Investment	31
5.5. Precedents for a Sustainable Trade Strategy.....	34
6.0 The Nature of Change: Guidance for Policy Recommendations	36
7.0 A Research Agenda.....	38
8.0 References	40

List of Figures

Figure 1:	Commodity price changes (%).....	10
Figure 2:	Sustainable trade in goods.	17
Figure 3:	China's Trade in Services (2006).....	25
Figure 4:	Sustainable Trade in Services	26
Figure 5:	Sustainable Inward FDI (Foreign Direct Investment)	30
Figure 6:	Sustainable Outward Direct Investment	33

List of Tables

Table 1:	Summary of U.S. Environmental Attitudes: 2002 vs. 2007	15
----------	--------------------------------------------------------------	----

1.0 Introduction

Over the last 20 years, Chinese policy makers have been burdened with the proverbial curse: to live in interesting times. As described in the Chinese overview paper that is part of this series, unprecedented growth in trade and investment has been responsible for historic gains in income and infrastructure for hundreds of millions of people. However, as that paper also makes clear, China faces monumental challenges in maintaining its course and in successfully managing its powerful economic growth to deliver prosperity and security in the long run. From a trade policy perspective, the key question is how trade can best contribute to China's sustainable development.

To answer this question, we need a guiding framework that can help us assess trade's current impacts and assess the policy options that might be considered. This paper sets out one such framework. It begins by defining what we mean by sustainable development in general. It then uses that definition to make the case for change in China's trade policy, briefly surveying the relevant domestic and international trends and drivers and arguing that many of them seem to be taking us in the wrong direction, or at least not moving us quickly enough in the right direction.

The paper then sets up a framework that defines sustainable development in the specific context of China's trade policy, drawing on the definition of sustainable development and the characteristics of China's trade-related economic development. For each element of the framework, it briefly surveys the current conditions in China, noting how progress might be made. More in depth analysis of this type, though, is beyond the scope of this paper and can be found in the other papers completed as part of this project.

Finally, the paper considers the nature of the types of change that might be suggested in the other analytical papers. Three basic strategies for China are described in an effort to help frame the recommendations that come out of the in-depth work and to help policy makers consider how best to guide China toward sustainable development through its trade policy. In closing, the paper puts forward a research agenda that flows from the analytical framework, identifying several lines of inquiry that will help clarify what constitutes good policy for China in pursuing a sustainable trade strategy.

2.0 Defining Sustainable Development

Sustainable development has been a benchmark objective of the international community since the time of the 1992 Rio Summit on Environment and Development, which brought together 172 governments and 108 heads of state. The Summit, which created the Commission on Sustainable Development (which spawned the UN Framework Convention on climate Change, the Convention on Biological Diversity and the Forest Principles), was initiated in response to the landmark 1987 report of the UN Commission on Environment and Development (the Brundtland Report). The Report forcefully made the argument that progress on development and progress on environment were inextricably linked.

The Report, which first coined the phrase “sustainable development,” gives us a working definition: “...development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.”¹ Brundtland argued, in particular, the overwhelming need for growth in developing countries, but at the same time noted that such growth needed to be of a different quality than that historically experienced by the countries of the OECD.

In other words, sustainable development is development - making people better off - carried out in such a way that it can endure for many generations. This is a useful foundation for our definition of sustainable development, but it is not enough in and of itself. To properly operationalize the concept of sustainable development it must be put into some specific context. That is, at the general level sustainable development is more like a principle than an operational guideline. As with the principle of justice, for example, which can only be operationalized in the context of a specific case, it is impossible to give sustainable development operational meaning until we ask what it means in a specific context. This is the objective of this paper: to ask what sustainable development means in the context of China’s trade policy.²

At the general level, however, it is possible to go further than the Brundtland definition. There is widespread agreement that sustainable development is comprised of three elements: economic, environmental and social. These are often called the “three legs of the stool” - an analogy that emphasizes the interdependence of the three elements; unless all three legs are strong, the entire

¹ WCED (1987), p. 42. The full definition, seldom quoted, continues: “It contains within it two key concepts: the concept of “needs,” in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs.”

² For an analysis of what sustainable development means in the context of multilateral trade policy, see Cosbey (2004).

stool will not stand.³ Economic activity that ignores environmental imperatives will not itself be viable in the long run; for example, unsustainable fisheries and forestry will quickly undercut their own economic basis. And environmental solutions that ignore the need for social improvements and economic health will lead to increased poverty, which leads to environmental degradation and deprives nations of the financial capacity to tackle environmental problems.

This paper will use the three elements of sustainable development as part of its framework. The interdependence of these three elements is particularly important as a basis for our definition. Sustainable development is sometimes misunderstood by the environmental community to be environmentalism with a disregard of the economic and social factors that must necessarily accompany it and of the balancing that must often be done among the three to achieve a successful final outcome. Similarly, some within the business community see sustainable development as a way to paint environmentally destructive practices green - a rationalization for economic growth without due concern for environmental imperatives.

Another widely recognized tenet of sustainable development is the need to look first for solutions that achieve multiple objectives at once. This guidance, which derives directly from the idea of interdependence, is often framed in terms of the search for “win-win” solutions. Such solutions will not always be possible and there will often be a need to strike a balance among the three elements of sustainable development, looking for the best compromise. But, to the extent possible, it makes most sense to first exhaust the available win-win solutions.

The concept of sustainable development used here is strongly related to the “scientific concept of development,” put forward at the 16th National Congress of the Communist Party of China in 2003 and since elaborated and refined. The scientific concept of development builds on previous conceptions of development that included a promotion in the early 1990s of fast, coordinated and sustainable development - a strong drive for economic development but with consideration for the population, resources and the environment - and a promotion of harmony between man and nature. The scientific concept of development seeks to correct the outcome of that promotion, which often saw economic growth and gross domestic product (GDP) as primarily important, to the detriment of society and the people, and of the natural environment, and which resulted in unbalanced economic prosperity.

The scientific concept of development, while still fundamentally based on the need for economic growth, puts people first and takes a long-term view. It looks for balance between development in urban and rural settings, aiming at enhanced living standards for all. It also looks for balance

³ Thousands of uses of this analogy, or the similar “three pillars” concept can be found in the literature, used by governments, intergovernmental organizations, NGOs and business groups. See, for example, Dobriansky (2002), Government of British Columbia (2004), World Business Council for Sustainable Development (2002), Scottish Environmental Protection Agency (2002) and Willard (2005).

between economic growth and achievement of other values such as cultural and ethical standards. And it looks for balance between the achievement of growth and the natural environment, which in the end affects peoples' lives and well-being. In that sense, while the scientific concept of development is very much a made-in-China concept, built on the experience of decades of efforts at development and responding in particular to the Chinese context, it is conceptually very similar to sustainable development, and the fundamental desire for balance among economic, social and environmental objectives is a central part of its character. In this analysis, when we use the term sustainable development, we will be referring not only to the concept as internationally understood, but also to the specific understanding as developed within China of the scientific concept of development.

With this general understanding of sustainable development in mind, the next section turns to a brief overview of domestic and international trends, arguing the need for a sustainable trade strategy for China. Following that, the analysis moves from the general to the specific and the paper lays out what sustainable development means in the context of China's trade policy.

3.0 Domestic Trends

The domestic trends in areas related to trade policy are surveyed in depth in the Chinese overview paper produced as part of this series. It is not the intent of this paper to reproduce that analysis here. Rather, this section will give brief highlights of the trends noted in the Chinese overview to support the argument that a sustainable trade strategy for China is necessary, considering trade's economic, environmental and social impacts.

A fundamental underlying factor is the structure of Chinese trade, one characteristic of which is unprecedented growth over the last 20 years. In that time, GDP maintained an annual average growth rate of over 10 per cent, increasing almost 900 per cent from US\$296 billion in 1986 to US\$2,644 billion in 2006,⁴ though projections for 2009 are substantially lower. Exports of goods and services served as a powerful driver for this unprecedented growth, growing as a percentage of GDP from 11.8 per cent to over 40 per cent, and with value of merchandise exports increasing by more than a factor of 30.⁵ The open-door policy that underlaid much of this growth also involved a torrent of foreign direct and portfolio investment, which rose from US\$1.9 billion in 1986 to just under US\$100 billion in 2005.⁶

Another characteristic is changing composition. Over the last three decades, China has transformed itself from an exporter of primary products to an exporter of manufactured goods. Primary products went from 54 per cent of exports in 1978 to 5.5 per cent in 2006, while manufactures grew from 46 per cent to 94.5 per cent. But while the quality of trade is improving, China is still overwhelmingly a manufacturer for brands owned and marketed by others. Much of China's export stream is processing trade (52.7 per cent in 2006), which involves assembly of imported manufactured and high-tech components, meaning relatively little value added is contributed and little rent is captured. Low research and development (R&D) in China and a predominance of foreign-owned enterprises in the export sector (58 per cent of total exports in 2006) mean few patents and little China-based branding. In the services sector, where the quality of jobs is often argued to be higher, China has a chronic balance of payments deficit.

From an economic perspective, then, the challenges are clear. China generally derives too little rent from the place it occupies on the international product chain. The major value added portions of that chain go to brand owners, innovators and merchandisers, not to assemblers of the products sold. Associated with this distance from consumers (with thin profit margins, and with the lack of

⁴ World Bank (2007a).

⁵ *Ibid.*

⁶ *Ibid.*

indigenous R&D) is the difficulty many exporters have in meeting foreign product and process standards.

From a social perspective this means that trade cannot fulfil its potential as an engine of development and poverty alleviation. China's per capita Gross National Income is still relatively low, falling slightly below the average for the world's low and middle income countries at \$2,000.⁷ Neither can China's trade fulfil its potential to provide the quantity or quality of jobs that China must create to employ its increasing, and increasingly educated, workforce. The Chinese economy faces the difficult challenge of creating some 13 million new urban jobs annually to accommodate laid-off workers, university graduates, demobilized servicemen and migrant workers from rural areas.⁸

Another underlying factor is the nature of production. China's energy intensity of production is 20 per cent higher than the Organisation for Economic Co-operation and Development (OECD) average.⁹ When coupled with significant growth, from an environmental perspective this means increased pollution associated with energy production: greenhouse gas (GHG) emissions and SO_x (responsible for acid rain), among others. It also means a concern for the security of energy supply and other natural resource inputs (oil, water and minerals). Primary energy demand has tripled since 1980 and energy security is a major concern.¹⁰ China has gone from being largely self-sufficient in energy to being the second largest and fastest growing global consumer, its increase in demand from 2002-2005 being the equivalent of Japan's annual energy use.¹¹ Two thirds of China's larger cities face water shortages.¹²

Waste and effluent from the production process are also much higher than OECD norms, meaning critically poor air and water quality. Of the world's 20 most polluted cities, 16 are Chinese, and estimates of the domestic cost of the country's air pollution range from 3-7 per cent of GDP.¹³ About a third of China's river length is ranked as "severely polluted," and a quarter of coastal waters are "highly polluted."¹⁴

From a social perspective, the cost of this is significant health impacts, primarily from poor air quality, but also related to soil and water pollution and hazardous waste. Estimates of health damages from the business-as-usual scenario by 2020 includes 600,000 premature deaths in urban

⁷ World Bank (2007a).

⁸ Liu (2007). Note, though, that at the same time, some sectors in coastal areas like Guangdong and Fujian provinces are facing serious shortages of workers with technical skills.

⁹ OECD (2007).

¹⁰ IEA (2007).

¹¹ *Ibid.*

¹² *Ibid.*

¹³ OECD (2007), p. 65.

¹⁴ *Ibid.*

areas, 20 million cases of respiratory illness per year and 5.5 million cases of chronic bronchitis and health damage.¹⁵

Water quality problems typically also impact livelihoods in sectors, like in-shore fisheries and aquaculture, that depend on clean water. Annually, some 300 million people suffer from water-related illnesses and more than 30,000 children die annually as a result of drinking polluted water.¹⁶ The disruptive social impact of climate change is also worth mentioning, though it looms further in the future than the impacts of other forms of pollution. To take just one type of impact as illustrative, the *Intergovernmental Panel on Climate Change* (IPCC) predicts that by 2050 fully one quarter of the Himalayan glacier cover on the Chinese side will have melted, significantly decreasing the source of China's great rivers on which hundreds of millions depend for agricultural livelihoods: the Yangzi, the Yellow and Mekong rivers.¹⁷

The full sustainable development challenges of China's trade are surveyed in greater detail in other papers produced for this project. While these trends are well understood by the Chinese government, and while the government has taken significant actions to address them, taken as a whole they make a strong case for developing a sustainable trade strategy.

¹⁵ *Ibid*, p. 239.

¹⁶ Ministry of Water Resources (cited in OECD, 2007, p. 239)

¹⁷ IPCC (2007).

4.0 International Trends

Several international trends also underscore the importance of a sustainable trade strategy for China. It is difficult to write of trends in the thick of a period of turbulence and dynamism in the global economic system that has few if any precedents in modern history. The current global financial crisis has not yet run its full course and we have not seen the end of its spillover into the real economy. How those impacts will play out, and their full implications for sustainable development in major developing countries such as China, is impossible to say with certainty.

Nonetheless, this section will look at several key drivers that have been important, and will likely continue to be so, in determining an appropriate sustainable trade strategy for China:

- The global economic crisis;
- Trends in commodity markets;
- The multilateral system of trade; and
- The global natural environment.

The global economic crisis - The year 2008 will likely be long remembered as the beginning of a deep and possibly prolonged recession in the global economy. We have not yet seen the bottom of a downward spiral that started with a credit crunch born of the failure of the sub-prime mortgage sector in the U.S. and that rippled out to impact other banks that had invested in packaged mortgage products from the U.S. market with little understanding of the underlying worth of the assets. The credit crisis critically impacted real markets, as firms were unable to access normal modes of operating credit, much less credit for future investments. Layoffs and business failures have ensued as the fallout from the financial crisis has spilled into the real economy.

Global GDP is expected to contract by 1.7 per cent in 2009 - the first such contraction on record.¹⁸ High income countries are expected to be even harder hit than most with OECD countries expected to contract by an unprecedented 3 per cent. Volume of world trade is likewise expected to shrink, by an estimated 6.1 per cent in 2009, with an even heavier reduction for manufactured goods.

To date the efforts of central banks (that have cut rates dramatically, even taking the unprecedented step of internationally coordinated cuts), and policy makers that have pledged to inject huge amounts of liquidity into the system, have counted for little. The US\$787 billion stimulus/bailout package negotiated in the U.S. has so far failed to translate into significantly increased lending by the banking system. And statements of coordinated action from the world leaders seem to have had

¹⁸ World Bank (2009a) (GEP). The subsequent figures in this paragraph are also from this source.

little effect in the markets, though the March 2009 G-20 meeting pledges seemed to have some detectable impact on investor confidence.

In November 2008, China announced a US\$587 billion package of spending on infrastructure and social welfare to stimulate the domestic economy and insulate it from the fallout of the crisis. China's banks were not exposed to the toxic assets that sparked the financial crisis, but a significant reduction in exports (down 21 per cent year-on-year in November 2008)¹⁹ has impacted the rate of growth, which is projected to fall to 6.7 per cent in 2009 - close to half of the rate for 2007.²⁰ China, though, has emerged better off than most, the result of several factors: one of the most significant stimulus packages of any country; a lower dependence on exports than its Asian neighbours; strategic advantages in key export sectors, such as textiles; and a large foreign exchange reserve.²¹

In such a situation, any sort of prediction is difficult. But history shows clearly that in times of recession the forces of protectionism find their strongest support. The last major global economic downturn - the great depression of the 1930s - was greatly accelerated by the infamous U.S. Smoot-Hawley tariffs, which set off an international round of retaliatory tariffs, greatly exacerbating the existing economic crisis. The tariffs were signed into force by a newly-elected U.S. President Hoover (over the objections of an army of economic advisors), who faced intense pressure to address the beleaguered U.S. agricultural sector and wider problems of national overcapacity.

Despite a G-20 pledge in 2007 not to resort to protectionist measures, a trend to protectionism is evident in some of the domestic stimulus packages, including the U.S. provisions for any federal stimulus to be directed toward U.S. suppliers - the infamous "Buy America" provisions.²² Gamberoni and Newfarmer (2009, p. 1), surveying the increase in trade measures and subsidies proposed or implemented since the advent of the financial crisis, conclude "the trend in protection is up and the full effects of the recession have not yet been felt."

The most sustained hedge against such protectionism has been the multilateral system of trade rules, which was created as a reaction to the pre-war failure of international cooperation and which has presided over an explosion of volumes in world trade since its creation in 1947. To the extent that the spirit of openness and multilateralism is dampened by the forces of recession, it will be increasingly important to shield China's exports against attack on whatever pretext, meaning increased attention to: international standards; environmental, health and safety performance of products; environmental impacts from product processing and production; and the spirit of international cooperation enshrined in both multilateral and regional trade agreements.

¹⁹ World Bank (2009b), p. 45. (EAPU)

²⁰ IMF (2009).

²¹ World Bank (2009b).

²² In reality these provisions merely reflected law that was already on the books - the *Buy America Act*. But they stand as emblematic of the dangers of economic nationalism in the time of crisis.

Trends in commodity markets - Commodity markets have always been characterized by volatility and subject to booms and busts, but even by their normal standards the past few years have been exceptional. Leading up to the economic crisis, prices were at record levels in practically every sector - metals and minerals, oil, food grains and agriculture. Over the period of 2003 to 2008 - the longest and strongest commodity boom of the past century - the prices of energy, and of metals and minerals, rose by 320 per cent and 296 per cent, respectively.²³

Since late 2008 these trends have all been reversed with a vengeance. Crude oil prices, which had hit US\$147 per barrel in 2008, dropped to US\$40 in 2009. Prices for lead, zinc and nickel - all closely related to the imploding global automobile markets - dropped 60 per cent or more over the same period. Agricultural commodities showed the same pattern. It is worth noting, however, that even after these drops the prices of almost all commodities are higher than they were at the beginning of the boom in 2003.

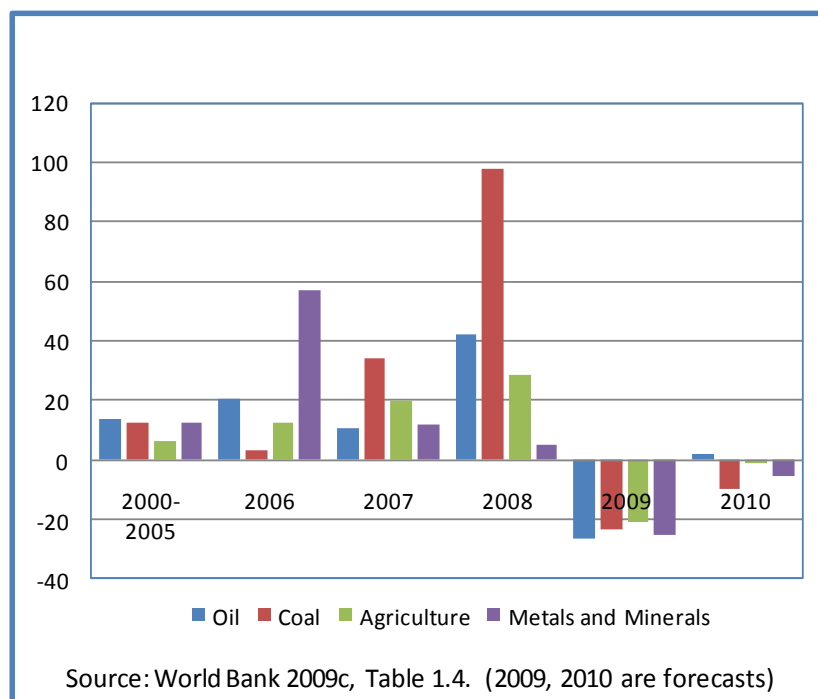


Figure 1: Commodity price changes (%)

Given their importance as inputs to China's traded goods, particular mention should be made of metals and minerals and oil. Most metals and minerals have seen declining prices in the face of slowing demand. Figure 1 shows the indexed price of metals and minerals forecast to fall by 25 per cent in 2009. A few exceptions: prices for copper have remained relatively strong, mostly due to

²³ World Bank (2009c) (GEP 2009).

Latin American supply disruption and aluminum has also remained costly, largely because of tighter regulatory regimes for its key input (electricity). Metal prices are not projected to return to their 2008 heights in the medium term, but nonetheless the government of China has identified long-term security of supply as an important enough issue that it is strategically buying to build up key reserves during these days of low prices.²⁴ Aluminum, iron ore and copper, as well as oil, are all candidates for this type of buying.

Oil deserves special mention because of its role as a primary fuel in the transport of traded goods. Until the hard crash of the present global financial crisis, the international supply of oil had been hard pressed to keep pace with demand. The Organization of the Petroleum Exporting Countries (OPEC) exporters had very little slack left in their capacity, which is limited by chronic underinvestment, and supplies from some of the key non-OPEC suppliers, such as the North Sea producers, are beginning to wane.²⁵ This tightness of supply, combined with geopolitical considerations - such as nervousness about the risks of disruption from war, terrorism or domestic unrest in key OPEC and non-OPEC states - created a significant risk premium that is worth an estimated US\$10 to US\$20 per barrel of oil (when oil prices were well below the peak levels of 2008).²⁶ At the same time, demand for oil was hitting record levels with developed country demand growing slowly, but major developing countries, such as China, making an enormous difference. China's demand for oil between 1980 and 2006 almost quadrupled, rising from 1.9 to 7.1 million barrels per day and its projected growth in demand from 2007 to 2030 is 43 per cent of total projected world growth during that period.²⁷ And while there has been a great deal of investment in alternative energy supplies globally, in the end it amounts to no more than a drop in the bucket, particularly for oil, which has few viable substitutes as a fuel for transport.

Oil's effect on transportation has a powerful impact on international trade. It has been estimated that every dollar increase in the price of a barrel of oil results in a 1 per cent rise in average transport costs. In May 2008, when oil prices were around US\$120/barrel, the Canadian Imperial Bank of Commerce (CIBC) World Markets calculated that inflated transport costs were the equivalent of a 9 per cent tariff on all goods shipped from China to North America and declared that the price of oil had eliminated China's cost advantage over U.S.-produced steel.²⁸ The impacts of US\$150/barrel oil, they calculated, were the equivalent of reversing all the tariff liberalization accomplished by the World Trade Organization (WTO) since the 1970s. To the extent that oil prices remained historically high, the importance of a sustainable trade strategy for China was blunted, since the eventual result was less trade overall and a decrease in the contributions, both positive and negative, from trade to China's drive for sustainable development.

²⁴ Simpkins (2009).

²⁵ IEA (2005).

²⁶ Surowiecki (2007).

²⁷ IEA (2007) and IEA (2008).

²⁸ Rubin and Tal (2008).

Predicting oil prices or even future trends is a game that has created more losers than winners throughout the last four decades. But it seems likely that the days of oil at more than US\$100/bbl are not going to return in the medium term, at least while the world struggles with the impacts of global recession. Even after the recession has receded, the breathing space it has provided will have given us increased total investment in oil production - albeit at a rate much lower than what had been planned - and new technologies for substitutes in transportation, such as mass-produced plug-in hybrids. For the medium term at least, with the World Bank forecasting oil prices to stabilize at \$75/bbl post-crisis, it is unlikely that oil prices will regain their full power to dampen the flows of global trade.²⁹ In the long term, however, the same drivers that pushed oil to the pre-crisis historically high prices will return in force. The most recent analysis by the International Energy Association (IEA) predicts that oil prices will reach US\$200/bbl by 2030.³⁰

The multilateral system of trade - Completion of the negotiations on the Doha Round in the WTO is acknowledged by all to be out of reach for at least several more years. Recently completed elections in India and Brazil have brought to power governments whose intentions with respect to the multilateral system of trade are unclear, but who at a minimum cannot be expected to act as greater champions of that system than their predecessors. A parliamentary election in Brazil in 2010 could bring a similar change with the risk that political will from those key players may be limited. And the world is still guessing as to the ultimate impact of a U.S. Democratic Administration - the Democrats being a traditionally protectionist party, but now led by a strong internationalist. Given a host of other urgent competing priorities, gaining fast track approval for a divisive WTO ratification, even assuming there is a deal to sign, is unlikely to be where the U.S. Administration will want to spend its political capital for several years at least.

Indeed some wonder whether there will be a deal in the end at all, and point to the contrast between the sluggish and difficult pace of WTO negotiations and the dynamism of negotiations at the regional and bilateral levels.

In general, the receding of the spirit of multilateralism in world trade means a highlighted importance for a sustainable trade strategy for China. An important part of the motivation for such a strategy is the need to ensure continued open markets for Chinese exports and outward investment; multilateral agreement has traditionally been the guarantor of such openness. It also means a need to reassess the potential of regional agreements on which China is increasingly engaged in the region.

The global natural environment - From the perspective of China's trade strategy, the key trend is the increasing public concern for the environment in its key export markets. This is fuelled in the

²⁹ World Bank, (2009c).

³⁰ IEA (2008).

first instance by the hard scientific indicators of worsening global conditions in areas such as climate change and biodiversity. On climate change, the most recent assessment of the Intergovernmental Panel on Climate Change - considered the world's most authoritative source of information on the subject - has warned that global warming even at existing levels has already impacted several important physical and biological systems.³¹ And it has predicted significant further impacts, including:

- increased risk of flooding for tens of millions of coastal dwellers worldwide;
- increased incidence of extreme weather events;
- reduced yields of the world's food crops; and
- decreased water availability in many water-scarce regions.

The IPCC warns that the world needs to achieve a 50-80 per cent decrease in GHG emissions by 2050 to have even a 50 per cent chance of limiting temperature increases to less than 2°C - a level considered by many to be the safe threshold beyond which we risk serious and irreversible impacts and the triggering of dangerous positive feedback loops. This level of decrease would be difficult even if we assumed no economic growth over that period, but if we do assume growth the challenge becomes monumental.³²

In the area of biodiversity, the current trends add up to what is argued by many to be the sixth great extinction event in the history of the Earth.³³ The World Wildlife Fund's (WWF) "Living Planet Index," covering nearly 4,000 populations of over 14,000 species, dropped by 27 per cent between 1970 and 2005.³⁴ The "Red List" of the International Union for the Conservation of Nature, which catalogues species in danger, counted 16,306 species as "threatened" in 2007, up by 188 species from the previous year.³⁵ The 2007 Red List for the first time also focused on the significant threats to coral reefs, which provide critical habitat as fish nurseries and are threatened worldwide from land-based pollution and warming waters.

In the area of ecosystems services generally, the most authoritative analysis was carried out by the Millennium Ecosystems Assessment (MEA) - a multi-year collaborative scientific effort of hundreds of contributors worldwide, culminating in 2005. It found that "approximately 60% (15 out of 24) of the ecosystem services examined during the MEA are being degraded or used unsustainably, including fresh water, capture fisheries, air and water purification, and the regulation of regional and local climate, natural hazards and pests."³⁶ As well,

³¹ IPCC (2007).

³² Jackson (2008).

³³ Meyers and Knoll (2001).

³⁴ WWF (2008).

³⁵ IUCN (2007).

³⁶ Millennium Ecosystem Assessment (2005).

“...there is *established but incomplete* evidence that changes being made in ecosystems are increasing the likelihood of nonlinear changes in ecosystems (including accelerating, abrupt, and potentially irreversible changes) that have important consequences for human well-being. Examples of such changes include disease emergence, abrupt alterations in water quality, the creation of “dead zones” in coastal waters, the collapse of fisheries, and shifts in regional climate.”

The empirical indicators of environmental problems do not matter as much to China’s trade flows if they are being ignored by consumers. That, however, does not seem to be the case. The Gallup polls on environment for the U.S. in 2007 found that when Americans were asked what issue would be the most important problem facing the nation 25 years hence, they put environment at the top of the list.³⁷ When asked in 2008 whether they had changed their shopping and living habits over the last five years to protect the environment, 28 per cent of Americans said they had made major changes, and 55 per cent reported they had made minor changes.³⁸

Attitudes in Europe and Japan are similar. In France, a 2007 Hongkong and Shanghai Banking Corporation (HSBC) survey found that 44 per cent of respondents claimed to be making changes to their lifestyles to reduce climate change.³⁹ In Japan, a 2007 survey asked what people considered to be the greatest challenges and threats to the world and 72 per cent cited environmental destruction and climate change.⁴⁰

What’s more, the trend seems to be toward increased concern. The Japanese survey response was 16 per cent higher than in 2005. Table 1 shows the significant measured increase in U.S. concerns over the environment from 2002 to 2007. It is likely that the concerns are being fed by increasingly alarming reports of environmental deterioration, a trend that if anything looks set to worsen in the coming years. It is not yet known whether the economic downturn associated with the current financial crisis has affected consumers’ environmental sentiments, but it likely has at least dampened the enthusiasm for environmental goals, if history is anything to go by.

³⁷ Saad (2007).

³⁸ Jones (2008).

³⁹ HSBC (2007).

⁴⁰ Bertlesmann Stiftung (2007).

Table 1: Summary of U.S. Environmental Attitudes: 2002 vs. 2007

	March 2002	March 2007	Change
	%	%	%
Environmental quality “getting worse”	54	67	+13
Immediate, drastic action needed	26	38	+12
Worried “a great deal” about environment	35	43	+8
Environmental conditions “only fair/poor”	52	59	+7

Source: Saad, 2007 (Gallup News Service)

Most of the trends seem to underscore the importance of a sustainable trade strategy for China. Current trade patterns are not achieving their full potential to contribute to the environmental, the economic or the social aspects of sustainable development. And internationally the potential for a decline in multilateralism and the increasing concern over the natural environment seem to reinforce the message. The increasing costs of transport may, in the longer term, decrease the importance of trade to China, but in the short to medium term trade will still be a key part of the Chinese strategy for moving forward.

5.0 A Strategic Framework for Sustainable Trade

A sustainable trade policy for China must go beyond a strict focus on trade itself, to the wider impacts of trade and to the various elements of national policy that impact on trade in turn. The framework laid out below sketches out the scope of such a strategy. To illustrate how the strategy applies to trade policy, most of this section is devoted to briefly describing how the elements of the framework might contribute to the achievement of sustainable development.

It is comprised of four main elements:

- Sustainable trade in goods;
- Sustainable trade in services;
- Sustainable flows of foreign direct investment; and
- Sustainable flows of outward direct investment.

Each of these themes is further broken down into a consideration of environmental, economic and social impacts, in line with the definition of sustainable development. The remainder of this section is devoted to fleshing out the specifics of the impacts encompassed by this framework.

5.1. Sustainable Trade in Goods

China is not the first country to experience a trade boom, but it is the first to experience one quite so powerful and sustained. As noted above, exports of goods and services as a percentage of GDP grew from 11.8 per cent in 1986 to over 40 per cent 30 years later, and the value of merchandise exports increased over 30 times. In just the three years between 2003 and 2006, exports increased by over 120 per cent.⁴¹ Imports followed the same trend, though at a lower rate, growing by 91 per cent in the same period.⁴² This kind of phenomenal growth presents a challenge to China's policy makers: how to ensure that it contributes to the goal of sustainable development?

In answering this question, this paper will follow the framework set forth in Section 5.0 to look at China's trade in terms of its environmental impacts, its economic sustainability and its social impacts, and to ask how China might ensure that its trade evolves to help foster sustainable development. A schematic diagram of the framework as it applies to sustainable trade in goods is shown below in Figure 2.

⁴¹ Economist Intelligence Unit Country Profile, Sept. 7, 2007.

⁴² *Ibid.*

5.1.1 The environmental impacts of traded goods

In elaborating a sustainable trade strategy for China, one key concern is that trade should not contribute unduly to environmental damage and should in fact contribute to environmental integrity, in line with the objective of the 11th Five Year Plan (FYP) to conserve resources and protect the environment. In that context, the key area on which policy makers might focus in attempting to reduce the environmental content of China's trade is in the area of unpaid inputs, a concept developed in more depth below.

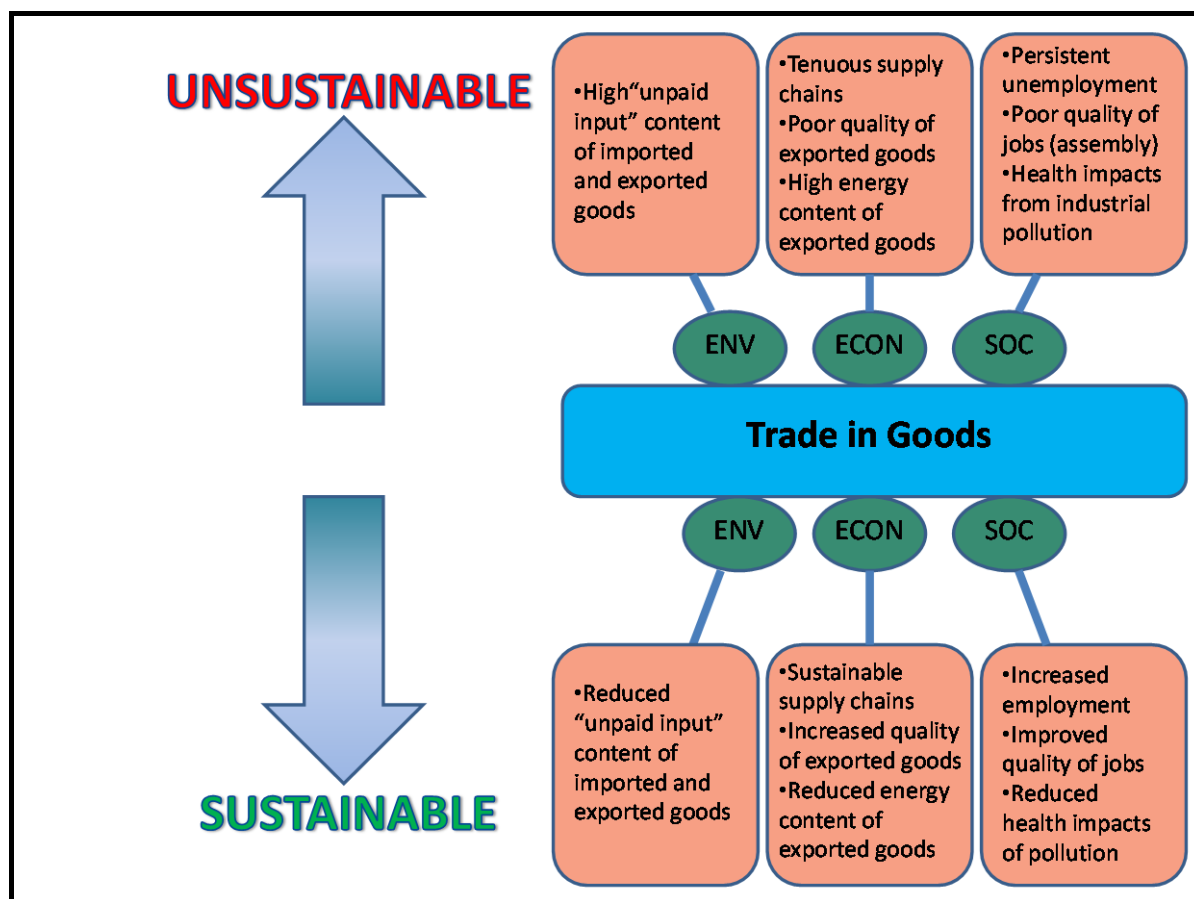


Figure 2: Sustainable trade in goods.

Exported goods - The unpaid input content of exports can be thought of as the amount of natural capital China "exports" along with the goods and services it sends abroad. The primary types of unpaid inputs in this context are air and water quality and biodiversity.⁴³ Where a production process needs to degrade these elements of natural capital, they can usefully be thought of as unpaid inputs to that process. The point has been argued by some analysts that if one does include these unpaid

⁴³ The need to lower intensity of use of market-valued resources (such as mineral resources) is discussed in the Section 5.1.2.: Ensuring economic sustainability of exports.

inputs in the cost of production, China's export trade involves a transfer of wealth to the rest of the world. Making China's trade sustainable will involve lowering the value of those transfers.

OECD (2007) makes the case that air and water pollution are serious concerns in China. Despite impressive comprehensive efforts to reduce the environmental content of manufacturing and processing trade in particular, the scale of production has increased at such a rate as to overwhelm the positive effects of technological progress and tougher standards. In addition to pollution related to energy production, there are concerns about agricultural and manufacturing water effluent and about the generation of industrial solid waste. Industrial air pollution in the form of toxics and volatile organic compounds is also a concern. The Green GDP Accounting Research Project found that in 2004 the costs of environmental degradation - including air and water pollution, solid waste creation and pollution accidents - in China amounted to more than 3 per cent of GDP.⁴⁴

Biodiversity loss is also a concern. Though there have been significant efforts to come to terms with the biodiversity impacts of traditional Chinese medicine exports in particular, several species of flora and fauna are still threatened by export trade from China.⁴⁵ The biodiversity content of exports as considered here would only include species harvested in China; imports and transshipment of endangered species is also an issue and is discussed further below.

The wider problem to be addressed is the environmental content of *all* production in China, not just production associated with exports. The point is that exports, with a value of over 37 per cent of GDP, are responsible for a significant portion of these economy-wide problems.⁴⁶ As such, lowering the environmental content of exported goods deserves attention in any overall effort to make China's foreign trade more sustainable. The Government of China has recognized this challenge and begun to deal with it through tariff structures and trade prohibitions that punish inefficient, polluting and high-resource consuming exports.⁴⁷

There have also been elements of a positive approach to lowering the unpaid input content of trade, such as the promotion of green foods exports from China and of China-made eco-labelled products. The pursuit of these kinds of niche green markets has significant potential.

Imported goods - Phase I of the China and Global Markets project looked at three commodity chains for imports to China, with waste electrical and electronics equipment (WEEE) being considered as one import. The other two were forest products and cotton. A second phase is

⁴⁴ SEPA/NBS (2006).

⁴⁵ OECD (2007), Table 6.2.

⁴⁶ World Development Indicators database. The figure is for export of goods *and* services in 2005.

⁴⁷ For example, in June 2007 export tariffs were increased for 142 low-end, high-polluting and resource-intensive goods, while export tax rebates on several similar goods were scrapped (Xinhua 2007).

underway looking at three additional commodity chains, tracing the story and impacts of China's demand for them as imports, and includes:⁴⁸

- copper;
- fish and fish products; and
- palm oil.

One hypothesis to be tested is that the chain of production, processing and transportation that brings these goods to China is environmentally destructive in the countries involved. In the forestry sector, for example, the sheer scale of import growth - from 20 million cubic metres of round wood equivalent in 1995 to 75 million cubic metres by 2003, with projections of 100 million by 2010⁴⁹ - gives rise to concerns about sustainability of supply and loss of biodiversity. While OECD notes that some supplier countries have effective forest management systems in place, it warns that many others have “poor records in forest stewardship.”⁵⁰

Obviously the primary responsibility for environmental sustainability in such supply chains rests with the national governments where the environmentally damaging activities take place. But it can also be argued that China as the consumer should be aware of the nature of that damage, and moreover should play a strong role in helping those countries to address the challenges involved. This argument can be particularly strongly made where the countries in question are part of China's regional sphere of cooperation and influence (where China is beginning to play a valuable leadership role). And it can also be made in cases where the trade involved is illegal or misreported (the forestry sector again is a good example), in which case only the combined efforts of importing and exporting states will be effective in addressing the problem.

5.1.2 The economic sustainability of traded goods

A sustainable trade strategy for China must go beyond merely focusing on environmental sustainability; it must also address economic sustainability. International trade in goods has been an important part of China's unprecedented drive to prosperity in recent decades, and as such it is important to ensure that it continues to play a role in achieving the objectives China has set for itself in terms of economic development and social wellbeing. In this context, there are at least four important concerns - lowering the energy content of traded goods, ensuring the sustainability of supply chains, ensuring the quality of exported goods and participation in international rule-making forums. Each is examined below.

⁴⁸ See <http://www.iisd.org/trade/china/markets.asp>.

⁴⁹ OECD (2007), p. 303.

⁵⁰ *Ibid.*

The energy content of China's exports is the amount of energy embodied in the value added of those exports. In other words, energy content is the total amount of energy needed to produce a good, minus the amount of energy needed to produce any imported components. There are several reasons to aim at reducing this figure, not all of which are economic, including: increasing energy efficiency increases energy security; it increases competitiveness by lowering prices; and it lowers emissions associated with energy production, including local pollutants and GHGs.

The most direct benefit of lowering the energy content of China's trade is energy security. China is now the third largest importer of oil after the U.S. and Japan - accounting for more than 33 per cent of global growth in demand between 2000 and 2006.⁵¹ While natural gas currently accounts for only a small share of total energy in China, the plan is for imports to fuel a tripling of supply over the current decade.⁵² In 2007, China for the first time became a net importer of coal. The strategy of "going out" by some of China's major oil companies is in part aimed at these concerns, but IEA (2007, p. 179) argues that this strategy may be at most minimally effective.

The potential competitiveness gains from increased efficiency are substantial. Compared to their competitors in OECD countries, average energy consumption per unit of output in key Chinese sectors is significantly higher. Consumption of coal for thermal power generation is 40 per cent higher, and the figures for steel, cement and pulp and paper are 21.4 per cent, 45.3 per cent and 120 per cent higher respectively.⁵³ Moreover, these are average figures, and they contain some highly inefficient installations, though there are efforts underway to close down the worst of these.

Energy efficiency goes hand in hand with reducing pollutants and GHG emissions. With coal accounting for 90 per cent of power generation in China in 2006,⁵⁴ there is a direct relationship between the reduction of electricity demanded and the emissions of SO_x, NO_x, mercury, particulates and other pollutants associated with coal burning. Coal is also the most carbon-intensive of major fuels, accounting for a major portion of China's GHG emissions. In 2004, the energy content of China's exports was responsible for an estimated 23 per cent of its carbon dioxide emissions.⁵⁵

It should be stressed that energy efficiency in China has improved markedly across the economy, falling by over 50 per cent between 1990 and 2002 (though since then it has begun to climb again) - rates that have few parallels anywhere in the world. The 11th FYP aims for a reduction in energy intensity of 20 per cent between 2005 and 2010 - a highly ambitious target. Targets for the development of clean energy sources (including renewable, nuclear and hydro power) are also ambitious, with a goal of 15 per cent of power from renewables by 2020, but even so these will

⁵¹ IEA (2007, p. 80).

⁵² CLSA Asia-Pacific Markets (2005).

⁵³ OECD (2007, p. 77).

⁵⁴ IEA (2008, p. 530).

⁵⁵ Wang and Watson (2007, p. 4).

make up only a small proportion of total capacity additions.⁵⁶ Energy conservation is also a high priority; some 160 standards have been promulgated under the 1997 Energy Conservation Law, and various types of economic instruments and pricing reform have been implemented.⁵⁷ Energy subsidies were estimated to have dropped an astonishing 58 per cent between IEA's 2005 and 2006 analyses.⁵⁸ As well, several targeted initiatives (such as the National Development Reform Commission's Top-1,000 Enterprises Energy Efficiency Program) have been undertaken. However, there is still a long way to go.

Sustainability of supply chains - We need to look at key commodity supply chains to assess their environmental impacts in the host states. The sustainability of those chains is also important from an economic perspective because they fundamentally underpin continued Chinese growth.

The meteoric rise in demand for commodities worldwide over the last 15 years has in large part been driven by China. China's combined share of world demand for aluminum, copper, nickel and iron rose from 1990 levels of 7 per cent to reach 15 per cent just 10 years later and are projected to reach 40 per cent by 2010.⁵⁹ China is now the third largest importer of oil, and is forecast to constitute 43 per cent of total global growth in demand between 2007 and 2030 (though it is far from certain that the required investments will be made to allow that kind of growth in global supply).⁶⁰

A key concern is the longevity of supply of many resources, given current known reserves and projected rates of consumption. For example, while population and demand continue to grow and as projected new technologies appear, many key metals have short lifespans; one set of estimates predicts that platinum would be exhausted in 15 years, antimony and silver in 15-20 years, indium (used in LCD screens) in 5-10 years and hafnium (used in computer chip manufacturing) in 10 years.⁶¹ Even for more plentiful metals such as copper, tin and platinum, the salient issue may be the price increases that precede any absolute depletion of reserves. New discoveries, efficiency of use, substitution and new recycling technologies will all work to prolong the availability of non-renewables, but if these are to play their full potential role it will be important to know where the critical bottlenecks are before they become realities.

Ironically, some renewable resources may be an even greater cause for concern. The growth in China's forest products imports was noted above, as were concerns for sustainability of supply from those countries with poor forest management regimes.

⁵⁶ IEA (2007, p. 274).

⁵⁷ OECD (2007, p. 77).

⁵⁸ IEA (2007, p. 280).

⁵⁹ CLSA Asia-Pacific Markets (2005, p. 4).

⁶⁰ IEA (2008, p. 93).

⁶¹ Cohen (2007).

The sheer magnitude of China's import volumes of many resources and the unprecedented increases projected in the coming decade make it important to ask whether sustainability of supply may become an obstacle to a smooth development path. In essence, this concern is the well known *energy security* concern, broadened to include not just fuel supplies, but also other supplies critical to economic development. The answers will be useful in guiding China's policies on, among other things, technology development, resource use and outward investment.

Ensuring the quality of exported goods - Maintaining the ability of China's exports to contribute fully to China's development means, among other things, ensuring that Chinese exporters are able to meet foreign buyers' standards, such as those related to health and the environment. Indeed, as tariff barriers are systematically reduced worldwide, non-tariff barriers have become the primary concern for developing country exporters in many sectors. Past experience has shown that there is a valuable role to be played by governments, working in collaboration with industry associations and individual producers, in disseminating relevant foreign standards and information on alternative technologies or products.⁶²

There are two aspects to this challenge. First, there is the obvious need to assist those enterprises that need information and are striving to better meet foreign standards. As well, however, there is a need to ensure that low-standard or unscrupulous domestic producers do not tarnish the reputation of Chinese exporters as a whole. Several high-profile cases of sub-standard or counterfeit products have in the last year threatened to undermine China's image as a quality exporter.⁶³ Some damage may already have been done, with industry organizations in the U.S. and other major export destinations calling for stricter regimes of testing and monitoring - regimes that will in the end raise costs for all exporters to those countries - and reports of orders to Chinese suppliers being cancelled.⁶⁴ But more worrying is the longer-term overall erosion of China's image as a producer of high quality goods - an image that is central to the objectives of the 11th FYP in transforming the mode of China's trade growth from quantitative to qualitative.

The various agencies responsible for domestic standards take this challenge seriously, and are closing down offending facilities and pursuing criminal charges against suspected perpetrators. The broader, more difficult, challenge is strengthening the domestic regulatory regimes such that they can effectively police the conduct of a daunting number of producers across many sectors.

⁶² See, for example, Tewari and Pillai (2005) (discussing the Indian government's response to standards affecting the Indian leather industry); PRCCE (1999), and UNCTAD (2003) (discussing the Chinese government's response to standards affecting the leather, footwear and textile industries).

⁶³ Barboza (2007). Particularly worrying are those cases where the results were horrific and newsworthy, such as toxic ingredients in medicines, pet food and infant formula, and high lead content in children's toys.

⁶⁴ Lipton and Harris (2007).

Participation in international rule-making forums - Another way in which China might contribute to the economic sustainability of its export sector is to actively engage in the international processes by which trade-related international standards are set. There are several such processes, both organizations and treaties, affecting different aspects of trade:

- International Organization for Standardization (ISO);
- World Intellectual Property Organisation;
- Codex Alimentarius Commission;
- International Office of Epizootics;
- International Electrotechnical Commission;
- International Accreditation Forum;
- International Organization for Legal Metrology;
- International Plant Protection Convention; and
- International Treaty on Plant Genetic Resources for Food and Agriculture.

In these settings, decisions are made that determine the rules by which exporters around the world must play. While the processes are mandated and designed to be sensitive to the needs and circumstances of developing countries, this is a difficult task given that developing country participation is often limited, for financial, technical and human resources reasons.⁶⁵ China's efforts in this regard are undoubtedly more effective than those of most developing countries, but the challenge remains important.

5.1.3 Social impacts of traded goods

The 11th FYP sets a target of increasing trade in goods from \$142 billion in 2005 to \$230 billion in 2010. But it also focuses on changing the mode of growth, from sheer growth in quantity to an improvement in quality. This evolution has already been going on, as China's domestic capacity to produce input goods increases, the share of processing trade decreases, and technologically sophisticated goods account for a growing share of China's exports.⁶⁶

But if China's international trade is to play its full potential role in supporting the social aspect of sustainable development, it still has far to go in this direction. In a detailed summary of the challenges ahead, Ministry of Commerce Vice-Minister Wei Jianguo has argued that China's current export pattern is strongly characterized by "low-level, low-grade, few brands and low return."⁶⁷ While China's share of processing trade is decreasing, it still accounts for some 55 per cent of exports, and for many products China does not control R&D or marketing, but merely acts as

⁶⁵ Henson, Preibisch and Masakure (2001).

⁶⁶ Li and Syed (2007).

⁶⁷ Wei (2006).

manufacturer.⁶⁸ The problem with this mode of trade is that the greatest rents in the supply chain accrue not to the manufacturer but to those controlling the marketing and the technology - the owners of the internationally recognized brands.

This means, first, that less income accrues to China as a result of trade than would otherwise. In general, higher levels of income contribute to social sustainability, though it matters to whom that income accrues. It also may mean that the quality of employment is less than it otherwise would be, involving overwhelmingly unskilled labour and repetitive or dangerous tasks.

A separate but related challenge is to ensure that the evolution of China's trade patterns contributes to increased *quantity* of employment. It remains to be seen whether a move away from a factor-intensive growth model can be made to do this or whether it will in fact aggravate the problem. It is predicted that there will be a shortage of some 10 million jobs over the period of the 11th FYP, as the population over 16 grows (by 5.5 million per year), migrant workers add to the urban workforce (6.7 million in 2006) and the continuing reform of state-owned enterprises further swells the ranks of those looking for work.⁶⁹

5.2 Sustainable Trade in Services

Chapter 4 of the 11th FYP sets ambitious targets for the development of China's services sector and trade in services. By 2010, value added in the services sector as a percentage of GDP should have grown 3 per cent over 2005 levels. And by 2020, value added from the sector should reach 50 per cent of GDP, up from just under 40 per cent in 2006, with service exports reaching \$400 billion by 2010.

This push is in recognition of the varied benefits that such a restructuring might bring for China, including support for a competitive exporting sector, industrial upgrading and a further decoupling of economic growth from environmental damage.

Much of the discussion below centres on investment, although there is a separate section on investment (Section 5.3) that follows. One of the key modes of services trade is through investment (so-called Mode 3, or commercial presence), as when a foreign investor establishes a service-providing business in China. As such, it is not possible to talk about trade in services without at the same time talking about services-related investment.

A schematic diagram of the framework as it applies to sustainable trade in services is shown below in Figure 3.

⁶⁸ *Ibid*; Zheng and Wang (2007).

⁶⁹ Liu (2007).

5.2.2 Environmental impacts of services trade

Many services have few if any environmental impacts, being benign labour-intensive economic activities. But this cannot be said of all services. By far the two largest elements of China's traded services are transportation (mostly commercial sea transport) and tourism, which together accounted for 60 per cent of exports and 58 per cent of imports in 2006 (see Figure 3).

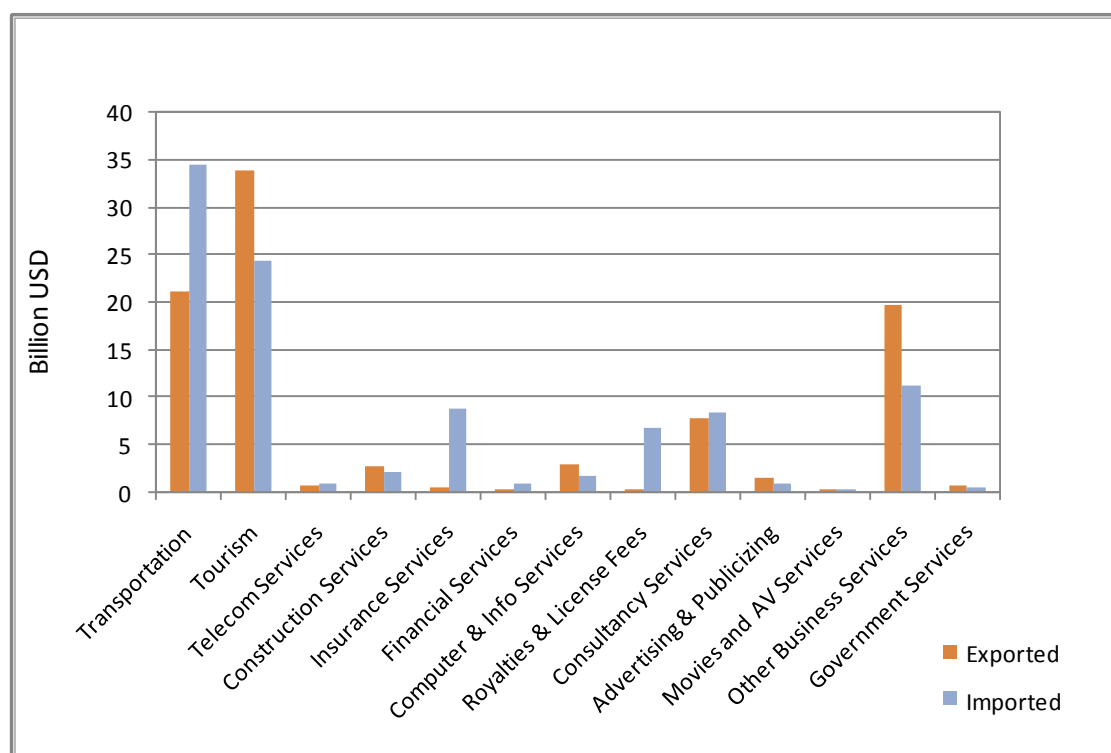


Figure 3: China's trade in services (2006)

Unlike business services or financial services, for example, these two sectors can in fact be environmentally damaging. Existing modes of transport rely exclusively on polluting fossil fuels, though sea transport is the least environmentally damaging of the widely available alternatives. And tourism, if unsustainably managed, has been shown to have serious environmental consequences in terms of demand for resources and degradation of visited locales, though there has been little empirical analysis of the impacts in China.⁷⁰ In the end, however, while there are clear and important differences between the various activities that fall under the heading of services, the tertiary sector overall is believed to have a lighter environmental impact than primary or secondary sector activities,

⁷⁰ For an early and comprehensive survey of environmental and social impacts of tourism, see WWF (2001). OECD (2007) cites tourism as one of the major forces for habitat destruction and erosion of biodiversity in China, while also noting its potential to bring in revenue to support the wildlife and habitat that tourists want to see.

and thus growth in this sector is seen as a desirable way to uncouple economic growth from environmental damage. From an empirical perspective, however, a better target for growth would be those specific sub-sectors within the services sector that are shown to consume few resources and create little pollution.

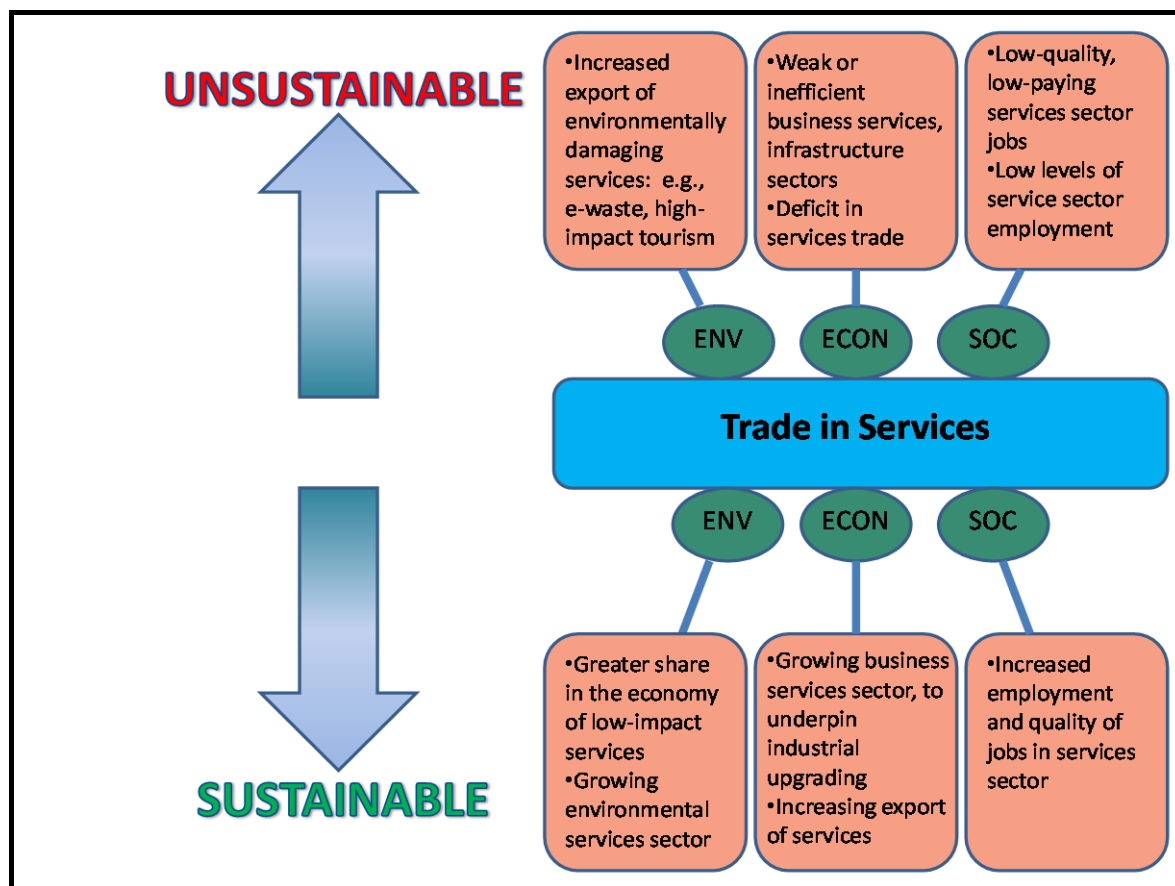


Figure 4: Sustainable trade in services

A notable exception to the good environmental reputation enjoyed by services trade is the “export” of waste management services via the import of hazardous waste or recyclable materials. The Ministry of Science and Technology reports that over 70 per cent of home electronics discarded in developed countries eventually make their way to China, of which only about 10 per cent is recycled.⁷¹ The remainder are subject to crude methods of dismantling and decomposition that emit large amounts of toxic gases and contaminated wastewater. WEEE is a particular concern due to the significant toxicity of the contents, such as lead and cadmium.

Efforts to lower the environmental impact of this type of export of services have been undertaken, such as the regulation and restriction of imports of certain types of waste under the *Law on Prevention*

⁷¹ Cited in Wang (2007).

and *Control of Environmental Pollution by Solid Waste*, the efforts by State Environmental Protection Administration and the General Administration of Customs to combat illegal traffic in WEEE, and the release of the draft *Regulation on Recycling of Used Home Electronics* by the State Development and Planning Commission in 2004. But there is still a long way to go, both in promulgating legislation and in its implementation.

Environmental services can be expected to result in environmental *improvements*. These can include, for example, environmental assessment; environmental monitoring; remediation of environmental disasters; and engineering consulting on projects dedicated to environmental improvement, such as wind energy infrastructure. To the extent that this type of service is available in China at prices and quality comparable to that available internationally, liberalization of this part of the services sector will have little impact on environmental quality. If, however, better price and quality are available abroad, liberalization will have positive impacts.

From a perspective that is broader than environmental, however, there is a tension between the desire to develop this sector domestically and the desire to open it up to immediately bring in the best of what is available internationally. Economic development might be better served by fostering the growth of those sectors domestically, particularly as there may eventually be export markets for such services. As such, the 2000 Chairs' Report to the China Council for International Cooperation on Environment and Development, delivered in the run up to WTO accession, recommended: "To make environmental services in China mature and developed as soon as possible, and to meet the need of China's increasing environmental protection needs, China needs to open this sector gradually."⁷² But from an environmental perspective it is not clear whether a long-run strategy of domestic excellence or an immediate opening to global excellence would be more effective.

5.2.2 Economic impacts of services trade

China's services sector has traditionally been in a position of deficit with respect to other countries and in recent years that deficit has been increasing. China's balance of services trade in 2001 was a deficit of US\$5.93 billion, but by 2006 this had increased to US\$8.83 billion. As shown in Figure 4, the primary export is tourism, followed closely by transportation (most of which is sea transport). And the primary import is transportation, followed closely by tourism. Other important imports are consultancy (which is also exported), royalties and licensing fees, and insurance services.

From a purely balance of payments perspective, it would make sense to try to increase exports of services, keeping in mind that there may be mitigating environmental and social concerns. This desire to "close the deficit" is at least in part responsible for the ambitious objectives laid out in the 11th FYP with respect to services.

⁷² CCICED (2000).

Probably of greater concern, however, was the need for a strong services sector as a support for domestic industry and as a part of an overall strategy for industrial upgrading. There is strong evidence that a country's services sector affects economy-wide growth.⁷³ Business services (such as finance, legal, information and distribution services, and infrastructure services such as communications and transportation) are essential underpinnings of productivity in a modern economy. Repeated studies have shown that openness to Mode 3 investment in these areas results in higher rates of economic growth overall - not just in the opened sectors. China's drive to upgrade its manufacturing sector in particular will depend on high-quality, low-price services.

As with environmental services, the tension is between cultivating domestic excellence in those services sector (which might mean slower growth in other sectors, at least in the near-term, but would temporarily shelter domestic firms from negative employment shocks) and opening up to global excellence with more immediate results for service-dependent sectors. Since joining the WTO, and in the process of regional integration, China has made great strides in opening up its services sector to foreign investment, but more could be done yet if it were decided that liberalization were an appropriate part of a sustainable trade strategy.⁷⁴

5.2.3 Social impacts of services trade

The two most important types of social impact that services trade might have are changes in quality and quantity of employment. These potential benefits depend, however, on the characteristics of the services in question. The many types of economic activity covered under the banner of services trade are hardly a homogeneous bunch. Some will be more labour intensive, while others will provide better quality jobs.

The key question is: what impact will trade policy have on services sector activity and, specifically, what policies can increase the export of services that create more and high-quality jobs? With respect to trade policies and liberalization of services trade, there are two scenarios.

In the first scenario, liberalization of services trade leads to the import of services that create more and better jobs for China. Typically, labour intensive services such as hospitality and retail services provide high employment levels, but it is an empirical question whether these are high quality jobs or not. Less labour intensive services such as finance, insurance, business and information technology tend to be unquestionably high-quality jobs, but may employ fewer people per unit of output.

⁷³ For good overviews of the literature, see Hoekman (2006), and Hoekman and Mattoo (2008).

⁷⁴ Mattoo (2002).

To add another layer of complexity to the issue, there is a tension between indigenous growth of services sector firms (a long-term proposition in many cases - which might be fostered by maintaining barriers to certain services sector trade) and the import of services (which might initially imply greater employment levels). Another consideration is the fact that domestic development of the relevant sectors will eventually lead to export of those same services, which also has employment implications.

The second scenario depends on the dynamic discussed above - the ability of a vibrant services sector to underpin industrial upgrading. This argument applies in particular to business services such as finance, as well as to infrastructure services in areas such as telecommunications. It can be argued that industrial upgrading does provide better and more jobs, and so whatever policies might lead to that end are good from a social perspective. Again, however, there is a tension between establishing such services domestically and allowing them to be imported - policies that imply very different policy decisions with respect to liberalization in the business service sector. There is also the consideration that domestic development of services might lead eventually to their export, if they can become internationally competitive.

In the end, there are several possibilities. The key decision is probably whether to develop a domestic services sector or to follow a path that allows for the import of services. The answer will differ from service to service and needs to be informed by an assessment of the potential for China to become competitive in the provision of any given service.

5.3 Sustainable Foreign Direct Investment

Investment is integrally linked to trade in several ways. Most obvious, a sizeable amount of foreign investment is used as a platform for manufacturing, which relies on imported intermediate goods, the output of which is often exported.

A sustainable trade policy for China cannot ignore the role of investment as a fundamental contributor to trade and as a determinant of the character of trade flows. Nor can it ignore the influence that outward investment might have on China's exports. This second issue is explored in Section 5.4, while this section is devoted to analysis of foreign direct (inward) investment. A schematic diagram of the framework as it applies to sustainable foreign direct investment is shown in Figure 5.

China's record on foreign direct investment (FDI) is remarkable. At almost US\$70 billion in 2006, China's FDI was the highest of any developing country (a distinction it has held since 1993), accounting for over 18 per cent of all developing country inflows.⁷⁵ The recent years' figures are

⁷⁵ UNCTAD (2007).

more than double the annual average inward FDI from 1990-2000.⁷⁶ Some 70 per cent of this investment is concentrated in manufacturing.⁷⁷

The challenge for China is to ensure that these considerable flows contribute to the goals enunciated in the 11th FYP and other stated objectives for sustainable development. From an environmental perspective, it is important to ensure that the FDI China receives is in sectors that align with the stated priorities for environmental improvement (low energy, low resource inputs and low waste production). From an economic and social perspective, the challenge is to encourage investment that helps move China up the value chain and will provide safe, rewarding employment.

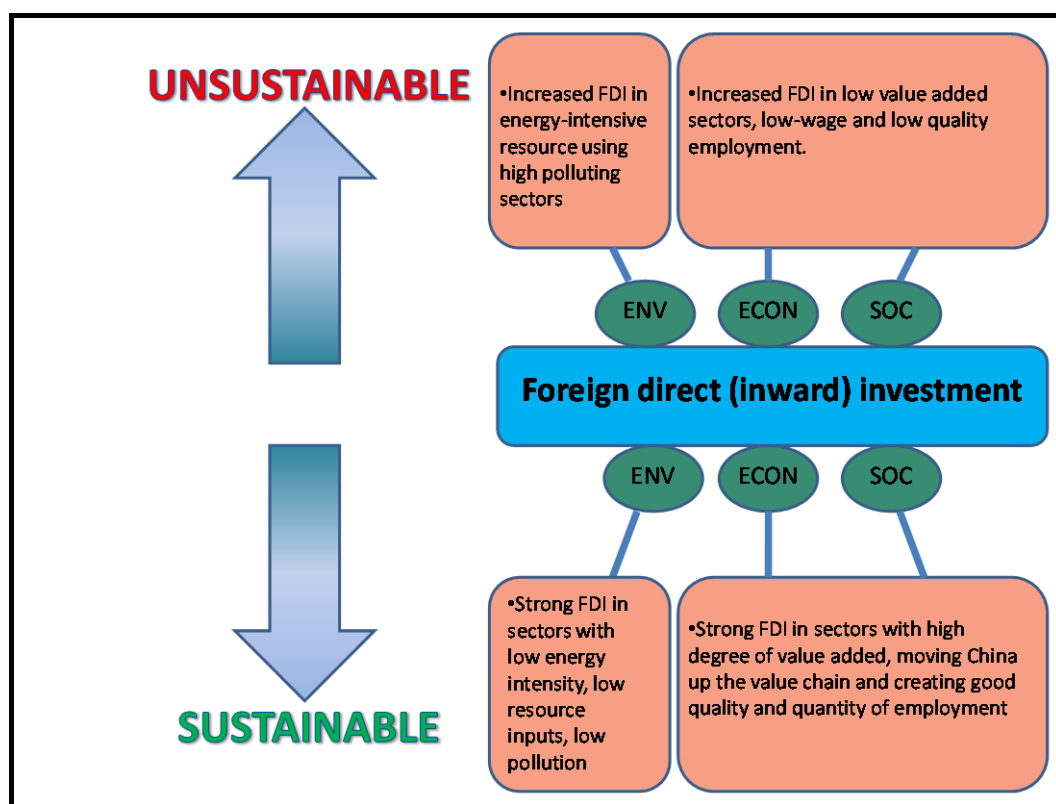


Figure 5: Sustainable inward FDI (foreign direct investment)

This is being done through measures that penalize or prohibit processing trade in certain categories. The most recently announced list of restricted categories (July 2007) covers 2,247 customs codes or some 10 per cent of all customs codes.⁷⁸ In part, the classifications are based on a desire to restrict operation of, and investment in, sectors that are highly energy consuming, highly polluting and resource intensive, as well as in those sectors where there is low value-added. These controls

⁷⁶ *Ibid.*

⁷⁷ OECD (2006), p. 38.

⁷⁸ MOFCOM/General Administration of Customs (2007).

function as *indirect* screening measures for FDI in that they discourage investment in penalized sectors.

China's ability to directly screen FDI is limited by obligations it has under various international investment agreements, including:

- the WTO's Agreement on Trade-Related Investment Measures, which prohibits performance requirements;
- the General Agreement on Trade in Services, which demands pre-establishment of national treatment in services sectors where it has been offered;
- over 100 bilateral investment treaties;⁷⁹ and
- investment provisions contained in various regional trade agreements.

While these obligations constitute real barriers to most types of screening that discriminate between foreign and domestic investors, discrimination on the basis of nationally-defined sustainable development objectives in the pursuit of environment, social and economic goals may be in line with China's various obligations, provided that domestic investors in like circumstances are similarly treated.⁸⁰

One of the key areas of interest is flows of FDI in the services sector, which is discussed above. It is important to remember that China's international obligations under investment law will limit the scope of what it can do to screen services investment. Some agreements (such as the Association of Southeast Asian Nations Investment Agreement) allow for national and most-favoured-nation treatment in the establishment of covered services for member countries - a provision that basically prohibits any form of screening.

5.4 Sustainable Outward Direct Investment

A schematic diagram of the framework as it applies to sustainable outward direct investment is shown in Figure 6. China's strategy of "going out" (*zouchuqu*), first proposed in 2000 and launched in 2002, encourages domestic enterprises to invest abroad. Selected non-state firms had been allowed to do so since the late 1980s, but policy measures in support of the strategy have given rise to a remarkable growth since 2002. Data on outward direct investment (ODI) are difficult to obtain and definitions vary from source to source, but the United Nations Conference on Trade and

⁷⁹ This includes 22 bilateral investment treaties (BITs) signed by Hong Kong Special Administrative Region of China and Taiwan Province, out of the 101 ratified agreements listed in UNCTAD's BITs database (valid as of June 1, 2008).

⁸⁰ There are, however, two obligations normally found in international investment agreements that are *not* relative to any domestic standard of treatment, but rather are absolute - fair and equitable treatment and obligations related to expropriation.

Development's World Investment Report puts Chinese ODI in 2005 at US\$68 billion.⁸¹ Several analysts suggest that official figures may significantly understate the extent of ODI.⁸² One analyst estimates that outbound investment from China rose by over 85 per cent per annum between 2000 and 2005.⁸³

Energy investments (primarily oil and gas) dominate the mix at 52 per cent with basic materials, telecommunications and consumer electronics following at 12 per cent, 9 per cent and 5 per cent respectively.⁸⁴ Motivations for ODI vary and include:

- securing supplies of energy and raw materials - for example, oil investments by China National Offshore Oil Corporation (CNOOC), Sinopec Corporation and China National Petroleum Corporation or China Minmetals Nonferrous Ltd.'s takeover attempt of Noranda Inc.;
- acquiring global brands to compete with global marketing networks - for example, Haier Global's bid for Maytag Corporation and Lenovo Group Limited's acquisition of International Business Machine (IBM) Corporation's PC division; TCL Group's joint venture deals with TV giant Thompson Company and cellular phone giant Alcatel; and
- acquisition of strategic technologies - for example, Huawei Technologies Co.'s acquisition of Marconi Corporation and Beijing Optoelectronics Technology Group Co. Ltd.'s acquisition of Hyundai Display Technology Inc.

There are two reasons for a focus on the conduct of Chinese investors abroad. First, their conduct will reflect, positively or negatively, on the "China Brand," affecting the market for China-made exported final and intermediate goods. Second, their conduct will influence the receptivity of governments to further investment, particularly in the form of mergers and acquisitions in key sectors.

⁸¹ UNCTAD (2007).

⁸² Frost (2005), Hong and Sun (2006), and Deutsche Bank (2006).

⁸³ Deutsche Bank (2006).

⁸⁴ *Ibid.*

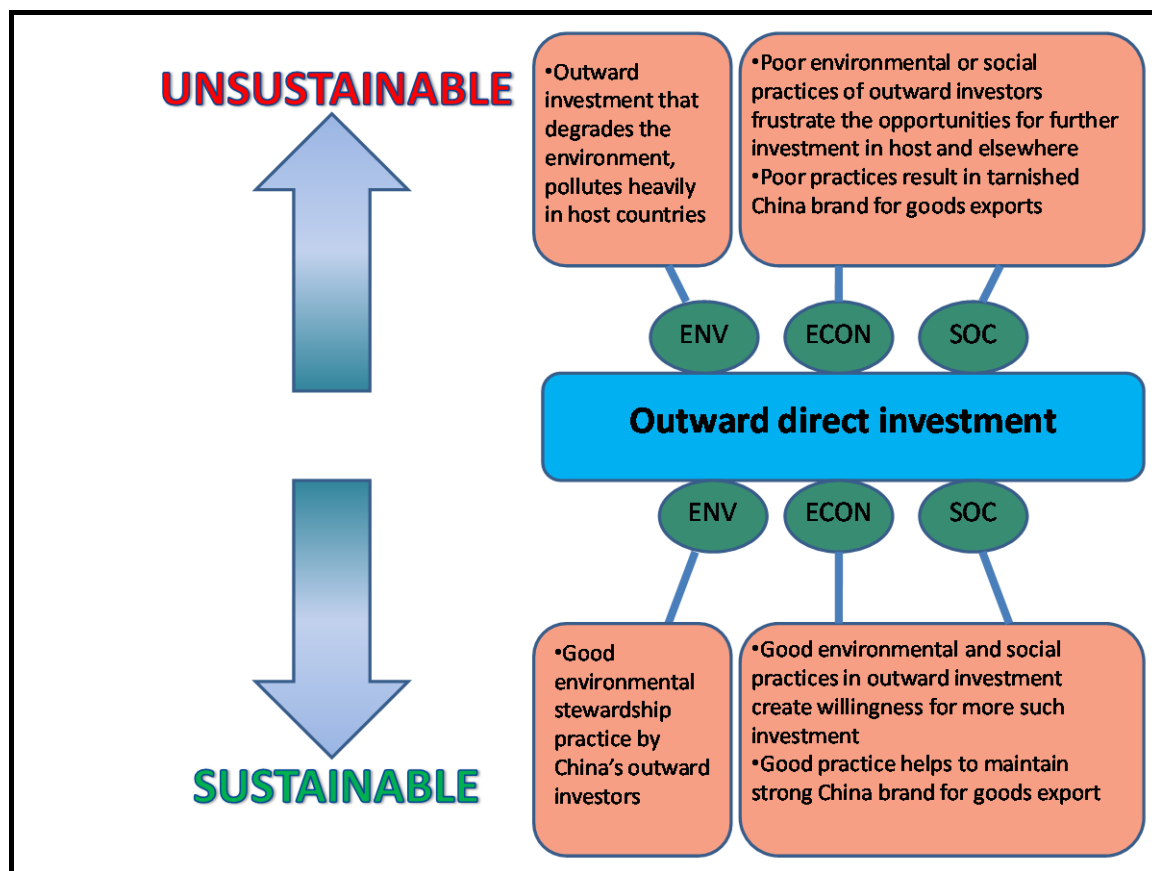


Figure 6: Sustainable outward direct investment

The China Brand is essentially the composite impression that consumers (final consumers and commercial buyers) have about China, formed by a flow of information from scattered sources, primarily featuring the mass media. While there are a number of exemplary corporate citizens among China's outward investors, there are also some whose conduct may jeopardize the reputation of the country as a whole. In a cross-country assessment of "responsible competitiveness," China placed the lowest of the BRICs (fast-growing developing economies - Brazil, Russia, India and China).⁸⁵ It scored relatively high in the policy category, but poorly in business action and social enablers, meaning government action was commendable, but was not matched by similar actions on the ground. Treatment of workers and environmental responsibility are clear areas of importance and can strongly affect consumers' readiness to buy China-made goods. The issues here fall into a mix of the three categories of environment, economic or social. The environment impacts of foreign investment are important in their own right. The possible economic and social effects of any poor environmental and labour practices are also important; anything that makes consumers less likely to buy China's exports is worthy of concern.

⁸⁵ AccountAbility (2007).

The second area of concern is also linked to China's reputation and influenced by the conduct of investors abroad. If China and its investors are badly perceived, there will be political resistance to further Chinese acquisitions abroad. This sort of resistance may already have contributed to the unsuccessful bid by CNOOC for Unocal Corporation (U.S.), the blocked takeover bid for Noranda Inc. (Canada) by China Minmetals Nonferrous Ltd. and the similarly blocked bid by Huawei Technologies Co. Ltd. for 3Com Corporation (U.S.). The larger the investment, the more vulnerable it might be to this sort of problem; it is noteworthy that the Unocal and Noranda deals were the first and third largest Chinese outward mergers and acquisitions based on announced value between 2002 and 2006.⁸⁶ This sort of trend has significant implications for social and economic objectives, given that one of the clearest strategies available to Chinese firms for moving up the value chain is through foreign acquisitions.

There are not many precedents for home state action to ensure the responsible conduct of its investors abroad. One policy lever being increasingly used in OECD countries is conditional lending by export credit agencies and mandatory environmental impact assessments for projects of certain size in certain sectors.⁸⁷ There have also been several attempts of late to have U.S. outward investors held legally liable for aspects of their conduct abroad.⁸⁸ In the end, while it is clear that this is an important area of focus, there is probably a need for more research on the actual conduct of China's ODI enterprises, and on the impacts that conduct may have on perceptions of China as an exporter and investor.

5.5 Precedents for a Sustainable Trade Strategy

There are few precedents on which to draw in creating a sustainable trade strategy for China, as no country has set out to undertake such an exercise before. There are, however, partial precedents that are instructive.

Most countries pursue trade strategies that are designed to foster economic growth and a few also aim more broadly to improve a variety of social welfare indicators as well, such as employment and income levels. But none has yet gone further to consider the strong links between the economic and social progress and the environment.

Environmental policy as well may be crafted to go beyond environmental improvements to broader sustainable development objectives. Germany and Japan, starting in the 1990s, adopted tough

⁸⁶ Deutsche Bank (2007).

⁸⁷ OECD's June 2007 "Recommendation of the OECD Export Credit Working Group" benchmarks a range of ECA procedures against World Bank practice and includes a requirement for environmental impact assessment.

⁸⁸ This is through use of the *US Alien Tort Statute* (28 U.S.C. § 1350). See Lee (2006) for a summary of the jurisprudence on this statute.

environmental regulations aimed at fostering environmental efficiency and waste minimization. While these were, on the face of it, environmental measures, they in fact had the express aim of also improving the economic efficiency of the regulated firms. Edda Müller, chief aide to Germany's Minister for the Environment, put it most succinctly: "What we are doing here is economic policy, not environmental policy."⁸⁹ The hope was that the firms would become more efficient as global competitors and also would be able to export their solutions to firms in other regulated countries that came after them. The foundation for this hope is the central theme of the much-argued "Porter Hypothesis," which postulates that tough regulation actually fosters competitiveness.⁹⁰ The mass of literature that the hypothesis has formed seems to lend some credibility to its tenets.⁹¹ Whether the hypothesis has validity or not - a question that is beyond the scope of this paper - the intent of the German and Japanese strategies was clearly to use national environmental policy to foster sustainable development more broadly. There are parallels to this effort in the proposal for China to foster sustainable development through its trade policy.

At the sectoral level there are also partial precedents of this type. Denmark, for example, has been extremely successful in fostering a wind turbine sector that not only provides for 19 per cent of its energy consumed (the world's highest level), but also powers a vibrant export sector.⁹²

These sorts of examples abound and provide instances of economic or environmental policy that serves all the goals of sustainable development. But none of them is as comprehensive as what is proposed in this analysis and thus the lessons to be taken from them are less directly relevant than they could be.

This is both good and bad news. On the negative side, it means a lack of experience and expertise on which to draw in formulating the details of such a strategy. On the positive side, it means that any such move by China would be a pioneering effort and properly managed would garner the kind of public attention internationally that would again contribute to the goals of sustainable development.

⁸⁹ Cited in Moore (1992, p. 20).

⁹⁰ Porter and van der Linde (1995).

⁹¹ For an extensive survey of the literature see Wagner (2003).

⁹² Only part of this success, though, can be attributed to deliberate sectoral strategies. See Krohn (2002).

6.0 The Nature of Change: Guidance for Policy Recommendations

The papers produced as a companion to this one will consider in greater depth the challenges of a sustainable trade strategy for China in various sectors. Each will consider the challenges inherent in the status quo, and the type of policies that might be brought to bear in harnessing trade and investment as a more powerful engine of sustainable development. In this closing section of the paper, three types of change are described, all of which are legitimate responses to the challenges described in those papers, but all of which imply very different approaches.

Faced with any sort of challenge, three distinct strategies are possible:

- **normalization:** meet the requirements of international norms, complying as necessary
- **exceptionalism:** opt out of meeting such norms and expectations, arguing that you are an exceptional case
- **transformation:** change the nature of the game by the force of your actions, working to transform international norms to better suit your realities

Normalization is a straightforward compliance response. Challenges are identified (for example, Chinese firms have trouble meeting foreign and international standards; exports are dominated by processing trade) and efforts are made to meet the norms required to surmount those challenges. In the area of standards, for example, these might take the form of technical assistance or better information flow about foreign standards from national contact points to domestic firms. Normalization has the advantage of being relatively easy to identify and implement, but the disadvantage is it leaves the operator always slightly behind the wave of evolving requirements.

Exceptionalism argues that in some ways China is an exceptional case. Existing international norms of sustainable development may be inappropriate for Chinese firms that would, under this strategy, seek to develop their own norms and practice or continue to adhere to traditional ones. This is a strategy of opting out of the international rules and norms.

Transformation involves a fundamentally different strategy. It would involve actually seeking to change the rules of the game, to adapt them such that they more closely follow to the Chinese realities. In the area of standards, for example, this might involve Chinese influence on the making of collaborative international standards or it might mean Chinese influence in forums such as the Codex Alimentarius, the International Standard Organization or the WTO. In the area of regional trade agreements (RTAs), this might mean creating a new template for RTAs that does not follow established practice in key areas. This strategy involves a careful study of the existing regimes, a

thorough knowledge of the interests of the country and a strategic vision of how to bring the two together. The potential benefit of transformation is that it achieves requirements that better suit national circumstance. The downside is that it can only be achieved by an actor that has enough clout to demand change and it involves pioneering efforts - difficult to envision and implement because of their novelty.

In the papers drafted as part of this project, policy recommendations will fall into these three categories. It is hoped that this brief taxonomy will help in choosing which of those recommendations are most suitable for China as it pursues its sustainable trade strategy.

7.0 A Research Agenda

The foregoing analysis has explored the key issues for China as it considers the nature and implications of a sustainable trade strategy. In the course of that analysis, it becomes clear that there is a need for deeper understanding of several issues to inform policy makers. That is, even where there may be desire to formulate and implement a sustainable trade strategy for China, there is a need for more supporting policy analysis to inform such a process. Some of the key areas for future research are laid out below. This is not an exhaustive list, but it tries to capture from the preceding discussion those areas that are of particular interest.

The discussion on trade in goods made it clear that China has significant interests in a “China Brand” that can be significantly affected by its performance on international standards. This argument was also echoed in the discussion on China’s outward investment. There are really two related lines of research needed here. The first deals with standards set by foreign governments (technical regulations, in trade parlance), primarily set in the context of trade in goods and applicable to China’s exports. In this area, there is a need to better understand first the state of those standards with respect to current Chinese practice. Are they in fact a barrier given current practice? Which sectors have been particularly successful or troubled in meeting such standards? Are the standards suited to Chinese realities? As well, there is a need to explore the relationship between the domestic regime for standard setting and the capacity of domestic firms to meet foreign standards, searching for ways in which the domestic regime might contribute to better performance at the international level. As well, it is important to understand better the role domestic standards regimes might play in assessing foreign standards.

The second line of research with respect to standards concerns the growing body of standards laid down at the international level by non-governmental actors. These standards, which are typically created by a mix of civil society and private sector actors, seem to be emerging as just as important as technical barriers laid down by governments - a sort of soft power regime of governance that firms are increasingly expected to play in. How significant are these sorts of standards; what are the trends? Have Chinese firms been actively engaged in their creation? What is the best strategy for Chinese firms in addressing such standards and what role can the government play in facilitating that strategy?

The discussion on trade in goods, particularly exported goods, repeatedly comes back to the need to alter the structure of Chinese productive activity, in particular the manufacturing sector. The argument was made that an industrial upgrading might benefit the environment through greater efficiency, benefit the economy through a move up the value chain to more profitable activities, and improve social conditions through higher quality better paying employment. But the question

remains how this is to be accomplished. There is a clear need for an in-depth picture of China's manufacturing sector, and its potential for upgrading, with particular attention to the notion of "clean upgrading." There is solid experience at the international level on which to draw in discerning best practice in this area.

In the same vein, the discussion above made frequent reference to areas of policy and regulation that lay quite outside the goods and services producing sectors, but which nonetheless had significant influence on the performance of China's trade activities. An important lesson of the analysis is that trade policy has to be concerned with policy in other areas as well. A key example is energy policy, given that energy production and use determines industrial competitiveness, drives environmental impacts and has real implications for public health. It would be useful for China's trade policy makers to explore best practice in regulatory instruments for such sectors, based on domestic and international experience.

The discussion of services trade in this paper makes it clear that the services sector is key for any China sustainable trade strategy. Services have clear impacts on domestic levels of economic development and employment through their direct effects as economic activity. And perhaps more important they underlie China's hopes for industrial upgrading; there are demonstrated links between the availability of business services such as telecommunications, transport and finance and the strength of a country's industrial sector. But several questions remain. Given the importance of business services, would a strategy of liberalization in these sectors best serve China's needs, or would it be better to develop indigenous services capacity? What are the implications for balance of trade in services of the two options and what are the near and long-term economic considerations?

Finally, an overarching question raised by the preceding discussion concerns China's engagement at the regional and multilateral levels in international trade agreements. Given the need for a sustainable trade policy, and China's ascension as a regional and world leader in a model that it has more or less created for itself, what are the implications for China's relations with its immediate region, where its imports and exports are a significant factor in its neighbours' sustainable development prospects? Similarly, at the multilateral level, how should China's pursuit of its own path to sustainable development affect its role and positions at the WTO? Does the current state of negotiations at that level have implications for China's regional engagement strategies?

This is not an exhaustive list of the research questions that derive from the analysis in this paper. It is rather a selection of what seem to be the key needs for deeper understanding to underlie elaboration and decision making on China's sustainable trade strategy.

8.0 References

Aguilar, S., Ashton, M., Cosbey, A. and Ponte, S. (2010). “Environmental Goods and Services Negotiations at the WTO: Lessons from Multilateral Environmental Agreements and Ecolabels for Breaking the Impasse.” Bali to Copenhagen Working Paper No. 3. Winnipeg: IISD.

AccountAbility (2007). *The State of Responsible Competitiveness 2007: Making Sustainable Development Count in Global Markets*. London: AccountAbility.

Barboza, D. (2007). (*The New York Times*). “An Export Boom Suddenly Facing a Quality Crisis.” May 18.

Bertelsmann Stiftung (2007). *Who Rules the World? The Results of the Second Representative Survey in Brazil, China, France, Germany, India, Japan, Russia, the United Kingdom, and the United States*. Berlin: Bertelsmann Stiftung.

CCICED (2000). “Continue to Promote Trade and Sustainable Development: 2000 Annual Report to CCICED by the Chairs.” China Council for International Cooperation on Environment and Development.

Cohen, D. (2007). “Earth’s Natural Wealth: An Audit,” *New Scientist*, Issue 2605, May 22, pp. 34-41.

Cosbey, A. (2004). *A Capabilities Approach to Trade and Sustainable Development: Using Sen’s Concept of Development to Re-Examine the Debates*. Winnipeg: IISD, 2004.

CLSA Asia-Pacific Markets (2005). “China Eats the World: Sustainability of the Dragon’s Appetite for Resources.” *Investment Strategy Report*, Spring.

Cui, L. and Sayed, M. (2007). “The Shifting Structure of China’s Trade and Production.” *IMF Working Paper No. 214*. Washington, DC: International Monetary Fund.

Deutsche Bank (2006). “China’s Overseas Investments.” Strategy Focus Research Report. December 7.

Dobriansky, P. J. (2002). “The World Summit on Sustainable Development: beginning a new chapter in sustainable development history.” Washington, D.C.: U.S. Department of State, Available from <http://usinfo.state.gov/journals/itgic/0402/ijge/gj02.htm> (accessed October 2008).

Frost, S. (2005). “Chinese Outward Investment in Southeast Asia: How Big Are the Flows and What Does it Mean for the Region?” *The Pacific Review*, Vol. 13, No. 3, pp. 323-340.

Gemmel, C. (2006). *The State of Scotland’s Environment in 2006*. Scottish Environmental Protection Agency.

Government of British Columbia (2004). *The State of British Columbia’s Forests 2004*. Victoria, Canada: Government of British Columbia.

Henson, S., Preibisch, K. and Masakure, O. (2001). “Review of Developing Country Needs and Involvement in International Standards-Setting Bodies.” (working paper). Centre for Food Economics Research, Department of Agricultural and Food Economics, University of Reading.

Hoekman, B. and Mattoo, A. (2008). “Services Trade and Growth.” *World Bank Policy Research Paper* No. 4461. Washington, World Bank.

Hong Eunsuk and Laixiang Sun. 2006. “Dynamics of Internationalization and Outward Investment: Chinese Corporations’ Strategies.” *The China Quarterly*, Issue 187, pp. 610-634.

HSBC (2007). *HSBC Climate Confidence Index 2007*. Available at: http://www.hsbc.com/1/PA_1_1_S5/content/assets/newsroom/hsbc_ccindex_p8.pdf

IEA. 2008. *World Energy Outlook 2008*. Paris: IEA.

IEA. 2007. *World Energy Outlook 2007*. Paris: IEA.

IEA. 2006. *World Energy Outlook 2006*. Paris: IEA.

IPCC (Intergovernmental Panel on Climate Change) (2007). *Climate Change 2007 – Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Fourth Assessment Report of the IPCC.

IUCN (2007). *2007 Red List of Threatened Species*. Gland: IUCN - the World Conservation Union.

Jackson, T. (2008). “What Politicians Dare Not Say.” *New Scientist*, Vol. 200, No. 2678 (18 October), pp. 42-43.

Jones, J. (2008). “In the U.S., 28 per cent Report Major Changes to Live “Green.” Gallup News Service, April 18, 2008.

- Lee, Thomas H. 2006. "The Safe Conduct Theory of the Alien Tort Statute," *Columbia Law Review*, Vol. 106, No. 830, pp. 830-908.
- Lipton, E. and Harris, G. (2007). (*The New York Times*). "In Turnaround, Industries Seek US Regulation." September 16.
- Liu, Y.. (2007). "China's Labour Market and Proactive Employment Policy." *OECD Seminar on Labour Markets in Brazil, China and India*. March 28.
- Mattoo, A. (2002). "China's Accession to the World Trade Organization: The Services Dimension, Vol. 1" *World Bank Policy Research Working Paper* No. 2932. Washington: World Bank.
- Mattoo, A., Rathindran, R. and Subramanian, A. (2001). "Measuring Services Trade and its Impact on Economic Growth: An Illustration." *World Bank Policy Research Paper* No. 2655. Washington: World Bank.
- Millennium Ecosystem Assessment (2005). *Ecosystems and Human Well-being: Synthesis*. Washington, DC: Island Press.
- MOFCOM/General Administration of Customs. 2007. "Promulgating List of Commodity Restricted for Processing Trade." Announcement No. 44, 2007. July 26.
- Moore, C. (1992). "Down Germany's Road to a Clean Tomorrow." *International Wildlife*. Sept./Oct. OECD (2007). *Environmental Performance Reviews: China*. Paris: Organisation for Economic Cooperation and Development.
- Myers, N. and Knoll, A. (2001). "The biotic crisis and the future of evolution" *Proceedings of the National Academy of Sciences USA*, Vol. 98, Issue 10, pp. 5389-5392.
- Porter, M. and van der Linde, C. 1995. "Toward a New Conception of the Environment-Competitiveness Relationship." *Journal of Economic Perspectives*, Vol. 9, No. 4, pp. 97-118.
- PRCEE (Policy Research Centre for Environment and Economy) (1999). "Trade and Environment in China." (Paper produced for the Trade Knowledge Network). Winnipeg: International Institute for Sustainable Development.
- Rubin, J. and Tal, B. (2008). "Will Soaring Transport Costs Reverse Globalization?" *StrategEcon*, May 27. CIBC World Markets Inc.

- Saad, L. (2007). "Environmental Concern Holds Firm During Last Year." Gallup News Service, March 26, 2007.
- SEPA/NBS (2006). "Green GDP Accounting Study Report 2004." Beijing: State Environmental Protection Agency/National Bureau of Statistics China.
- Surowiecki, J. (2007). "Troubled Waters Over Oil." *New York Times*, February 19.
- Tewari, M. and Pillai, P. (2005). "Global Standards and the Dynamics of Environmental Compliance in India's Leather Industry," *Oxford Development Studies* Vol.33, No. 2, June.
- UNCTAD (2006). *World Investment Report 2006. FDI from Developing and Transition Economies: Implications for Development*. Geneva: United Nations Conference on Trade and Development.
- UNCTAD (2003). *Trade and Environment Review 2003*. Geneva: United Nations Conference on Trade and Development.
- Wagner, M. (2003). "The Porter Hypothesis Revisited: A literature review of theoretical models and empirical tests." Centre for Sustainability Management, University of Lueneburg. December.
- Wang, S. (2007). (*China Daily*) "The Grim Reality of E-Waste Burden." January 1, p. 4.
- Wang T. and Watson, J. (2007). "Who Owns China's Carbon Emissions?" *Tyndall Briefing Note No. 23*. Sussex, UK: Tyndall Centre for Climate Change Research.
- Wei, J. (2007). "Vice Minister Publishes an Essay on the Prospect of China's Foreign Trade," Ministry of Commerce website, posted August 31.
- Willard, B. (2005). *The Next Sustainability Wave*. Gabriola Island, Canada: New Society Publishers.
- World Bank (2007a). "China at a Glance." (September 28). Washington, DC: The World Bank Group.
- World Bank (2007b). "East Asia 10 Years after the Financial Crisis." Accessed on November 15 2007 at <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/0,,contentMDK:21284107~menuPK:208943~pagePK:2865106~piPK:2865128~theSitePK:226301,00.html?cid=EXTEAPEMHalfYearly>

World Business Council for Sustainable Development (WBCSD). 2002. "Sector Projects: What difference are these projects making?" Geneva: WBCSD.

WTO (World Trade Organization) (2004). "Statement by China on Environmental Goods at the Committee on Trade and Environment Special Session Meeting of June 22, 2004." (TN/TE/W/42), July 6.

WWF (2008). *The Global Living Planet Index 2008*. Gland: World Wide Fund for Nature.

WWF (2001). "Preliminary Assessment of the Environmental and Social Effects of Trade in Tourism." (discussion paper). Gland: World Wide fund for Nature.

Xinhua (2007). "China Adjusts Export, Import Duties to Narrow Trade Imbalance." Tuesday, May 22.

Zeng, D. Z. and Wang, S. (2007). "China and the Knowledge Economy: Challenges and Opportunities." *World Bank Policy Research Working Paper No. 4223*. Washington, DC: World Bank.