



China's Steel Industry and Its Impact on the United States: Issues for Congress

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Summary

China's steel industry has grown significantly since the mid-1990s. China is now the world's largest steelmaker and steel consumer. In 2009, China produced over 567 million tons of crude steel, nearly half of the world's steel. That was 10 times the U.S. production.

The majority of Chinese steel has been used to meet domestic demand in China. However, as its steel production continues to grow, overcapacity is becoming a major concern to Chinese industrial policy makers, as well as steelmakers outside China. Although industry statistics indicate that the Chinese steel industry is not export-oriented, its consistently high output keeps U.S. steelmakers concerned that excess Chinese steel might overwhelm the global market once domestic demand is adequately met. These concerns become increasingly acute as the United States and the rest of the world are in the middle of a slow recovery from the economic recession started in December 2007.

The Chinese steel industry is highly fragmented, with more than 1,000 steel producers, which makes the domestic market highly competitive and difficult to control. Its growth also faces constraints such as dependence on imported iron ore and high energy consumption. The Chinese government has shown interest in stepping up its efforts to rein in steel overcapacity and to consolidate and restructure the steel industry. However, it remains to be seen if the government's efforts and measures are to produce sufficient or meaningful results.

The possibility of surplus steel from Chinese steel producers; their alleged questionable, if not illegal, trade practices; and the possibility of Chinese direct investment in the U.S. steel sector are all of major concern to the steelmakers in the United States.

Steelmakers in the United States believe that China's government subsidization of its steel (in the form of an undervalued currency, export rebates and/or quotas, subsidized financing, relatively weak environmental, labor, and safety regulations, etc.) is one of the key issues affecting the health of the U.S. steel sector. There have been multiple anti-dumping and countervailing cases in the United States against certain Chinese steel products, which suggests that U.S. steel producers and trade officials are increasingly using trade remedies to enforce international trade laws.

The rise of China's steel sector, along with other manufacturing industries, presents issues beyond trade law enforcement. China's quest for industrial raw materials is having considerable effect on global demand and supply, and as a result, the prices and availability of such inputs. China's restrictions on exports of some raw materials, allegedly, lower the cost of such raw materials in the home economy, while increasing global prices of these products (or diminishing global supply), thereby producing an unfair advantage in some manufacturing industries.

Amid the rising trade cases against various Chinese steel imports, Congress became increasingly concerned over alleged unfair trade competition from China. In August 2010, legislative measures were introduced in the Senate (S. 3725), while a set of measures focusing on illegal import practices were proposed by the U.S. Commerce Department, both aiming to continue the rigorous and more effective enforcement of U.S. trade laws.

This report provides an overview of China's steel industry and discusses the issues and implications with regard to the U.S. steel sector.

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Introduction

China has become an increasingly prominent economic and political power, especially during the first decade of the 21st century. Since 1978, the year that officially marked the beginning of China's economic reform, China and its steel industry have experienced rapid economic development. In the 31-year time period between 1978 and 2009, the real GDP growth rate of China averaged 9%.¹ China's emergence as a major economic power is a key factor in understanding and forecasting the global steel markets and prices.

The global economic downturn, which began in December 2007, has considerably dampened industrial growth in developed countries. However, China continues its rapid economic development, in part propelled by the government's fiscal stimulus package aimed at building infrastructure and spurring domestic demand. China's economic growth in the second half of 2009 and in early 2010, reportedly, was fueled by a massive increase in bank lending.²

Questions remain concerning how long China can manage to sustain such rapid economic growth rates. Concerned about an overheated economy, which could result in high inflation, the Chinese central government recognized the need for a measured slowdown of its economic growth. In mid-April 2010, the Chinese government introduced a package of measures to discourage property speculation and, therefore, to prevent a possible property market bubble. Meanwhile, the central government also ordered the banking sector to limit lending to local government infrastructure projects.³

What concerned the U.S. steel industry and, to a certain extent, all non-China steelmakers, is that as China adds new and modernized steel capacity, it will be used increasingly to export surplus steel as domestic demand is met. Such concerns are exacerbated by stagnant steel demand in the United States, as the overall economy is still in a slow and fragile recovery from economic recession. Moreover, U.S. steelmakers have long alleged that Chinese steel and steel product exports are not only unfairly subsidized but also employ questionable, if not illegal, trade practices.

The issues for Congress include (1) whether China's steel capacity is being expanded beyond its domestic needs and being dumped on world markets; (2) whether Chinese control on exports of critical industrial inputs, such as rare earth metals, provides an unfair advantage to Chinese steelmakers and other manufacturers; (3) what actions, if any, should be taken to ensure that the Chinese currency exchange rate does not provide an unfair advantage to Chinese steel exporters; and (4) whether the U.S. government has sufficient resources allocated to combat attempts to evade trade duties, ensure the safety of imported products, and enforce U.S. trade laws.

¹ World Steel Dynamics, *Chinese Steel Hits the Great Wall, Core Report H* (May 2009), p. 13.

² *Ibid.*

³ *Financial Times*, "All eyes on Beijing to drive world growth," July 12, 2010.

Overview of China's Steel Industry

China's steel industry, along with a number of other key industries such as the automotive, textile, and petrochemical industries, is considered critical to the overall performance of the Chinese economy. The steel industry is considered a barometer of the overall economy. Similar to its automotive industry, China's steel industry is relatively young, with a humble beginning.

In 1949, the year the People's Republic of China was established, China's crude steel output was a negligible 158,000 tons. Chinese steel production then was highly concentrated in the northeast region, largely because of the Japanese influence and occupation before and during World War II. In the 1950s, with assistance from the former Soviet Union, which borders the northeast region of China, the Chinese government started to build steelmaking capacity. By 1957, China's annual steel production was over 5.3 million tons.⁴

After the political rift between China and the Soviet Union, which withdrew its assistance in 1961, the Chinese economy underwent further disruption during the Cultural Revolution (1966-1976). Chinese steel development suffered a severe setback: steel output in 1970 was lower than in 1960.⁵

The Chinese economy went through stagnation, if not setbacks, during over two decades' interregnum from the time Mao came to power in the 1950s until his successor, Deng Xiaoping, began the economic reforms in the late 1970s. As the whole country opened up gradually to the world and adopted a more market-oriented approach, so did China's steel industry.

During the economic reforms, steelmakers not only began to adopt more advanced technology from foreign steel producers, but also started to welcome foreign investment and imports of raw materials. China's flagship steelmaker, now a major global producer, Shanghai Baosteel, was built in the late 1970s and early 1980s.⁶ In 2009, Shanghai Baosteel was ranked the second-largest steel manufacturer in the world (see **Table 1**).

In the 1980s, China was a major importer of foreign steel, since its domestic steel production was not able to keep up with domestic demand. Many industrialized countries, back then, concluded that China's principal significance in the global steel market had been as a huge market for exported steel, as noted in *Steel and the State*, a book on the steel industry in the 1970s and 1980s by Thomas Howell, William Noellert, Jesse Kreier, and Alan Wolff:

⁴ Institute of Industrial Economics, Chinese Academy of Social Science (CASS), *China's Industrial Development Report 2009* (Beijing, China: Economy & Management Publishing House, Sept. 2009 ed.), p. 248.

⁵ Howell, Noellert, Kreier, and Wolff, *Steel and the State, Economic Competition Among Nations Series* (Boulder, CO: Westview Press, 1988 ed.), p. 367; Institute of Industrial Economics, Chinese Academy of Social Science (CASS), *China's Industrial Development Report 2009* (Beijing, China: Economy & Management Publishing House, Sept. 2009 ed.), p. 251.

⁶ Baosteel corporate website (http://www.baosteel.com/group_e/02about/ShowArticle.asp?ArticleID=1384), as viewed on March 22, 2010; "About Baosteel Group Co.," a presentation prepared by Baosteel Co. Construction of Baosteel (also known as Baoshan Steel, and Baoshan Iron & Steel Co.) started in December 1978. The first phase of the project was completed in 1985 for steel production; the second stage in 1991; and the third in 2000. Japanese and West German steel companies participated in the early stage, as mentioned in Jim Mann's book, *Beijing Jeep: A Case of Western Business in China* (Boulder, CO: Westview Press, 1977 ed.), p. 66.

Chinese apparent consumption of crude steel in 1986 was 75.7 million metric tons, more than twice that of West Germany, but its production was only 51.9 million metric tons. The longstanding gap between Chinese production capability and demand has created the largest national export market in the world outside of the United States.... China has absorbed a substantial portion of the western world's surplus production.⁷

Table I. World's Top Steel Companies, 2009

Global Rank	Company	HQ Country	2009 Output (mmt)
1	ArcelorMittal	Luxemburg	77.5
2	Baosteel	China	31.3
3	POSCO	South Korea	31.1
4	Nippon Steel	Japan	26.5
5	JFE Steel	Japan	25.8
6	Jiangsu Shagang	China	20.5
7	Tata Steel	India	20.5
8	Ansteel	China	20.1
9	Severstal	Russia	16.7
10	Evrz	Luxemburg	15.3
11	U.S. Steel	United States	15.2
12	Shougang	China	15.1
13	Gerdau	Brazil	14.2
14	Nucor	United States	14.0
15	Wuhan	China	13.7
16	Steel Authority of India Ltd.	India	13.5
17	Handan	China	12.0
18	Riva	Italy	11.3
19	Sumitomo	Japan	11.0
20	ThyssenKrupp	Germany	11.0

Source: World Steel Association, *World Steel in Figures 2010*, p.8.

By the end of the 1980s, the rapid growth of the Chinese economy led to a sharp increase in steel demand, and China's continuing dependency on imported steel became "one of the important factors restricting the development of the national economy."⁸

One principal objective of China's seventh five-year plan was to grow steel production to 60 million metric tons by the end of 1990, and to 80 million tons by 1995. In reality, China surpassed these goals, producing 61 million tons of crude steel in 1989, and 95 million tons in 1995.⁹

⁷ Howell, Noellert, Kreier, and Wolff, *Steel and the State, Economic Competition Among Nations Series* (Boulder, CO: Westview Press, 1988 ed.), p. 366.

⁸ Ibid.

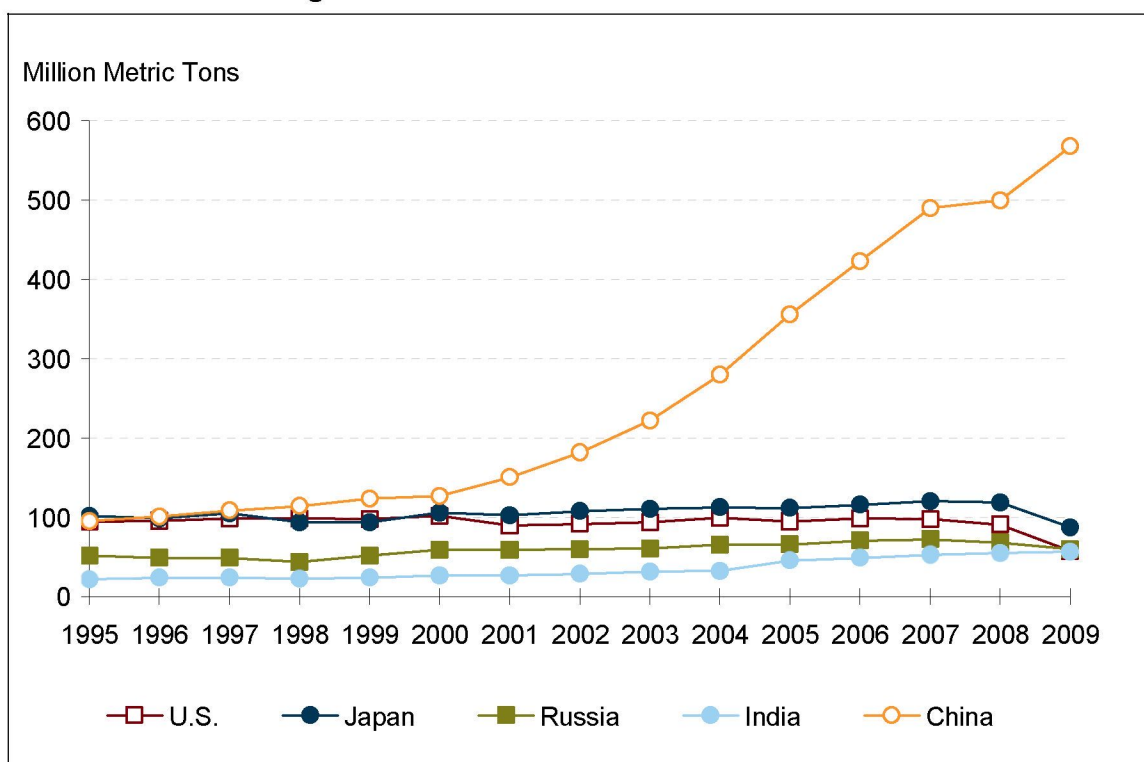
⁹ International Iron and Steel Institute (now World Steel Association), *World Steel in Figures 1990*, p. 3.

China Becomes Top Steel Producer and Consumer

In 1995, China's steel production reached 95 million metric tons (mmt), about the same amount produced by steelmakers in the United States that year. In 1996, Chinese steel output went beyond 101 mmt, passing the 100-mmt mark for the first time, as China overtook Japan to become the world's largest steel producer. China has held the title of the world's largest steel producer since 1996.

Figure 1 illustrates the speed and magnitude with which China has become the world's top steel producer, especially since 2000. In 2003, China produced 222 mmt of steel, more than United States' and Japan's combined output. In 2009, China produced about half of the world's steel, 10 times the U.S. production. One notable fact is, unlike most major steel-producing countries whose production was curtailed considerably due to the economic recession, Chinese steel output grew by 13.5% in 2009 from 500 mmt in 2008. In 2009, China accounted for about 46% of the world's total crude steel output, which represents a considerable increase from its share of 16% in 1999. This high production level was supported by China's domestic steel demand, spurred by strong economic growth during the first decade of the 21st century.

Figure 1. Crude Steel Production, 1995-2009



Source: World Steel Association.

The World Steel Association (formerly known as the International Iron and Steel Institute), an industry association representing steel producers globally, compiled a list of major steel producers in annual steel output tonnage. **Table 1** provides a list of the world's top 20 steel companies in 2009. It is worth noting that Chinese production rose sharply in 2009, while steel output in most industrialized countries declined. **Table 2** lists the top 20 steel-producing countries. In 2009, China produced 567 mmt of steel, 10 times as much as the United States and over 6 times as

much as the world's second-largest steel producer, Japan. Six Chinese steel companies were among the global top 20 steel producers in 2009.

Table 2. Top Steel-Producing Countries, 2009

Rank	Country	Million Metric Tons of Crude Steel Production		
		2009	2008	% Change
1	China	567.8	500.3	13.5%
2	Japan	87.5	118.7	-26.3%
3	Russia	59.9	68.5	-12.6%
4	United States	58.1	91.4	-36.4%
5	India	56.6	55.1	2.7%
6	South Korea	48.6	53.6	-9.3%
7	Germany	32.7	45.8	-28.6%
8	Ukraine	29.8	37.3	-20.1%
9	Brazil	26.5	33.7	-21.4%
10	Turkey	25.3	26.8	-5.6%
11	Italy	19.8	30.6	-35.3%
12	Taiwan, China	15.9	19.9	-20.1%
13	Spain	14.4	18.6	-22.6%
14	Mexico	14.0	17.2	-18.6%
15	France	12.8	17.9	-28.5%
16	Iran	10.9	10.0	9.0%
17	United Kingdom	10.1	13.5	-25.2%
18	Canada	9.3	14.8	-37.2%
19	South Africa	7.5	8.3	-9.6%
20	Poland	7.1	9.7	-26.8%

Source: World Steel Association, *World Steel in Figures 2010*.

In 2009, the Chinese GDP growth rate was about 9%, an impressive number as most of the developed countries were still mired by the global economic recession. Many believe that such strong growth was largely, if not entirely, fuelled by the central government's stimulus package, which has resulted in large amounts of outstanding bank loans, exposing banks to greater default risks. Further, it has been reported that the local Chinese governments (e.g., provincial, municipal, etc.) were likely to default on 20% of their stimulus bank loans, since many loans had been assigned to projects that were never meant to make large profits.¹⁰ This, inevitably, raises the question whether China's rapid economic growth is sustainable.

Although the central government, reportedly, has been trying to rein in its overheated economy in 2010, the steel production in China during the first half of 2010 did not slow down. According to

¹⁰ *Financial Times*, "China banks resigned to defaults" (July 28, 2010).

World Steel Association statistics, China produced approximately 323 million metric tons of crude steel during the first half of 2010.

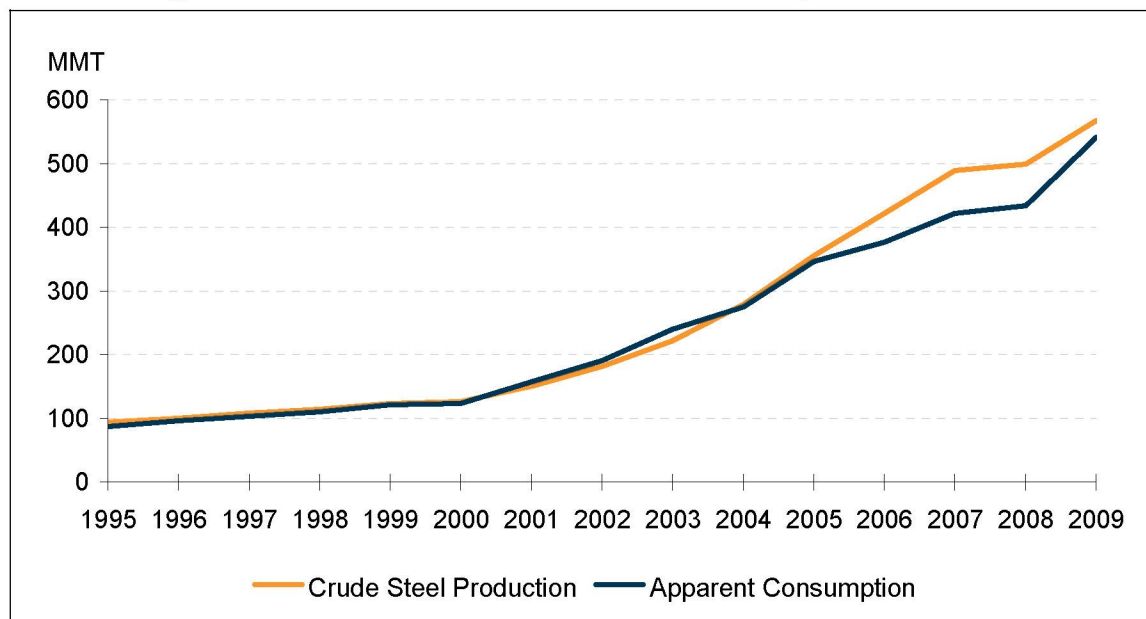
Steel Consumption and Capacity

During the course of China's rapid industrialization and urbanization, domestic demand for steel has increased. Commercial and residential construction, infrastructure building, and the rise in automobile sales, for example, all use significant amounts of steel. The major steel-consuming sectors in China are construction, automotive, shipbuilding, and home appliances.

Figure 2 illustrates the relationship between Chinese steel supply and demand between 1995 and 2009. As crude steel production continues to increase, especially from 2000, Chinese steel supply not only met domestic demand, but also began to outpace consumption.

According to the *Steel Statistics Yearbook* published by the World Steel Association, China imported more steel products (semi-finished and finished) than exported, which made it a net steel importer for decades, until 2005. In 2005, China became a net steel exporter, and has remained so in the years that followed.¹¹

Figure 2. Chinese Steel Production and Consumption, 1995-2009



Source: World Steel Association, *World Steel in Figures: 2005, 2008, 2010*.

As China's steel-producing capacity continued to increase, it did not take long to outpace the domestic consumption needs. This overcapacity problem became acute in 2006. By the end of 2008, China's steel capacity, reportedly, was 660 mmt, leaving approximately 160 mmt of excess

¹¹ According to *Steel Statistics Year Book* released by World Steel Association: China was a net exporter of steel products from 2005 to 2009. This was also the case for the first quarter of 2010. Available data for first quarter of 2010, released by World Steel Association, suggests that China exported 23.28 million metric tons (mmt) of semi-finished and finished steel product, while importing 8.735 mmt.

supply.¹² This degree of excessive capacity has adversely affected the overall profitability of the steel industry—every time steel prices started to attain profitable levels, steel mills with idle capacity would increase output, resulting in downward pressure on steel product prices.

Nevertheless, there has been lingering caution, if not fear, that the global recovery is not likely to be swift or as strong as expected. China's economic growth has been moderating from the fast pace set at the beginning of 2010. The Chinese government, reportedly, has been trying to cool down the economy and engineer a soft economic landing. There are indications that Chinese property prices are easing and the growth of car sales is slowing. In order to cope with sluggish steel demand and to minimize losses from unprofitable sales, many Chinese mills have opted to curtail output and/or maintenance outage in the summer months of 2010.¹³

China's Steel Industry Structure and Composition

China's steel industry has its own unique composition and structure.

The Chinese steel industry, from iron and steel production to distribution channels and service centers, remains highly fragmented. According to a news analysis released on the official website of the Chinese government, there are reportedly about 1,200 steel manufacturers in China, albeit the exact count seems hard to confirm. Among these 1,200 steelmakers, about 70 are considered large or medium-sized producers.¹⁴ The rest are small steel mills, many of which are not equipped with modern technology and often are inefficient and/or cause environmental problems.

Such a disaggregated structure, according to Chinese steel experts at China Iron & Steel Association, (CISA), has forced bigger steel manufacturers to expand production, often irrationally, to outweigh smaller competitors. Moreover, because steel companies tend to look after their own business interests, it has been difficult for large and small steel companies to form a united front and leverage bargaining power when negotiating price with international iron ore miners. The importance of iron ore supply and price will be discussed in further detail in a later section of this report.

Almost all major Chinese steel producers are state-owned, except Shagang Steel, which is the largest privately owned steel company in China. As a result, the company is not as vulnerable to foreign trade suits involving anti-dumping or government subsidies as some of the state-owned steel producers.

However, this does not imply that Shagang operates entirely in a market-oriented environment. According to World Steel Dynamics, an industry consulting and data services firm, even as a private enterprise, Shagang follows the guidelines that govern other Chinese steel companies:

¹² "Analysis: Containing steel production capacity is fundamental to the healthy growth of China's steel industry" (March 21, 2009) on the official website of The Central People's Government of the People's Republic of China, http://www.gov.cn/jrzq/2009-03/21/content_1264845.htm, as viewed on July 21, 2010. The author of this CRS report used the original Chinese-language version of the document.

¹³ *American Metal Market (AMM)*, "Chinese mills extend output cuts into Aug." (August 3, 2010).

¹⁴ "Analysis: To revitalize the steel industry, China must increase industry concentration rate" (March 21, 2009) on the official website of The Central People's Government of the People's republic of China, http://www.gov.cn/jrzq/2009-03/21/content_1264930.htm, as viewed on July 20, 2010. The author of this CRS report used the original Chinese-language version of the document.

business expansion programs must be approved by the central and/or local government; the local government collects a portion of its value added taxes; and the top management personnel of Shagang are Communist Party members.¹⁵

Supply of Key Steel-Making Raw Materials

There are two main steel production technologies: integrated steelmaking, which uses the blast furnaces (BF) and basic oxygen furnaces (BOF), and the electric arc furnace (EAF).

An important technological characteristic of China's steel production is that crude steel is predominantly produced in blast furnaces and basic oxygen furnaces, which makes iron ore and coke critical raw materials to the steel industry in China. China produces sufficient coal and coke in this regard. However, when it comes to iron ore, China relies heavily on imports.

The production of steel in integrated mills uses the classic BF and BOF technology. Iron ore, the principal ingredient to produce pig iron in blast furnaces, is layered with coke and limestone. Hot air is blown into the furnace, igniting the coke and melting the iron ore. The molten iron is then processed into steel by eliminating impurities in the BOF and, possibly, adding alloying agents.

According to statistics released by World Steel Association, nearly 91% of the crude steel produced in China, by tonnage, comes from integrated mills, which use iron ore as primary charge.¹⁶ Because domestic iron ore production in China, both in terms of quality and quantity, is not adequate to meet the growing steel industry demand, more than half of the iron ore has to be imported. This has put China in a sensitive, if not vulnerable, position with regard to iron ore supply and prices. On the other hand, the surging demand for iron ore and other raw materials by China also appears to have changed the world supply-demand relations.

Coal

Coke is one of the key raw materials in steelmaking. It is made by baking coal in an airless furnace or oven at high temperatures. As the primary reducing agent, coke reduces iron ore to molten iron.

As a major coal mining country, China is the world's leading supplier of coke. It remained a net exporter of coal until 2008, when the demand for coal to meet its energy and manufacturing needs outpaced the domestic supply. In 2009, China became a net importer of coal for the first time. It bought 104 million metric tons of coal, including both thermal coal (used to fire power plants) and coking coal.

This is not to suggest that the Chinese domestic coal production is insufficient. The reported Chinese annual output of coal was about 3.3 billion metric tons, the largest in the world. China's shift to coal imports indicates that as the nation continues its industrialization and urbanization efforts, the needs for energy and manufacturing resources have grown considerably and are likely to remain strong. Meanwhile, the shift also reflects, in part, a government-backed drive to

¹⁵ World Steel Dynamics, "Shagang Steel: World Class Steelmaker" (November 11, 2009).

¹⁶ World Steel Association, *Steel Statistical Yearbook 2009*, Table 7. Approximately 42% of crude steel produced in the U.S. come from BF / BOF; Germany, 68%; Japan, 75%; South Korea, 56%; India, 40%.

consolidate the coal mining industry in China as well as to shut down illegal and unsafe mines. The consolidation drive started in Shanxi province, China's leading coal producing province whose output accounts for more than 20% of the country's total, and is moving to other big producing regions. Through consolidation, the Chinese government aims to improve coal industry structure and efficiency by eliminating tens of thousands of small local coal mines where outdated equipment, lax safety records, insufficient investment, and inefficient management have resulted in inefficient use of coal resources.¹⁷

China is not the only force driving up world coal demand. India's rising coal needs, along with those of South Korea, Taiwan, and possibly Vietnam in the near future, are contributing to the upturn in demand.

China and the Global Iron Ore Market

Iron ore is the world's second-largest commodity market by value, after only crude oil. The way iron ore is traded has a huge impact on the global economy because any changes in the cost of ore are passed through to the price of steel and then to consumer products from cars to washing machines. On the other hand, ore price is critical too, for the profitability of the world's major mining companies such as Rio Tinto and BHP Billiton and leading steelmakers such as ArcelorMittal and Baosteel.

The world iron ore industry has become very concentrated, dominated by the so-called "Big Three": Brazil's Vale is the largest producer with approximately 310 mmt of capacity in 2009, followed by two big Australian mining companies: Rio Tinto with 220 mmt of capacity and BHP Billiton with 140 mmt. Almost all of their production is exported, and the "Big Three" command about a 75% share of the seaborne trade market.¹⁸ Therefore, the Big Three have controlling influence in determining global iron ore prices.

China, as the world's leading steel producer with ever-growing production capacity, feels it is crucial to secure iron ore supplies both globally and domestically, in order to plan, manage, and continue its industrial growth. China has become the major buyer of seaborne iron ore. Its ore imports have increased nearly eight times over the past decade, rising from about 70 mmt in 2000 to 628 mmt in 2009.¹⁹ In 2000, China accounted for about 16% of global iron ore imports. In 2009, it bought nearly 70% of global supplies.²⁰

Reportedly, China has an estimated 8,000 or more iron ore mines, but most of them are very small, and their production is not reliable. China has ramped up the domestic iron production in recent years. The total domestic iron ore output was about 180 mmt in 2009. However, small mines may be gradually closed during the 2010-2015 period, reducing the total production.²¹

Moreover, there exists a crucial constraint regarding iron ore production in China. Most of the Chinese domestic deposits are low grade hematite ores, with high impurities and a relatively low

¹⁷ *Financial Times*, "Commodities: A market re-emerges" (April 13, 2010).

¹⁸ World Steel Dynamics, *North American Iron Ore: Consolidated Survival*, p. 97.

¹⁹ World Steel Dynamics, *North American Iron Ore: Consolidated Survival*, p. 45.

²⁰ *Financial Times*, "Ore struck" (April 6, 2010).

²¹ *Ibid.*, p. 99.

iron content between 30% and 35%.²² Iron ore from Brazilian or Australian mines, by comparison, offers average iron content between 55% and 65%.²³

Until steel prices declined sharply in late 2008, iron ore traded only in limited amounts in the open market. Its key prices were set by annual contract since the 1960s. Starting in the early 2000s, China's rapidly expanding steel production and its demand for higher-quality ores transformed iron ore into a commodity in high demand on the global market. As a result, the 40-year-old annual benchmark system began to shift.²⁴

China started to play a leading role in the annual contract negotiations and set the price for 2008. In the 2009 negotiations, the Japanese steelmakers were the first to settle, accepting a 33% discount to the previous benchmark price with Rio Tinto in May 2009. Chinese steelmakers, represented by CISA (China Iron and Steel Association, representing 100 member companies), rejected the agreement and demanded a 45% price cut. China never agreed to a 2009-2010 contract price.²⁵

The Rio Tinto Case

On June 5, 2009, Rio Tinto abandoned plans for a \$19.5 billion capital investment from Chinalco, a Chinese state-owned miner which, reportedly, led to an embarrassment for the Chinese government. On July 5, 2009, the Chinese authorities detained four China-based Rio Tinto employees (dubbed the "Rio Four" by media), among whom three were Chinese nationals and the other was an Australian citizen with Chinese ethnicity. The Rio Four were accused of accepting bribes and stealing internal memos outlining China's negotiation plan. CISA accused them of undermining its position during the negotiations by revealing commercial secrets to Rio Tinto.²⁶

In mid-July 2009, the Chinese authorities broadened a corruption investigation of its steel industry in connection to the Rio Four allegation. This led to questioning and detention of a few Chinese steel industry executives on alleged widespread bribery in business dealings. There were also allegations that the four Rio employees paid for detailed government trade and industry data, which gave Rio Tinto an edge in iron ore negotiations with Chinese state-owned steelmakers and

²² Ibid. Hematite ores are generally hard to upgrade so they are often blended heavily with high-grade ores to provide good productivity for the blast furnace.

²³ U.S. Geological Survey, *Mineral Commodity Summaries* (January 2010).

²⁴ The U.S. steel industry is only indirectly affected by international iron ore supply and price developments. First, nearly 60% of steel in the U.S., by tonnage, is produced in electric arc furnaces (EAFs), which use ferrous scrap as primary charge. Second, in general, the U.S. integrated mills are supplied by major domestic iron ore producers in Michigan and Minnesota, as well as the eastern Canadian producers. Half of the iron ore capacity in North America is captively owned by two major steel companies, U.S. Steel and ArcelorMittal. According to U.S. Geological Survey, U.S. resources are mainly low-grade taconite type of ores from the Great lakes area, where three-quarters of the North American integrated mills are located. This proximity in location gives the major domestic iron ore producers an advantage over seaborne imports.

²⁵ Ibid.; *Financial Times*, "China rejects deal on iron ore price cuts" (May 31, 2009).

²⁶ Ibid.; *American Metal Market (AMM)*, "China has 'conclusive' proof of spying by Rio Tinto execs" (July, 2009); *AMM*, "Rio 'spying' case ensnares steel exec" (July 9, 2009); *Financial Times*, "Rio Executive held by China on suspicion of spying" (July 8, 2009); Bloomberg.com, "China detains Rio executive on suspicion of espionage" (July 8, 2009); *New York Times*, "China spy case linked to mining price dispute" (July 11, 2009).

subsequently derailed the process.²⁷ Two Chinese steel mill executives, reportedly, were charged with commercial espionage and bribery, fined, and sentenced to jail terms.²⁸

In March 2010, nine months after the Rio Four were arrested, a Shanghai court sentenced them to between 7 and 14 years in prison for bribery and commercial secrecy violations. Media were barred from the courtroom and parts of the trial were held in secret. With speculation ranging widely on the Chinese government's motivations in this case, the foreign business community inevitably questioned if the main impetus for the trial had been political.²⁹

Despite the strains, Rio Tinto apparently moved to repair its relationship with China. In March 2010, Rio and Chinalco reached an agreement to jointly develop an iron ore project in the western African country of Guinea. Chinalco is the largest shareholder of Rio, and China is Rio's largest customer for iron ore, having bought \$10.7 billion worth of iron ore in 2009 from Rio, which accounted for over 24% of Rio's sales.³⁰

Iron Ore Trade Moves to Quarterly Prices

The Chinese steelmakers, represented jointly by Baosteel and CISA, never concluded their iron ore price negotiations with the Big Three for 2009. The Australian miners, nevertheless, continued to supply China with ore at the prices settled by the Japanese and South Korean steel producers.

As demand for iron ore (among other minerals and natural resources necessary to fuel industrial development) from China and other developing countries continues to increase, the importance of commodities seems to rise as well, both economically and geopolitically.

The gap between China's soaring demand and its domestic iron ore supply has made China increasingly dependent on imports. While the highly consolidated iron ore suppliers would like to retain control over supply and prices, the Chinese are becoming more adamant that they should have certain leverage as a major buyer. Meanwhile, the strong growth in demand, generated by China, has led to the emergence of a global spot market. In late 2008 and early 2009, it was the difference between iron ore spot and contract prices that led to a wave of defaults on annual contracts.³¹

Steelmakers then walked away from their annual contracts and bought iron ore at much lower prices on the spot market. Such disruptions, perhaps also aided by the Rio Four case as well as the strained business relations between Chinalco and Rio, eventually led to the collapse of the annual contract system. In April 2010, a new quarterly price system was introduced by the miners. It uses

²⁷ *Financial Times*, "China detains local executive as steel espionage probe widens" (July 10, 2009); *Financial Times*, "Rio dispute in China widens with bribe claim" (July 16, 2009); *New York Times*, "China broadens investigation of steel industry" (July 14, 2009).

²⁸ *AMM*, "Mill execs to face charges in Rio case" (March 8, 2010); *AMM*, "Shougang exec eyes sentence appeal" (August 6, 2010).

²⁹ *Financial Times*, "Rio Tinto courts China as bribery trial begins" (March 22, 2010); *Financial Times*, "Rio sacks staff jailed by China for bribery" (March 29, 2010); Bloomberg.com, "Rio Tinto iron ore workers face Shanghai Trial today" (March 21, 2010); *Wall Street Journal*, "Rio Tinto appeal rejected" (May 18, 2010).

³⁰ *Ibid.*; *New York Times*, "Rio Tinto and Chinalco in Deal for Iron Project" (March 19, 2010).

³¹ For more details on the earlier price negotiations, see CRS Report R40541, *The Fall in Steel and Other Metals Prices: Issues for Congress*, by Rachel Tang.

quarterly contracts, rather than the annual deals, and the cost is determined by an average of the spot market level instead of through bilateral and lengthy negotiations with major steelmakers.³² The quarterly contracts, supposedly, will diminish the incentive for the steelmakers to default on annual iron ore contracts.

This new pricing system, which was put in place in April 2010, has survived its first quarterly test. But it is still to be tested under various conditions, for instance, with prices going up and going down. While many steel company executives reportedly prefer a return to annual pricing, both sides agree that the inevitable gap between spot and quarterly prices still means the system is under stress and that the way ore is traded is still to evolve.³³

Although the implication of the movement (from annual contract price to the more volatile quarterly price) to the Chinese steelmakers remains to be seen, it will add uncertainties to the Chinese steel industry, which operates in an arguably market-oriented environment. To mitigate these uncertainties and to counter the market dominance of the Big Three suppliers, the Chinese steel producers are very likely to become more vertically integrated by aggressively seeking and/or acquiring new iron ore assets and suppliers.

In July 2010, *China Daily*, a newspaper backed by the Chinese central government, reported that Wuhan Iron & Steel Group, China's third-biggest steelmaker, would buy iron ore from Venezuela at a long-term contract. The deal was hailed as the encouraging "first-ever contract under the 'China Price' separate from rates set by Big Three."³⁴

China's Quest for Iron Ore, Among Other Natural Resources

With the central government's encouragement and approval, China's major iron and steel manufacturers have been actively seeking to secure supplies of raw materials. This wave of "going global" from China is not restricted to iron ore. The world has seen an increase in these activities since the global recession took place, which has weakened demand and kept the investment prices more reasonable. Another important factor is that many mining companies and resources-rich regions are looking for financial investments in a tightened credit market.

China has emerged as a big buyer and investor seeking energy and mining assets all around the world. According to data tracker Dealogic, companies based in China or Hong Kong participated in \$13 billion of overseas mining acquisitions and investments in 2009, one-third of the value of all cross-border mining mergers and acquisitions. This was about 100 times the Chinese investment level in 2005. In 2009, Chinese firms accounted for nearly 40% of all mining deals with foreign investors in Australia, historically a major destination for Chinese mining investments. In Canada, a relatively newer attraction to Chinese buyers, the rate was about 25%.³⁵

³² *AMM*, "CISA admits defeat in benchmark row" (April 29, 2010); *Financial Times*, "Annual iron ore contract system collapses" (March 30, 2010).

³³ *AMM*, "Global iron ore trends spark concern" (May 11, 2010); *AMM*, "ArcelorMittal mulling 'model' switch to quarterly steel contracts" (May 12, 2010); *Financial Times*, "Iron Ore's quarterly pricing system passes first hurdle" (August 5, 2010).

³⁴ "Wuhan Iron & Steel snaps up Venezuelan ore" on the *China Daily* website, http://www.chinadaily.com.cn/m/hubei/2010-07/22/content_11037664.htm, as viewed on August 10, 2010.

³⁵ *Wall Street Journal*, "Chinese firms snap up mining assets" (July 20, 2010).

In May 2010, six of the world's biggest mining and steel companies joined in an exploration effort on an unprecedented scale in west Africa, where some of the world's richest deposits of iron ore are found. These groups are Vale of Brazil; Rio Tinto and BHP Billiton of Australia; ArcelorMittal, the world's largest steelmaker; Russia's Severstal; and Chinalco, the state-owned Chinese mining company.³⁶

The Chinese government has not made any explicit public push for overseas acquisitions. However, the government states clearly in its "Steel Industry Revitalization Plan" that it supports steel sector companies to further explore and develop domestic resources as well as to seek resources and invest abroad. Some support from the central government came in the form of state loans.³⁷ The acceleration of deals in recent years, many by state-owned enterprises, suggests that such acquisitions may be a priority.

Rare Earth Metals³⁸

While China relies on foreign sources for iron ore, it has predominant control over the mining of the 17 rare earth elements (REEs). These 17 elements are essential for the manufacturing of many high-tech products from iPods to fiber-optic cables and military weapon systems. They are also important for the development of green technologies, such as wind turbines, and batteries for hybrid and electric cars.

China produces about 95% of the world's rare earth metals. The United States was once self-reliant on domestically produced REEs but has become dependent on imports, over 90% of which come from China, because of lower-cost operations. The concentration of production of REEs outside the United States has raised the important issue of supply vulnerability.

China has established domestic production quotas on REEs and has been cutting down export quotas for rare earth since 2005. It also increased export taxes to a range of 15% to 25%, indirectly raising prices for non-Chinese competitors. In July 2010, China announced that it would reduce its REE exports further in the second half of 2010 by 72%, the latest move to restrict exports of the metals.³⁹

It appears that the aims of China's policy moves are not restricted to tight control over REE supply and prices. Similar to the encouragement from the Chinese government to promote exports of more value-added steel products, China seems determined to expand into the more profitable

³⁶ *Financial Times*, "Mining groups target west Africa" (May 18, 2010).

³⁷ *Financial Times*, "PetroChina secure \$30bn state loan to fund 'go global' strategy." (September 10, 2009). China Development Bank, reportedly, provided a five-year loan at discounted interest rate to fund PetroChina. The loan underlines the critical role that China Development Bank has been playing in the overseas expansions by Chinese companies. In 2009 it helped finance a \$25bn loans-for-oil supply deal with Russia and a similar \$10bn deal with Brazil. The bank also led the \$21bn syndicate of Chinese banks that backed Chinalco's failed bid for a Rio Tinto stake, which is mentioned earlier in this report.

³⁸ There are 17 rare earth elements, 15 within the chemical group called lanthanides, plus yttrium and scandium. For more details on rare earth metals, their supply issues, and the legislative activities, see CRS Report R41347, *Rare Earth Elements: The Global Supply Chain*, by Marc Humphries.

³⁹ Bloomberg.com, "China 'power' over metals for smart bombs prompts U.S. hearing" (April 15, 2010); *AMM*, "China's new rare earths quota increases US supply concerns" (July 26, 2010); "China reduces rare earth export quota by 72%" on the *China Daily* website, http://www.chinadaily.com.cn/bizchina/2010-07/09/content_10088082.htm, as viewed on August 16, 2010.

and sophisticated downstream REE processing sectors instead of just being world's supplier of raw materials. While accelerating the consolidation and restructuring of the fragmented REE mining industry, China has indicated that it expects foreign companies to set up rare earth processing plants in China in its so-called "technology for market" strategy.⁴⁰

The U.S. Congress is increasingly concerned about access to rare earth raw materials and downstream products used in many national security applications as well as clean energy applications. Legislative proposals H.R. 4866 (Hoffman) and S. 3521 (Murkowski) have been introduced in the 111th Congress to address the issues and to support domestic production of REEs.

For more details on rare earth metals, their supply issues, and the related legislative activities, please see another CRS Report R41347, *Rare Earth Elements: The Global Supply Chain*, by Marc Humphries.

China's Steel Industry Policies and Measures

As the growth of steel production and capacity accelerated between 2000 and 2009, the Chinese government has acknowledged its growing concern over industry overcapacity, which has become acute since 2006. This has added growing pressure on domestic steel prices and subsequently, the profitability of steel companies.

The central government has been pushing provincial and municipal authorities to phase out obsolete capacity, usually by setting a target of total plant closures for the entire country and then disaggregating to regional targets.⁴¹ The government also is keen on encouraging consolidations and technological upgrades, and improving the overall industry structure.

According to *China's Industrial Development Report 2009* by the Chinese Academy of Social Science, a state-backed think tank, China does not have sufficient natural resources and environmental capacity to be the world's steel supplier. Therefore, from a long-term perspective, the steel industry should focus on meeting domestic demand and never be export-driven. This may explain why export tax rebates on certain steel products were lowered or abolished by the Chinese government between 2007 and 2008, when export taxes were levied on certain export steel products.⁴²

However, with the global steel demand, the priority for policy makers is to keep the Chinese steel industry stable. *China's Industrial Development Report 2009* stated that the Chinese steel industry should keep its share on the global market stable by making appropriate policy adjustments, using, for example, export quotas, export rebates, and increased export rebate rates on high value-added products, etc.⁴³

⁴⁰ *Wall Street Journal*, "China dangles rare-earth resources in investors" (August 16, 2010).

⁴¹ World Steel Association, "The Chinese steel industry: a monthly update for Worldsteel members."

⁴² Institute of Industrial Economics, Chinese Academy of Social Science (CASS), *China's Industrial Development Report 2009* (Beijing, China: Economy & Management Publishing House, Sept. 2009 ed.), pp. 260-263. The author of this report used the original Chinese-language version of the report.

⁴³ *Ibid.*

The Steel Industry Revitalization Plan

In November 2008, the Chinese government unveiled its fiscal stimulus package worth RMB (¥) 4 trillion (U.S. \$586 billion), to boost domestic demand and avert an economic slowdown amid the global economic downturn. In 2009, the government announced a program of incentives to promote vehicle sales and home appliance trade-ins, which are considered major steel-consuming sectors.

In spring 2009, the State Council, China's cabinet, issued a set of three-year industry revitalization plans. These three-year plans provide the latest blueprint for the key industries deemed critical to the overall health of the Chinese economy. The plans for the auto and steel industries are the first that were approved and publicly released by the central government.⁴⁴

The Steel Industry Revitalization Plan (Steel Plan) was released on March 20, 2009. Some of the main objectives, as stated in the Steel Plan, are to modernize steel production through technical innovation and upgrades, control total output and eliminate obsolete capacity, improve industry structure and composition, and encourage global expansion while maintaining domestic market stability.⁴⁵

The Steel Plan reiterates the goal to contain production at a proper level through production control and elimination of obsolete capacity. The central government, according to the plan, aims to reduce steel output to 460 million tons in 2009, 8% lower than 2008, and to gradually increase production to 500 million tons in 2011.

However, China's reported steel production in 2009 was over 567 million tons, already 23% over the planned 460 million tons, and already surpassing the production goal for 2011. This obvious disconnect between the planned and real steel output raises the question about how realistic or believable these planned targets are.

In early 2010, aiming to shut down small and inefficient steel mills, the Chinese government ordered the closure of blast furnaces smaller than 400 cubic meters as well as converters and electric-arc furnaces under 30 metric tons. It is also reported that the central government plans to shut down 6 mmt of outdated steel capacity and 25 mmt of iron capacity in 2010.⁴⁶

In June 2010, facing a stagnant global steel market and a gradually cooling domestic economy, the Chinese government pushed ahead and ordered more steel capacity be closed by the end of September 2010. The government increased the previously planned 6 mmt of outdated steel capacity to 8.25 mmt and 25 mmt of iron capacity to 30.⁴⁷ It was also reported that some 40% of CISA's 77 member mills adopted maintenance outages in July 2010 to reduce output after domestic steel prices dropped below production costs. Several major Chinese steel mills,

⁴⁴ The US-China Business Council, "PRC Industry Revitalization Plans (As of May 28, 2009)," p. 1. The 10 critical industries identified in the PRC Industry Revitalization Plans are: auto, steel, equipment manufacturing, textile, shipbuilding, electronics and IT, light industry, petrochemical, logistics, and nonferrous metals.

⁴⁵ The US-China Business Council, "USCBC Summary of the PRC Steel Industry Revitalization Plan," p. 1. The author of this report also used the original Chinese-language version of the document, accessible on the official website of The Central People's Government of the People's Republic of China, http://www.gov.cn/zwggk/2009-03/20/content_1264318.htm, as viewed on July 12, 2010.

⁴⁶ *AMM*, "Chinese Premier vows to ax 6M tonnes of steel capacity" (May 7, 2010), p. 9.

⁴⁷ *AMM*, "Beijing orders more steel capacity cuts" (June 4, 2009), p. 9.

reportedly, would extend maintenance closures into August to manage output and minimize losses.⁴⁸

It appears that the central government is committed to restraining steel capacity growth. However, it may not be easy to strike a balance between curtailing steel capacity and maintaining an optimal industry growth. There is little certainty that steel capacity cuts will be in pace with the decline in Chinese domestic steel demand. Therefore, if and when these policy measures will bring effective and meaningful solutions to China's over-capacity problem remains to be seen.

The Steel Plan strongly encourages the industry to rapidly improve technology levels in steelmaking and become more environmentally friendly, in order to improve efficiency, reduce production costs, improve product quality, and optimize product offering structure.

The Chinese government calls for mergers and acquisitions among steelmakers and increases in the industry concentration rate. The goal is to have the top five steelmakers holding 45% of Chinese steel output. It names Baosteel Group Corp., Angang Steel Co. Ltd., and Wuhan Iron & Steel (Group) Corp. as the leading steelmakers capable of global competition.

The Steel Plan even provides guidance for the geographical location of steel production in China. One of the main objectives is to grow coastal and riverside steel manufacturers so that they would constitute 40% of national output. To reduce industrial pollution, the Steel Plan announces that steel companies in a few major cities would be relocated.⁴⁹

The central government calls for the steel industry to preserve the stability of iron ore imports and maintain market order. It also encourages steel manufacturers to further explore and develop local resources while supporting major enterprises that seek resources and investment opportunities abroad.

State Council Facilitates Industry Consolidation and Environmental Improvement⁵⁰

On June 4, 2010, China's State Council issued a circular to expedite industry consolidation and improve environmental performance in the Chinese steel sector. It reiterated the key components stated in the revitalization plan, and also introduced or updated some policy measures. A few key points include:

1. Rein in steel capacity expansion—There will be no more approval for new capacity expansion projects until the end of 2011; any obsolete capacity that has been shut down shall not be replaced.
2. Expedite capacity closures—Incentives and punitive measures, such as higher electricity prices, will be used to speed up closure of obsolete capacities; the

⁴⁸ AMM, "Chinese mills extend output cuts into Aug." (August 3, 2010).

⁴⁹ Steel companies in Beijing, Guangzhou (Guangdong Province), Hangzhou (Zhejiang Province), and Hefei (Anhui Province) will be relocated, according to the Steel Plan.

⁵⁰ World Steel Association, "The Chinese steel industry: a monthly update for Worldsteel members" (Issue 45, July 2010).

- Ministry of Industry and Information Technology (MIIT) will release a list of steel facilities to be forcibly closed.
3. Facilitate industry consolidation—The production share of the top 10 steel companies is expected to reach 60% by 2015 from 44% in 2009; provincial governments are asked to have a consolidation plan at the regional level to be implemented in 2010-2011, with supporting measures including land access and financial resources to be adjusted accordingly.
 4. Improve environmental performance by promoting environmentally sound technologies and practices; increase EAF-based steelmaking and improve recycling rate of scrap. As a measure to encourage more efficient use of technology and raw materials, Chinese trade policy will be adjusted accordingly to curb the export of low value-added steel products.
 5. Support investment in technological advancement and product development, especially projects by key steel manufacturers.
 6. Regulate iron ore import activities and increase concentration of Chinese importers. Secure stable ore supply and keep ore price at reasonable level by increasing domestic output while supporting steelmakers' investment in overseas mines.

It is notable that the circular listed trade policy adjustment under the objective of environmental improvement. This trade policy adjustment was issued in June 2010.

Tax Rebate Adjustment for Steel Products

On June 22, 2010, the Chinese Ministry of Finance and State Administration of Taxation jointly issued certain adjustment of steel export tax rebates. This removed the export tax rebate for key commodities, including some steel exports, effective July 15, 2010. Some believe the move was designed to ease tension with trading partners in the United States and the European Union, who have expressed increasing concern over China's steel export subsidies. It could also help to curb production overcapacity and speed up steel industry consolidation and restructuring, which the central government has tried unsuccessfully for years to achieve.⁵¹

The adjustment covers 406 products, non-ferrous metals, fertilizers, glass goods, and chemicals, etc. The existing 9% tax rebates are to be abolished for 48 steel products, including some heavy steel sections, plates, hot rolled coil, narrow strips, and coated products, etc. However, tax rebates for most of the high value-added products, such as steel pipes, cold rolled coil, and specialty steel, remain unchanged.⁵²

This is the first tax rebate adjustment for Chinese steel exports since 2009. From April 2009, tax rebates of some high value-added steel products, such as cold rolled steel, alloy steel, and specialty steel, had been raised to 13%. In June 2009, export tax rebates for some other steel products were increased from a range between 0% and 5% to 9%. These products included heavy

⁵¹ *Financial Times*, "China scraps commodity export tax rebates" (June 22, 2010); *The Economic Times*, "China to scrap export tax rebates on some goods" (June 23, 2010).

⁵² *Ibid.*; World Steel Association, "The Chinese steel industry: a monthly update for Worldsteel members" (Issue 45, July 2010).

sections, hot rolled coil, sheet, plate, narrow strips, most alloy steels, railway products, ductile pipes, a few seamless and welded pipes, and some steel-structured products.⁵³

Reportedly, the removal of export rebates and weaker steel demand did drive China's steel exports down in July 2010. Finished steel exports from China totaled 4.55 million tons in July, a 19% decrease from June 2010.⁵⁴ However, it remains to be seen whether the Chinese steel output will remain under control in the long term, especially when market conditions improve as the global economic recovery picks up speed.

The bottom line, it appears, is that the rebate rollbacks will cut exports of mostly low-end commodity-grade products. The effect will put more pressure on Chinese domestic steel producers and help the central government's goal of closing older and polluting steel mills.

Implications for the U.S. Steel Industry: Issues for Congress

Chinese steel is used mainly in its domestic market. What has concerned the U.S. steel industry is that, as China adds new and modernized steel capacity, it will be used increasingly to export surplus steel after domestic demand is adequately met. When China hits a period of overproduction and surpluses, a natural reaction would be to export the excess steel.

Steelmakers in the United States believe that China's steel industry subsidization by its government (in the form of an undervalued currency; export rebates and/or quotas; subsidized financing; and relatively weak environmental, labor, and safety regulations) is one of the key issues affecting the health of U.S. steel sector. There have been multiple anti-dumping and countervailing cases in the United States against Chinese steel products, suggesting that U.S. steel producers and trade officials are increasingly using trade remedies to enforce international trade laws.

In June 2010, China responded to heavy pressure by the United States and other members of the G20 major economies by announcing a more flexible currency standard. China's decision to drop the two-year-old informal peg to the U.S. dollar was welcomed by the United States and other trading partners.⁵⁵ But with the government's insistence on gradual change, the timing and the magnitude of the Chinese currency appreciation and, subsequently, any meaningfully positive impact on the U.S. (and the global) steel market still remains unclear.

For more detailed discussion on China's currency and related economic issues, please see another CRS Report RS21625, *China's Currency: An Analysis of the Economic Issues*, by Wayne M. Morrison and Marc Labonte.

⁵³ World Steel Association, "The Chinese steel industry: a monthly update for Worldsteel members" (Issue 33, July 2009).

⁵⁴ *AMM*, "Chinese finished steel exports down" (August 11, 2010).

⁵⁵ *Wall Street Journal*, "China eases currency peg" (June 20, 2010); For more detailed analysis of China's currency policy and the related economic and trade issues, see CRS Report RS21625, *China's Currency: An Analysis of the Economic Issues*, by Wayne M. Morrison and Marc Labonte.

Chinese Steel Capacity and Exports

China has been on course to modernize steel production through streamlining the steel sector via closures and consolidation. As mentioned in previous sections, the Chinese steel sector still faces the challenge of over-supply and over-capacity, despite the commitment and efforts of its central government to tackle the problems.

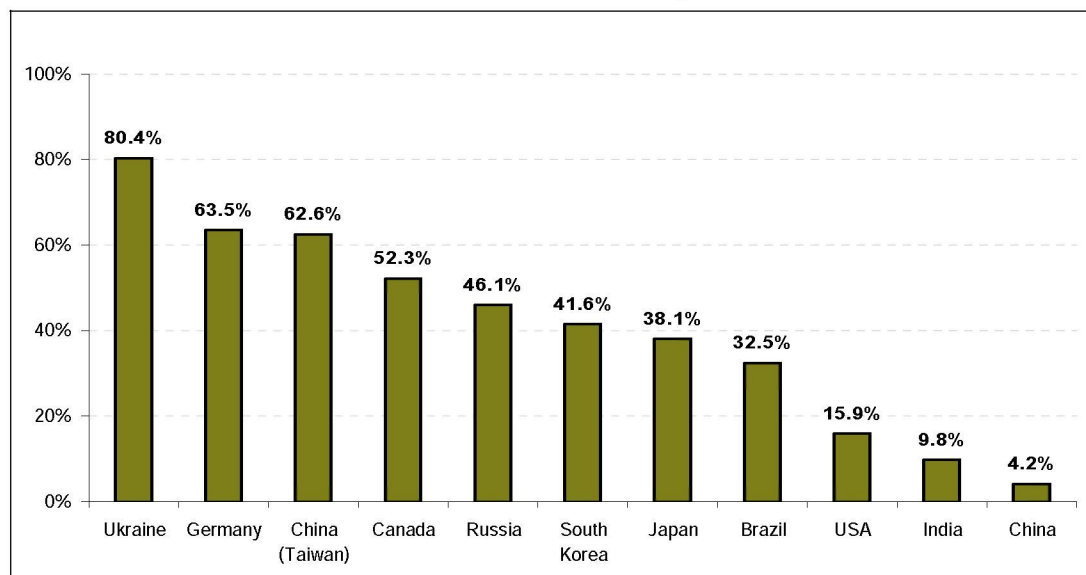
However, Chinese steel production does not appear to be export-driven. In other words, the majority of Chinese steel has been used to supply domestic economic growth. In 2009, largely spurred by strong domestic demand, China's exports fell about 60% from the previous year to 23 million tons, dropping its ranking as the top exporter in 2008. In 2009, Chinese steel exports by tonnage were behind Japan, the European Union, Russia, and Ukraine.⁵⁶ China's reported steel imports in 2009 reached 22 million tons, making the country the world's largest importer.⁵⁷

Figure 3 is based on the annual steel statistics released by the World Steel Association. It shows that the Chinese steel industry, along with those of India and the United States, is one of the three major national producers least dependent on exports. In the case of China, steel exports in 2009 were 4% of output, while in India they were less than 10%, and in the United States they were nearly 16%. Three leading Asian producers outside China (Japan, South Korea, and Taiwan) had export ratios as high as 38%, 41%, and 62% of their respective production in 2009. Russia and Canada exported about half of their output, Germany 63.5%, and Ukraine over 80%.

Between 2005 and 2009, China's steel exports as a percent of total production were between 4.2% and 13.5%, similar to those of the United States, which were between 10% and 16%.

Figure 3. Steel Exports by Country, 2009

As a Percent of Total Output



Source: World Steel Association, *Steel Statistical Yearbook*.

⁵⁶ World Steel Association, *Steel Statistical Yearbook*, pp. 65-66.

⁵⁷ *AMM*, "China ranks as top '09 steel importer" (April 9, 2010).

In terms of total steel mill products imported into the United States, by tonnage, over 30% came from the NAFTA countries (Canada and Mexico). In 2009, Canada and Mexico accounted for over 36% of the total tonnage of steel mill products imported into the United States, the European Union accounted for 16%, and China accounted for 9%, followed by South Korea's 8.2% and Japan's 7.5%. From 2005 to 2009, the Chinese share of total U.S. steel mill products imports has been between 7% (in 2005) and 15% (in 2008).⁵⁸

Even though steel industry statistics seem to agree with China's position that it has little intention of creating an export-oriented steel industry, the potential exists that with China accounting for nearly half of global output, marginal shifts by its steel industry in the direction of increased exports may lead to considerable market disruptions for other suppliers. As global steel demand remains sluggish in 2009 and into the first half of 2010, and Chinese economic growth slows down, the concern of U.S. steelmakers is that the U.S. market may see an increase in steel imports from China.

Steel Trade Development

Steelmakers in the United States have long claimed that Chinese steel and steel products are unfairly subsidized by its government. According to Steel Market Intelligence (SMI), a steel industry consultancy, and a Eurofer (European Steel Trade Association) report cited in SMI's newsletter, China supports its steel industry with a variety of mechanisms including grants, capital market interventions, preferential taxes, subsidized loans, access to below-market priced inputs, and nominal labor and environmental protection, among other mechanisms.⁵⁹

Chinese steel exports are assisted, SMI says, by an "intricate set of cascading value added tax rebates, export taxes, and even export quotas on inputs, plus tax cuts, export credits and other schemes provided by the Chinese state-owned financial institutions."⁶⁰

Anti-Dumping and Countervailing Case Against Chinese OCTG Imports⁶¹

On April 8, 2009, seven U.S. Oil Country Tubular Goods (OCTG) producers and the United Steelworkers Union (USW) filed complaints against Chinese OCTG imports, alleging that Chinese pipe has been illegally dumped and subsidized by the Chinese government, and therefore, has materially harmed domestic producers. This marks the biggest steel trade case brought against China before the U.S. International Trade Commission (USITC) to date, and is valued at about \$2.8 billion of subsidized Chinese steel.

Preliminary determinations by both the USITC and the U.S. Department of Commerce (USDOC) have ruled in favor of the U.S. producers in the countervailing case, saying that Chinese producers received subsidies, and placed countervailing duties ranging from 10.9% to 30.7%.

⁵⁸ American Iron and Steel Institute, Annual Statistical Report 2009, Table 20A, p. 53.

⁵⁹ Steel Market Intelligence, "ITC imposes duties on Chinese OCTG in final ruling" (December 30, 2009).

⁶⁰ Ibid.

⁶¹ Ibid.; USITC News Release 09-108, Inv. Nos. 701-TA-463 (Final) (December 30, 2009); *AMM*, "ITC votes to impose duties on China OCTG" (January 4, 2010); *AMM*, "ITC makes final anti-dumping ruling on Chinese OCTG" (May 4, 2010); *International Trade Daily*, "ITC ruling paves way for AD duties on OCTG from China" (May 4, 2010).

On November 24, the USDOC made its final determination on the countervailing case, lowering the average duties placed on Chinese producers to a range of 10% to 16%. On December 30, 2009, USITC issued a final ruling in favor of the U.S. domestic petitioners, affirming countervailing duties from 10% to 16%.

Meanwhile, the USITC and the USDOC also ruled in favor of the U.S. producers in the antidumping investigations, stating the Chinese companies were selling below fair market value. On May 4, 2010, following Commerce's April 9 final decision, the USITC issued its affirmative determinations, upholding antidumping duties ranging from 30% to 99%, which were placed on the OCTG imports from China.

The ruling of this high-profile trade case was welcomed and praised by the U.S. steel producers. The USW president, Leo Gerard, as quoted in *American Metal Market (AMM)*, said that the ITC vote "makes it clear to American pipe workers and industry that the U.S. government will stand up against China's violation of fair trade rules when domestic job losses and industry injury are clearly demonstrated."⁶²

Anti-Dumping and Countervailing Complaints Against Other Chinese Steel Product Imports

In 2009 and 2010, trade petitions against Chinese steel product imports have increased considerably. The U.S. Commerce Department and the USITC have separately granted a number of requests to impose tariffs on various categories of imports from China, after finding evidence that these products were subsidized and/or dumped in the U.S. market.

These subsidized and/or dumped Chinese steel imports include drill pipe,⁶³ certain seamless carbon and alloy steel standard, line, and pressure pipe,⁶⁴ steel grating,⁶⁵ and steel wire strand for pre-stressed concrete (PC wire strand).⁶⁶

In another anti-dumping and countervailing case against wire decking imports from China, the USITC ruled in favor of the Chinese producers. It determined that the U.S. producers of wire decking were neither materially injured nor threatened with material injury by Chinese imports,

⁶² *AMM*, "ITC votes to impose duties on China OCTG" (January 4, 2010), p. 2.

⁶³ *AMM*, "ITC to hear testimony vs. China drill pipe" (January 21, 2010); *AMM*, "Commerce lunches China drill pipe probe" (January 22, 2010); *AMM*, "Commerce blasts Chinese drill pipe with high preliminary margins" (August 6, 2010); *AMM*, "Commerce ruling hits China drill pipe" (August 17, 2010).

⁶⁴ *AMM*, "China pipe hit in Commerce decision" (February 25, 2010); *AMM*, "Commerce aligns China pipe probes" (March 22, 2010); *AMM*, "Chinese seamless line pipe slapped with anti-dumping margins" (April 26, 2010).

⁶⁵ *AMM*, "ITC sets hearing in case against Chinese grating" (February 24, 2010); *AMM*, "Chinese grating firm falsified documents in probe: Commerce" (June 4, 2010); *AMM*, "ITC votes 6-0 against China grating" (June 25, 2010); *AMM*, "China gratings safety probe sought" (July 27, 2010). During the investigations, USDOC found that a mandatory Chinese respondent had falsified mill test certificates on the raw materials used to make its grating. The U.S. grating producers became concerned with potential safety issues. They have written to OSHA (the U.S. Occupational Safety and Health Administration) and the U.S. Consumer Product Safety Commission, urging an investigation of steel grating now installed or held in inventory in the United States.

⁶⁶ *AMM*, "Duties set vs. Chinese PC wire strand" (May 19, 2010); *AMM*, "Chinese PC strands hurt U.S., ITC rules" (June 11, 2010).

and therefore imposed no anti-dumping or countervailing duty orders. This was the first steel product trade case of 2010 that went in favor of foreign producers or importers.⁶⁷

In August 2010, The U.S. domestic wire decking producers filed an appeal with the U.S. Court of International Trade (USCIT) in August 2010, challenging the July 1 decision by the USITC that unfairly traded imports of the product from China were not injuring U.S. manufacturers. The final ruling is pending.⁶⁸

Chinese Steel Plate Faces Anti-Dumping Circumvention Inquiry⁶⁹

On February 17, 2010, four major U.S. producers of carbon steel plate products asked the U.S. Department of Commerce to prevent another Chinese company from adding boron to steel plate in an alleged attempt to circumvent anti-dumping orders.

The domestic plate manufacturers accused Chinese producer Wuyang Iron & Steel Co. Ltd. and importer Stencor USA Inc. of importing cut-to-length plate products containing metallurgically insignificant amounts of boron in order to classify the plate as alloy product, which would be outside the scope of the anti-dumping order against certain cut-to-length carbon steel plate from China. It is alleged that the plate contains 0.0008% or more boron by weight.

On April 23, 2010, the USDOC initiated an anti-dumping circumvention inquiry based on the complaints from the U.S. producers. Commerce, according to a notice in the *Federal Register*, intends to issue a final determination within 300 days of the initiation notice.

In a similar case filed in 2008 involving two Chinese trading companies adding boron to steel so as to circumvent a U.S. anti-dumping order, Commerce issued a final determination in 2009 in favor of the U.S. producers.⁷⁰

China's Export Restriction of Certain Industrial Raw Materials

On November 4, 2009, the United States, the European Union, and Mexico jointly made a formal request to the WTO for a dispute settlement panel to address China's export restrictions on raw materials.⁷¹ The Chinese export restraints on numerous raw materials, allegedly, "significantly distort the international market and provide preferential conditions for Chinese industries that use these raw materials." The raw materials at issue are bauxite, coke, fluorspar, magnesium, manganese, silicon metal, silicon carbide, yellow phosphorus, and zinc, which are used by the steel, aluminum, automotive, and chemicals industries.⁷²

⁶⁷ *AMM*, "China wire decking said dumped in U.S." (January 6, 2010); *AMM*, "China wire decking margins lowered" (June 8, 2010); *AMM*, "Chinese wire decking makers land ITC victory" (July 2, 2010).

⁶⁸ *AMM*, "U.S. wire decking firms appeal ITC ruling" (August 30, 2010).

⁶⁹ *AMM*, "Chinese again said skirting plate order" (February 22, 2010); *AMM*, "China plate faces circumvention probe" (April 27, 2010).

⁷⁰ *AMM*, "Chinese boron plate under scrutiny" (July 10, 2009); *AMM*, "China boron plate traders tried to skirt duty" (August 14, 2009).

⁷¹ On June 23, 2009, the United States and the 27-nation European Union filed the initial complaint at the WTO. Mexico joined the consultations on August 21, 2009.

⁷² See USTR November 4, 2009, press release at <http://www.ustr.gov/about-us/press-office/press-releases/2009/> (continued...)

China, allegedly, imposes quotas on exports of bauxite, coke, fluorspar, silicon carbide, and zinc, as well as certain intermediate products incorporating some of these inputs. It also levies export duties on several raw materials and imposes other export restrictions through its export procedures.⁷³ The United States charges that such industrial policies are intended to lower raw material prices for Chinese manufacturers, especially in the steel, aluminum, and chemicals sectors, in order to help them obtain an unfair competitive advantage.

The WTO's biennial trade policy review for China, which was released in June 2010, suggested that the WTO was not entirely satisfied with the application of China's resource export controls, stating that "export restraints for whatever reason tend to reduce export volumes of the targeted products and divert supplies to the domestic market, leading to a downward pressure on the domestic prices of these products. The resulting gap between domestic prices and world prices constitute implicit assistance to domestic downstream processors of the targeted products and thus provides them a competitive advantage."⁷⁴

China claims that these measures are intended to conserve exhaustible natural resources and protect the environment. The final ruling on this WTO case is still pending.

Chinese Direct Steel Investment in the United States

China has been seeking to curb its steel overcapacity while maintaining stabilized growth. At home, the government appears to have expedited efforts to consolidate and restructure the industry. Overseas, it has encouraged steel producers to acquire and invest in mining, energy, and manufacturing sectors. While the majority of industrialized countries, including the United States, are slowly recovering from the economic downturn, such moves from Chinese companies could face challenges and resistance from the targeted company and/or its host country.

A proposed joint venture between one of China's leading steel producers and a U.S. steel company has drawn deep concerns from the U.S. steel industry as well as lawmakers.

In May 2010, China's Anshan Iron & Steel Group Corp. (Anshan, also known as AnSteel), a major state-owned steel manufacturer, announced its plan to invest in an Amory, Mississippi-based U.S. steel mill, Steel Development Corp. (SDCO). Anshan agreed to provide financial investment and to build five mini-mills in the United States, four of them to produce reinforcing bars and a fifth to make flat-rolled steel products. The Chinese producer said that it would like to gain insight into electric furnace technology, to obtain experience in lowering energy consumption, and to curb dependence on imported iron ore.⁷⁵

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november/united-states-requests-wto-panel-against-china-ov.

⁷³ Ibid.; *Wall Street Journal*, "U.S., Europe file trade complaint against China" (June 24, 2009); *Industry Week*, "U.S. asks WTO to rule on China's raw materials restrictions" (November 4, 2009); *Wall Street Journal*, "U.S. requests WTO dispute settlement panel vs. China" (November 4, 2009); Chinese Xinhua News Agency website, "China's restrictions on resource exports consistent with WTO rules: experts," (June 2, 2010), http://news.xinhuanet.com/english2010/china/2010-06/02/c_13329535.htm, as viewed on August 19, 2010.

⁷⁴ World Trade Organization, Document WT/TPR/G/230, "Trade Policy Review: China" (April 26, 2010), p. 44; Bloomberg.com, "World trade body questions rationale of Chinese raw material export limits" (June 1, 2010).

⁷⁵ *Wall Street Journal*, "Anshan to invest in the U.S." (May 18, 2010); *Bloomberg Businessweek*, "Anshan agrees to invest in steel project in U.S. for technology" (August 24, 2010); *AMM*, "Correnti's plans for five U.S. mini-mills (continued...)"

This infusion of investment capital from China has sparked controversy in the United States. The Steel Manufacturers Association (SMA) and the American Iron & Steel Institute (AISI) called on federal regulators to carefully examine the investment plan, raising concerns about the Chinese government financing in steel capacity and the lack of reciprocity that would allow a U.S. steel company to build similar manufacturing facilities in China.⁷⁶

On July 2, 2010, 50 members of the U.S. Congressional Steel Caucus wrote to Treasury Secretary Tim Geithner, urging that Anshan's joint-venture plan should be thoroughly investigated by the Committee on Foreign Investment in the U.S (CFIUS). CFIUS, the inter-agency committee headed by the Treasury secretary, formally conducts classified reviews of foreign takeovers of U.S. assets on security grounds and can recommend that the U.S. President block a transaction.

The caucus describes the proposed deal as a threat to "economic security," stating in the letter that the investment by a state-controlled Chinese company provides several unfair trade advantages to both the Chinese and to SDCO, and that it will eventually lead to the loss of American manufacturing jobs and the further migration of the U.S. manufacturing base. Worse, according to the Steel Caucus, the joint venture could give China "access to new steel production technologies and information regarding American national security infrastructure projects."⁷⁷

Debates over "economic security" are often built on the argument that U.S. companies cannot compete against foreign state-owned entities in the U.S. market that are viewed as having a limitless check book. In 2005, China National Offshore Oil Co. (CNOOC) launched an \$18.5 billion bid for Unocal, a California oil company. CNOOC withdrew the offer after strong opposition from U.S. lawmakers for fear that CNOOC had an unfair advantage. Soon after, Unocal was acquired by Chevron, the U.S. oil company.⁷⁸

Secretary Geithner responded 10 days later to the Anshan-SDCO complaint, telling the Steel Caucus that Treasury was "aware of the proposed transaction" but promising no action. Considering the response inadequate and disappointing, the Steel Caucus wrote a letter to the White House seeking a federal investigation of the deal.⁷⁹

In August 2010, Anshan confirmed it was committed to pushing forward the planned joint venture, after an executive of its subsidiary said the deal was on hold due to opposition from U.S. lawmakers.⁸⁰ In September 2010, Anshan and SDCO finalized a joint-venture agreement, under which Anshan will become a 14% partner of SDCO and join its board of directors.⁸¹

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under fire" (May 19, 2010); *AMM*, "Anshan may land up to 20% stake in SDCO" (June 28, 2010).

⁷⁶ *AMM*, "SMA writes to Commerce, USTR over China investment in SDCO" (May 20, 2010); *AMM*, "Wall Street's reluctance drives Correnti to China for financing" (May 24, 2010). For more details on bilateral economic relations between China and the United States, see CRS Report RL33536, *China-U.S. Trade Issues*, by Wayne M. Morrison.

⁷⁷ *Financial Times*, "U.S. lawmakers hit at China steel move" (July 3, 2010); *AMM*, "Steel Caucus wants probe into SDCO-Anshan deal" (July 2, 2010); *AMM*, "Steel Caucus voices national security fears" (July 6, 2010).

⁷⁸ *New York Times*, "In seeking Unocal, Chevron ruffles an Asian partner" (July 2, 2005); Bloomberg.com, "CNOOC drops \$18.5bn Unocal bid amid U.S. opposition" (August 2, 2005); *Business Week*, "Why China's Unocal bid ran out of gas" (August 4, 2005).

⁷⁹ *AMM*, "Treasury mum on SDCO-Anshan steel deal" (July 13, 2010); *AMM*, "Geithner 'aware' of Anshan-SDCO deal" (July 16, 2010); *AMM*, "Steel Caucus writes to White House on SDCO concerns" (July 30, 2010).

⁸⁰ *AMM*, "SDCO status unclear as Anshan said opting out of investment" (August 19, 2010); *AMM*, "Anshan says SDCO plan is unchanged" (August 20, 2010); *Wall Street Journal*, "Anshan's U.S. investment is in doubt" (August 20, (continued...))

However, not all Chinese direct investment in the steel sector has faced such disapproval from the U.S. industry or regulators.

Chinese oil country tubular goods producer Tianjin Pipe (Group) Corp. (TPCO) plans to build a \$1 billion greenfield pipe mill in San Patricio County, Texas. The mill is set to employ about 600 people. TPCO's investment has been welcomed by local development officials and building trades unions. Despite opposition by the United Steelworkers union, the mill received crucial regulatory approval in April 2010, and does not seem to have experienced the same political pressure that Anshan has been facing.⁸²

Although the ultimate outcome of the Anshan-SDCO deal remains unclear at this point, it is likely that the world will see more Chinese investment in the near future. Anshan, along with other Chinese manufacturers, is reacting to domestic and international pressure for Chinese steel mills to control output and to look overseas for growth opportunities. If Chinese currency, the renminbi, were to appreciate further, such overseas investments would become more attractive to Chinese business enterprises.⁸³

Congressional and Legislative Reaction

Introduction of S. 3725: The Enforcing Orders and Reducing Circumvention and Evasion Act of 2010

On August 5, 2010, Senators Wyden and Snowe introduced the Enforcing Orders and Reducing Circumvention and Evasion Act of 2010 (the Enforce Act), S. 3725, which would provide the U.S. Commerce Department tools to improve enforcement of U.S. trade laws.

The legislation states that exporters from developing countries, in particular China, have been known to mislabel shipments and re-route goods through third-party countries in an attempt to mislead customs officials and to circumvent U.S. trade laws.

The Senators, along with nine colleagues, also sent a letter to the White House urging the Obama Administration to do more to combat unfair trade practices. In the letter, the Senators called on the Administration to address China's alleged practice of currency manipulation, among other illegal trade practices.⁸⁴

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2010); Reuters.com, "China Anshan says still committed to U.S. investment" (August 20, 2010); *Wall Street Journal*, "Anshan holds to U.S. plan" (August 21, 2010).

⁸¹ *AMM*, "SDCO, Ansteel tie knot with 14% equity stake" (Sept. 16, 2010); *Financial Times*, "Anshan defiant amid deal protests" (Sept. 16, 2010).

⁸² *AMM*, "TPCO clears hurdle for Texas pipe mill" (April 16, 2010).

⁸³ For more detailed analysis of China's currency policy and the related economic and trade issues, see CRS Report RS21625, *China's Currency: An Analysis of the Economic Issues*, by Wayne M. Morrison and Marc Labonte, and CRS Report RL33536, *China-U.S. Trade Issues*, by Wayne M. Morrison, pp. 14-16.

⁸⁴ *AMM*, "Trade clampdown effort draws kudos" (August 6, 2010).

The Enforce Act is designed to combat the evasion of anti-dumping and countervailing duty orders and enforce existing trade remedy statutes, by empowering the U.S. Commerce Department to investigate trade remedy laws violations, establishing a rapid-response timeline by which Commerce and U.S. Customs would respond to allegations, and improving the safety of imports.

U.S. Trade Law Proposal⁸⁵

On August 26, 2010, U.S. Commerce Secretary Gary Locke announced 14 proposed measures focused on illegal import practices from non-market economies. These steps aim to continue the rigorous enforcement of U.S. trade laws.

Some of the proposed changes:

- Currently, foreign companies can be excused from anti-dumping (AD) and countervailing duties (CVD) by demonstrating that they were not dumping or receiving subsidies for a certain period of time. Under the proposed change, such companies could be removed from the process only upon the normal country-wide expiration of those duties.
- Currently, once an initial affirmative determination is made in an AD/CVD case, importers are able to post a bond in the amount of the estimated duties owed. A new proposed measure will require importers to post cash deposits rather than bonds to facilitate entry of their goods and services into the United States.

Some other proposed changes would include improved methodology for determining the value of labor in non-market economy cases; tightening the certification process for the information submitted to Commerce as part of the AD/CVD case process; and strengthening specific rules to ensure that parties are paying the full amount of their duties.

Steel and metals industries have long been pushing for stricter trade laws enforcement, especially with regard to what has been referred to as China's mercantilist trade policies. Industry leaders and groups widely welcomed the new proposals, but some also maintained that China's allegedly illegal currency manipulation as a key trade distorting practice, which is not included in the proposed measures, still must be addressed.⁸⁶

USW Files Trade Case with USTR⁸⁷

On September 9, 2010, the United Steelworkers Union (USW) filed a comprehensive trade case with the U.S. Trade Representative (USTR), alleging that China has violated rules by subsidizing

⁸⁵ Department of Commerce, "Press release: Obama Administration Strengthens Enforcement of U.S. Trade Laws in Support of President's National Export Initiative" (August 26, 2010); *AMM*, "Commerce secretary Locke lays out trade law proposal" (August 27, 2010).

⁸⁶ *AMM*, "Steel lauds trade law proposal, but wants currency addressed" (August 26, 2010).

⁸⁷ News release on USW website, "USW files trade case to preserve clean, green manufacturing jobs in America," http://www.usw.org/media_center/releases_advisories?id=0327, as viewed on September 9, 2010; *New York Times*, "Steelworkers accuse China of violating trade rules" (September 9, 2010).

exports of clean energy equipment. The case is filed under Section 301 of the 1974 Trade Act, which sets an initial deadline of 45 days for the Administration to respond.⁸⁸

The filing of this petition comes at a time of increasing trade and currency frictions with China. It asks the Obama Administration to begin formal proceedings at the World Trade Organization (WTO) to force China to repeal the subsidies.

The petition contends that the Chinese central and provincial governments have used land grants, low-cost loans and a number of other measures to help Chinese companies expand their share of the world market for clean energy equipment, at the expense of jobs in the United States and other parts of the world.

Besides Chinese government assistance to clean energy exporters, the USW petition accuses the Chinese government of breaking WTO rules by tightly restricting the exports of rare earth elements and by forcing foreign clean energy companies to license their technology to local partners as a condition of entry to the Chinese market. These issues have been discussed in a previous section in this report.

Conclusion

China's emergence as the world's largest steel producer and major manufacturing base has multiple ramifications to the United States and other countries. Its rapid growth in steel production requires an adequate and steady supply of raw materials. This means China will continue to have substantial influence over the global supply and price of raw materials and, indirectly, affect the production costs and profitability of its competitors.

Meanwhile, China's steel sector, with its own restrictions, may not continue the production capacity growth at the current rate. Lack of control over the supply and price of iron ore has been a major constraint. Other restrictions could be lackluster domestic demand caused by a slowing economy, high energy costs, and environmental implications.

China has been seeking and securing natural resources all over the globe to support its industrialization and urbanization efforts. At the same time, the Chinese government has put export restrictions on rare earth elements exports and other raw materials critical to industrial production. This suggests that the Chinese government prefers to grant its own manufacturers a competitive edge over foreign producers.

When China manages to assert more control over production inputs, the Chinese steel industry may be poised to significantly expand its share of the global production as well as the export market. Strict and timely enforcement of trade laws is important and helpful to the U.S. steel sector, when handling trade cases, albeit reactive. Adaptation of a consistent and long-term strategy is likely to serve the interest of the U.S. steel industry.

⁸⁸ <http://www.osec.doc.gov/ogc/occic/301.html>, as viewed on September 9, 2010: "Section 301 of the Trade Act of 1974 is the principal statutory authority under which the U.S. may impose trade sanctions against foreign countries that maintains acts, policies and practices that violate, or deny U.S. rights or benefits under, trade agreements, or are unjustifiable, unreasonable or discriminatory and burden or restrict U.S. commerce."

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