nccr trade regulation
swiss national centre of competence in research

Working Paper No 2010/11| May 2010

Export Restrictions and the WTO Law: 'Regulatory Deficiency' or 'Unintended Policy Space'

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Abstract

The 'food crisis' of 2007–2008, and the recent WTO dispute between China and the United States, the European Union and Mexico have highlighted the growing importance of export restrictions. This paper examines some of the major economic, social and political reasons why countries resort to these measures, and assesses their potential implications for domestic and global welfare. It also explores the extent to which export restrictions could be used as a policy tool to protect natural resources. It reviews the relevant GATT/WTO disputes and provides a detailed analysis of the recent China – Raw Materials case, which illustrate that the vast majority of the disputes were due to competition over natural resources. In this context, reflecting on existing reform proposals, the paper explores whether the field of export restrictions represents a case of 'under-regulation' in the WTO law, or it offers some 'unintended policy space' which could be treated as a means to correct major market failures in relation to the growing importance of promoting environmental sustainability and inter-generational equity.

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Research for this paper was funded by the Swiss National Science Foundation under a grant to the National Centre of Competence in Research on Trade Regulation, based at the University of Bern's World Trade Institute in Bern, Switzerland.

EXPORT RESTRICTIONS AND THE WTO LAW: 'REGULATORY DEFICIENCY' OR 'UNINTENDED POLICY SPACE'

Export restrictions, arguably an 'under-regulated' area in the WTO law, have become increasingly important in recent years. During the 'food crisis' of 2007–2008, dozens of countries imposed various forms of export restrictions on food staples, in order to maintain domestic availability of supplies and in some cases to contain growing public discontent about rising prices of food.[1] The second development, an equally notable illustration of the growing importance of export restrictions, was the establishment of a panel by the Dispute Settlement Body (DSB) in December 2009 to examine complaints brought by the United States (US), the European Union (EU) and Mexico concerning China's export restrictions on selected raw materials.[2]

Should these developments be treated as by-products of unusual and rather context-specific circumstances, such as a major commodity price boom which has happened only twice since the establishment of the General Agreement on Tariffs and Trade/World Trade Organization (GATT/WTO) system, or the political quarrels between the US and China which also create trade-related tensions?[3] Alternatively, are these developments a reflection of a more fundamental and systemic trend towards growing competition over essential commodities, such as food and strategic natural resources? Similarly, could intensifying concerns over environmental protection and sustainable use of exhaustible resources play an important role as a policy objective? In any case, the question of whether or to what extent the WTO law is equipped to address this issue is highly relevant. The result of the China – Raw Materials case, as well as certain reform proposals which might be added to the agenda of WTO trade negotiations, are likely to have far reaching consequences, extending beyond the field of trade disputes to issues such as global food security, environmental protection and the trade of natural resources.

In this context, this paper looks at the economic, political, legal and environmental dimensions of export restrictions. First it examines why

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[1] Baris Karapinar, 'Food Crises and the WTO', in Baris Karapinar and Christian Haberli (eds.), *Food Crises and the WTO* (Cambridge University Press, Cambridge, New York 2010).

[2] WTO Dispute Settlement, *China – Measures Related to the Exportation of Various Raw Materials (China – Raw Materials)*, DS394,395,398, < http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds394_e.htm> (Visited 01 March 2010).

[3] Eugenio Díaz-Bonilla compares the food crisis of 2007–2008 with the previous commodity boom which took place from 1973–1974. See Eugenio Diaz-Bonilla, 'Globalisation of Agriculture and Food Crises: Then and Now', in Baris Karapinar and Christian Haberli (eds.), *Food Crises and the WTO* (Cambridge University Press, Cambridge, New York 2010).

countries resort to these measures, and illustrates their potential implications for domestic and global welfare. Second, it describes the WTO regulation dealing with the issue and reviews the previous GATT and WTO disputes involving export restrictions. Third, the paper analyses in detail the China-Raw Materials case which illustrates how quantitative restrictions and export taxes are imposed at the practical level. That section attempts to clarify to what extent these measures are related to environmental protection, or are used as a disguised restriction on trade. The paper concludes with some policy suggestions as to why stricter WTO regulation in this area of apparently large 'policy space' may not only be politically unfeasible but also be undesirable.

I. WHY DO COUNTRIES IMPOSE EXPORT RESTRICTIONS?

Both developing and developed countries resort to export restrictions – imposed in the form of export taxes, quantitative restrictions (through quotas and licences), and outright export bans – for a number of economic, environmental, and social reasons. Since these restrictions constitute a form of market distortion, they affect the distribution of welfare. Hence political-economic objectives could also play a part – as politicians may want to impose export restrictions to target certain producer and consumer groups to gain political support. However, they could also be used to address market failures especially in the field of environmental protection. Countries may restrict the exports of exhaustible natural resources, such as forestry products, fisheries and minerals, which may help prevent or slow down resource depletion, if these commodities (or products derived from them) are intensively exported.

In the agricultural sector, maintaining domestic food supplies and achieving food security, especially in the face of the risks of tight supply conditions in relatively 'thin" international markets, is often the primary objective of export restrictions.[4] In response to the 'food crisis' of 2007–2008, more than 30 countries imposed quantitative export restrictions, export taxes, prohibitions, and price controls.[5] This created an additional constraint, among others, on the supply side, pushing up prices in global markets. While export restrictions were not a significant cause of the thinness of agricultural markets, which was mainly the result of a widespread and systemic protectionism in the sector, and they were certainly not the trigger for the food crisis, they contributed to the undermining of trust in the global trading system.[6] However, given that

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[4] Global agricultural markets are 'thin' in the sense that only a small share of global farm production is traded internationally, which increases the risk of price instability in cases of disruption in supplies. See Kym Anderson, 'Agricultural Policies: Past, Present and Prospective under Doha', Ibid.(2010).

[5] See Food and Agriculture Organization of the United Nations (FAO), 'Policy measures taken by governments to reduce the impact of soaring prices', Crop Prospects and Food Situation (FAO, Rome 2008), pp. 13-17.

[6] Some food importing countries which struggled to obtain essential commodities through trade channels, moved back to the policy agenda of aiming to achieve food self-sufficiency. See Joachim Von Braun, 'Food and Financial Crises: Implications for Agriculture and the

there were food riots in many developing countries, such restrictions were considered to be a politically natural reaction to the growing public discontent about rising prices of food.

In the industrial sectors, export restrictions often serve the objective of promoting downstream processors and manufacturers. By restricting the exports of certain inputs, such as raw materials, a country could lower input prices for downstream sectors which would in turn gain price advantage in export markets. This would augment the export of processed and manufactured goods, hence generating higher export and tax revenues, while at the same time creating and/or maintaining jobs in the promoted sectors. As such, in developing countries which are trying to move up in the ladder of manufacturing, export restrictions on raw materials and intermediary products could be an important incentive for domestic and foreign investment in high value downstream manufacturing sectors. However, the benefits of such policy could be offset or dampened if other countries follow suit and impose their own export restrictions.[7]

Export taxes are also an important source of government income especially for low income countries which rely on exports of a few commodities. For instance, it is reported that export taxes on cocoa and coffee amounted to more than 10 percent of government revenue in Côte d'Ivoire.[8] These taxes could be applied *ad valorem,* based on the value of exports, and in differential tax form, whereby export taxes would be reduced as the raw material is further processed in the value chain (e.g. higher tax for wheat, lower tax for wheat flour). Given the budgetary constraints of poor countries faced with a range of areas requiring public investment, such as poverty relief, education, health and infrastructure – export taxes could be major source of income.

Environmental protection could also be a major objective of export restrictions, especially in relation to exhaustible natural resources including fisheries, forestry, minerals and fresh water.[9] Countries may want to prevent or slow down the depletion of their natural resources, or may simply choose to keep them for the benefit of future generations. These measures could also be effective in containing the environmental side effects of certain economic activities. Mining is a case in point – as by-products of extracts, and various inputs used in mining operations could be highly contaminating. Discharged

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Poor', Brief Prepared for CGIAR Annual General Meeting Maputo (International Food Policy Research Institute, Mozambique 2008).

[7] See Jane Korinek and Jeonghoi Kim, 'Export Restrictions on Strategic Raw Materials and Their Impact on Trade and Global Supply ', Workshop on Raw Materials (OECD, Paris 2009). p. 18

[8] See Siddhartha Mitra and Tim Josling, 'Agricultural Export Restrictions: Welfare Implications and Trade Disciplines', IPC Position Paper, Agricultural and Rural Development Policy Series (International Food & Agricultural Trade Policy Council, 2009). p. 4.

[9] Water in the form of 'virtual water" – total amount of water used in production of a commodity – could also be seen as exhaustible if it is traded. See Arjen Y. Hoekstra, 'The relation between international trade and freshwater scarcity', World Trade Organization Staff Working Papers, No. ERSD-2010-05 (2010).

material from mines could cause air, soil and water contamination.[10] Mining operations may also cause large-scale damage to farming and grazing areas. Deforestation and land erosion are common problems around open-pit mines, while underground mines often cause pollution of ground water. Curbing the exports of minerals produced by environmentally damaging operations may help alleviate some of the adverse impacts on the environment.

There are also other environmental concerns arising from the high energy intensity of the production and processing of some commodities. For example, much energy is required to produce steel products, or to convert bauxite into aluminium, as the process is based on the chemical reaction that results from running an electrical current through the alumina recovered from bauxite. In this context, export restrictions might be imposed to limit the demand for production and processing of export-oriented high energy-intensity commodities. This is particularly relevant in the context of climate change. As the energy sector is one of the biggest emitters of greenhouse gases, export restrictions on energy-intensive products could be used to cut emissions and/or as an incentive for more efficient use of energy.

II. WELFARE IMPACTS OF EXPORT RESTRICTIONS

From a strictly economic point of view, export restrictions result in welfare losses at the national and global levels. The potential impacts vary depending on the demand and supply elasticity of the commodity and the specific measure in question. In the country imposing export restrictions, the consumers of the restricted product would benefit from lower than pre-export restriction prices. However, aggregate loss of producer welfare would be higher than what consumers would gain from the measure (i.e. deadweight cost of market distortion). Overall welfare losses are particularly high in cases of *quantitative* export restrictions or *bans* on commodities with low price elasticity of demand (since domestic demand may not be strong enough to absorb the excess availability) and of *export taxes* on commodities with high price elasticity of demand (as domestic consumers respond to lower prices by increasing consumption, which displaces larger amounts of exports).[11]

At the global level, in the short run, supply restrictions push up the prices of the commodity in question, given the inelasticity of supplies. Outside the country imposing the export restriction, consumer welfare will decrease while producer welfare will increase. Hence countries or consumers who are net buyers of that commodity will lose out while countries and producers who are net sellers would benefit from the measure. In the long run, supply and

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[10] For instance, mining sites in China, India, Peru, Russia and Zambia have been identified as some of the world's most environmentally polluted areas – as contamination of the air, water and soil in these areas substantially exceeds the safety limits. See Blacksmith Institute, 'The World's Worst Polluted Places: The Top Ten of The Dirty Thirty', (The Blacksmith Institute, New York 2007).

[11] Mitra and Josling, 'Agricultural Export Restrictions: Welfare Implications and Trade Disciplines', above no 8.

demand curves will adjust and welfare losses will be reduced. The restrictions will dampen the incentive for domestic suppliers to produce and the suppliers in other countries will increase production (depending on, among other factors, the amount of their stocks, their factor mobility, and the length of the production process, etc.) which will lead to a new equilibrium where prices move towards to pre-restriction levels.

Export restrictions unilaterally applied by one country may also lead to some trade diversion. For instance, when India started to impose an export tax on chromite with the objective of making greater supplies of the raw material available to its domestic market, China which had been the biggest importer of Indian chromite, diverted its imports to South Africa. This reportedly created concerns in South Africa – as its downstream sectors using chromite were competing with China's downstream industries. Hence South Africa was reported to have considered imposing its own export restriction on the mineral to offset the additional pressure being put by China on its domestic production.[12] This shows that export restrictions imposed by a country may not also cause some trade diversion but also trigger a domino effect - as other countries follow suit.

Beyond purely economic calculations, on the other hand, export restrictions may help internalise some negative environmental externalities. Export-oriented sectors could cause substantial environmental damage through disposing of pollutants exceeding the environment's assimilative capacity, and contributing to depletion of exhaustible resources and emissions of greenhouse gases. Since, markets for environmental goods and services are not fully developed, if they exist at all, (especially in developing countries) market prices do not reflect the social value of environmental goods. Hence policy interventions intended to limit or tax the exports of sectors causing environmental damage could contribute to the correction of these market failures.

To what extent such policy interventions justify the welfare losses occurring as a result of the consequent market distortion is a question of the social value of the environmental goods (or marginal social cost of depletion/pollution) as well as the effectiveness of the intervention in question. There could be significant discrepancies between the objectives that are intended to be achieved through export restrictions and the actual impact on the ground. Depending on the objective and the nature of the environmental externality that is to be addressed, various policy tools could be employed and be equally as effective or more so than export restrictions (and potentially less costly in terms of welfare losses). Setting up a strong regulatory mechanism imposing strict standards of production and pollution control; introducing pollution charges directly applied to producers based on the amount of physical/chemical pollutants they discharge; promoting and subsidising clean and efficient technologies; and introducing liability insurance mechanisms

[12] Korinek and Kim, 'Export Restrictions on Strategic Raw Materials and Their Impact on Trade and Global Supply ', above no 7.

covering potential environmental damage are some of the policy tools which could be used instead of or in conjunction with export restrictions to deal with environmental externalities caused by export-oriented sectors.[13] Hence the effectiveness and the potential social benefits of export restrictions should be carefully weighed against the welfare losses they cause and the alternative tools at the disposal of policy makers.

III. WTO REGULATION ON EXPORT RESTRICTIONS

The WTO regulation dealing with export restrictions is relatively limited, offering ample 'policy space' for domestic policy considerations. The most relevant legal text in this context is GATT XI and Article XII of the Agreement on Agriculture (AoA). GATT XI requires Members to eliminate all prohibitions and quantitative restrictions on exports with the exception of those imposed 'temporarily' to prevent and alleviate food shortages and those intended to allow time for the application of regulations such as classification and grading. As for export restrictions aiming at environmental protection, violating GATT XI can also be excused if they qualify for an exception under Article XX. On the other hand, Article XII of the AoA mirrors GATT XI, yet also requires Members to give a written notice to the Committee on Agriculture, and to consult with Members who are likely to be affected by their export restrictions. However, neither GATT XI nor Article XII of the AoA are specific enough to define the circumstances which could justify the measure (i.e. critical food shortage) and indicate the extent, duration and the limit of the restrictive measures that could be applied. More importantly, GATT XI does not restrict Members to imposing duties, taxes or other charges on exports. The positive reading of this implies that Members are allowed to impose export tariffs.[14]

On the other hand, some new WTO Members, such as China, Mongolia, Saudi Arabia, and Ukraine, were required, during their accession negotiations, to commit themselves to stricter rules, so called 'WTO-plus', which restrict their 'policy space' in this field. Although the scope and the scale of their commitment varied, they were obliged to phase out export taxes or to limit them to a designated number of tariff lines with a bound rate.[15] This was one of the additional concessions that they had to make to become a Member of the WTO.

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[13] Imposing limited or no restrictions on production while restricting exports may also lead to the formation of grey markets and encourage smuggling. Ibid.
[14] See Daniel Crosby, 'WTO Legal Status and Evolving Practice of Export Taxes', ICTSD Bridges, Vol. 12, No. 5 (2008).
[15] Ibid.

IV. GATT/WTO DISPUTES ON EXPORT RESTRICTIONS

Few cases relating to export restrictions have been brought before the WTO/GATT Dispute Settlement Body. Only in two cases, the defendants were found to be violating GATT XI. In all cases, the disputes involved accusations that the export restrictions had been designed to offer some form of advantage to the downstream producers and processors of the country instituting the measure, at the expense of the downstream sectors in complainant countries. Only in one resolved case did the defendant resort to the environmental exceptions under GATT XX.

There were two major disputes concerning export restrictions within the framework of GATT 1947, namely the 'Japan – Semiconductors' [16] and the 'Canada – Salmon' cases.[17]

The 'Japan – Semiconductors' case involved a component dealing with 'export restrictions' allegedly imposed by Japan. In this case the European Economic Community (EEC) brought the case in the context of the 1986 Arrangement between Japan and the United States (US) on trade in semi-conductors. The Arrangement dealt with prevention of dumping by Japanese companies in the US market and the lack of access of non-Japanese companies to the Japanese market. As part of the Arrangement, Japan would monitor cost and prices of selected semi-conductor products exported to the US in order to prevent prices from going below a designated company-specific 'fair value'. Japan would also monitor exports to certain third-country markets. The EEC claimed that the benefits accruing to it from the General Agreement were being nullified or impaired by this Arrangement.[18]

The EEC also argued that Japan's export licences and 'administrative guidance' on semi-conductors were in breach of Article XI – as they implied price controls with quantitative effects on exports. Japan maintained that it was merely monitoring costs and export prices, and its 'administrative guidance' was not legally binding – as it was just a voluntary guideline for the manufacturers and traders of semi-conductors. Third parties to the case, such as Australia, Hong Kong, Singapore and Brazil complained that the measures in question had led to increase in prices of semi-conductors and caused

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[16] GATT Dispute Settlement Report, *Japan — Trade in Semi-Conductors (Japan – Semiconductors)*, L/6309 - 35S/116, adopted 4 May 1988, <http://www.wto.org/english/tratop_e/dispu_e/87semcdr.pdf> (visited 01 March 2010).

[17] GATT Dispute Settlement Report, *Canada – Measures Affecting Exports of Unprocessed Herring and Salmon (Canada – Salmon)*, L/6268 - 35S/98, adopted 22 March 1988, < http://www.wto.org/english/tratop_e/dispu_e/87hersal.pdf > (visited 01 March 2010).

[18] GATT Dispute Settlement Report, *Japan – Semiconductors,* above no 16, para 30. In addition to the allegations concerning market access, it argued that the Third Country Market Monitoring System violated Articles VI and XI. It also alleged that there was a lack of transparency in the way the Arrangement was implemented by Japan which contravened Article X.

difficulties in sourcing for their domestic downstream industries relying on imports from Japan.

The Panel in this case concluded that the administration structure that the Japanese Government had created was such that without being legally binding in form, it exerted various forms of pressure on the private sector to eliminate the sale of selected semi-conductors below company-specific prices, which substantially restricted their exports, hence violating Article XI.[19] It also found that there had been undue delays in Japan's issuance of export licences, which were non-automatic, which constituted a form of export restrictions, breaching Article XI:1.[20]

The case of 'Canada – Salmon' is also highly relevant, especially in the context of the 'China – Raw Materials' examined in the section below. In this case, the disputed regulation was part of Canada's fishery legislation stating that 'No person shall export from Canada any sockeye or pink salmon unless it is canned, salted, smoked, dried, pickled or frozen'. The complainant, the US, claimed that this was a clear violation of Article XI. It alleged that the disguised objective of the measure in question was to promote the downstream processor sectors in Canada, at the expense of the processors in neighbouring areas in the US territory.[21]

However, Canada claimed that the measures under dispute were part of its fisheries conservation and management regime and hence justified under Article XX(g), which allows for restrictive measures if they are 'relating to' the conservation of exhaustible natural resources. In addition, Canada argued that its regulation was also consistent with Article XI:2 (b), permitting export prohibitions 'necessary to the application of standards or regulations for the classification, grading or marketing of commodities in international trade."[22] It claimed that these measures had been 'necessary to maintain Canada's reputation for safe, high-quality fish products'.[23]

In this case, the Panel fist examined whether the Canadian regulation under review could be considered as an exception as defined by Article XI.2(b), given Canada's defence that it aimed at preserving certain quality standards. It found that Canada prohibited the exports of these particular fish varieties in unprocessed form even if they could meet the standards generally applied to

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[19] GATT Dispute Settlement Report, *Japan – Semiconductors,* above no 16, para 117.
[20] Ibid, para 118. The Panel then examined whether the Japanese Government's measures were consistent with the spirit of Article VI which deals with dumping. In line with the EEC's argument, the Panel came to the conclusion that since the Article VI was silent on measures taken by exporters, it did not justify any measure of export restrictions prohibited by Article XI:1.
[21] GATT Dispute Settlement Report, *Canada – Salmon,* above no 17, para 3.11.
[22] Article XI (2) The provisions of paragraph I of this Article shall not extend to the following: (b) Import and export prohibitions or restrictions necessary to the application of standards or regulations for the classification, grading or marketing of commodities in international trade; The full text of the Article XI is available at:
<http://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm.>
[23] GATT Dispute Settlement Report, *Canada – Salmon,* above no 17, para 3.4.

fish exported from Canada. Hence it came to the conclusion that these export prohibitions could not be considered as an exception 'necessary' for the classification, grading or marketing of commodities as defined by Article XI:2(b).[24] Then, the Panel turned to an assessment of whether these measures could be justified by Article XX(g). It first examined the meaning of the terms 'relating to' and 'in conjunction with' as stated in Article XX(g). Its interpretation was that for a trade measure to be considered as 'relating to", it had to be primarily aimed at conservation of exhaustible resources. It also stated that a trade measure could only be considered to be 'in conjunction with' production or consumption restrictions if 'it was primarily aimed at rendering effective these restrictions'. [25]

Then the Panel examined whether the Canadian regulation could satisfy these criteria. It found that, affirming the US argument, the Canadian fishery regulation which restricted domestic production (i.e. harvesting) covered other fish varieties which were not subject to export prohibitions. In addition, the export prohibitions only applied to supplies in unprocessed form and did not cover exports of the same varieties in general. The Panel also found that these measures restricted purchases of these commodities only by foreign processors and consumers and not those made by domestic processors and consumers. Hence it concluded that 'these prohibitions could not be deemed to be primarily aimed at the conservation of salmon and herring stocks and at rendering effective the restrictions on the harvesting of these fish'. So it determined that the export prohibitions imposed by Canada violated Article XI and could not be justified under Article XX(g).[26]

As for the WTO dispute settlement, the case law on export restrictions is rather limited. In 1999, one component of the 'Argentina – Hides and Leather' dispute investigated the EC's complaint about measures taken by Argentina on the export of bovine hides.[27] The EC alleged that Argentina had imposed a *de facto* export prohibition on raw and semi-tanned bovine hides which allegedly violated GATT Article XI:1.[28] The EC argued that Argentina had a long track record of export restrictions on these commodities, going back to the early 1970s, aiming at supporting the downstream processing industries. In fact, Argentina had consistently imposed export duties of up to 30 percent on raw bovine hides, which were then being slowly phased out. However, the EC did not challenge the existence of export restrictions in the form of export duties as such. But it disputed other measures such as the Argentinean regulation allowing for the representatives of the processing industry to be

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[24] Ibid, para 4.2.
[25] Ibid, para 4.6.
[26] Ibid, para 4.7.
[27] WTO Panel Report, *Argentina — Measures Affecting the Export of Bovine Hides and the Import of Finished Leather (Argentina — Hides and Leather)*, WT/DS155/R, 19 December 2000, < http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds155_e.htm> (visited 1 March 2010).
[28] In this case, the EC also alleged that Argentina had violated GATT Article III by imposing an 'additional value added tax" and an 'advance turnover tax" on the price of imported finished leather.

part of customs control on raw material – which, the EC alleged, constituted a *de facto* restriction. It claimed that this practice might discourage exporters of raw material by delaying customs procedures. The Panel investigated whether these 'extra' measures were in breach of Article XI:1. It concluded that the EC had not been able to offer satisfactory evidence to illustrate how the Argentinean regulation in question would violate Article XI. It decided that the mere presence of the representatives of the downstream sector in customs control, by itself, would not constitute an export restriction within the meaning of Article XI:1.[29]

On separate occasions in 1997 and 1998, the EC also requested consultations with Pakistan and India regarding some alleged export restrictions on raw hides and skins.[30] The EC argued that the measures in question had limited the access of EC manufacturing industries to raw and semi-finished materials in these countries. However, the initial consultations did not lead to the establishment of a panel and no settlement has been notified to the Dispute Settlement Body (DSB) regarding these cases.

V. CHINA – RAW MATERIALS CASE

In this context, the most recent case of export restrictions, namely 'China – Measures Related to the Exportation of Various Raw Materials' (China – Raw Materials) is likely to be the highest profile case in this field.[31] In December 2009, the DSB established a panel to examine complaints by the US, the EU and Mexico concerning China's export restrictions on selected minerals. The commodities in question were bauxite, coke, fluorspar, magnesium, manganese, phosphate (yellow phosphorus), silicon (metal and carbide), and zinc. The complainants alleged that China's policies regarding the exportation of these commodities are inconsistent with its obligations under GATT 1994 and the Protocol on the Accession of the People's Republic of China ('Accession Protocol') and the Working Party Report on the Accession of China ('Working Party Report').[32]

The complainants' case rests upon three pillars:[33]

- China imposes quantitative restrictions, such as quotas, on the exportation of bauxite, coke, fluorspar, silicon carbide, and zinc, which

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[29] WTO Panel Report, *Argentina – Hides and Leather,* above no 27, para 11.55

[30] WTO Dispute, *Pakistan – Export Measures Affecting Hides and Skins*, DS107, <http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds107_e.htm>; and WTO Dispute, *India – Measures Affecting Export of Certain Commodities*, DS120, < http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds120_e.htm>

[31] WTO Dispute Settlement, *China – Raw Materials*, above no 2.

[32] WTO Secretariat, Protocol on the Accession of the People's Republic of China (Accession Protocol), WT/L/432, 23 November 2001.
WTO Secretariat, Working Party Report on the Accession of China (Working Party Report), WT/MIN(01)/3, 10 November 2001.

[33] WTO Dispute Settlement, *China – Raw Materials,* Request for the Establishment of a Panel by the United States, WT/DS394/7, 9 November 2009.

allegedly violates Article XI:1 of the GATT 1994 and Paragraph 1.2 of Part I of China's Accession Protocol, and Paragraphs 162 and 165 of the Working Party Report.

- China imposes export duties on the commodities in question, which allegedly violates Paragraph 1.2 and Paragraph 11.3 of Part I of China's Accession Protocol, and Paragraph 342 of the Working Party Report.
- China resorts to other constraints on the exportation of these commodities, through fees and excessive formalities. Some information regarding requirements, restrictions, or prohibitions on exports is not published by the relevant Chinese authorities. These measures are not applied 'in a manner that is not uniform, impartial, and reasonable'. Hence China allegedly violates Article VIII:1(a) and VIII:4, Article X:1 and X:3(a), and Article XI:1 of the GATT 1994 and Paragraphs 1.2, 2(A)2, 5.1, 5.2 and 8.2 of Part I of the Accession Protocol, and Paragraphs 83, 84, 162, and 165 of the Working Party Report.

The following section first analyses the role of China in production and trade of these commodities, and then looks at the first two components of the case. The third component which is related to China's administrative measures, albeit relevant, goes beyond the scope of this paper.

A. Domestic Production and Trade

China is a major producer and exporter of the majority of these commodities which are often strategically important for a range of manufacturing sectors. For instance, bauxite, which is a main source of aluminium, is widely consumed in electronic and consumer goods; fluorspar is used in steel production; phosphate is an essential component of agricultural fertilisers; and silicon is an input used to produce semiconductors (see Table 1 below for a wider range of applications). The Chinese domestic demand and supply structures and international market conditions for each of these commodities vary considerably.

Nevertheless, the volume of production of these minerals has grown substantially over recent years. As shown in the Table 1 and Figure 1 below, between 2002, when China joined the WTO, and 2008, the volume of manganese and magnesium metal production was reported to have increased by more than 200 percent. Similarly bauxite, silicon and phosphate have seen production growths of more than 100 percent. Especially after 2006, there were steep rises in production volumes. [34]

[34] USGS Mineral Commodity Summaries (2010), available at <http://minerals.usgs.gov/minerals/pubs/mcs/ > (visited 10 January 2010).

Table 1: Industrial applications, production trends and share in world production of selected minerals in China*

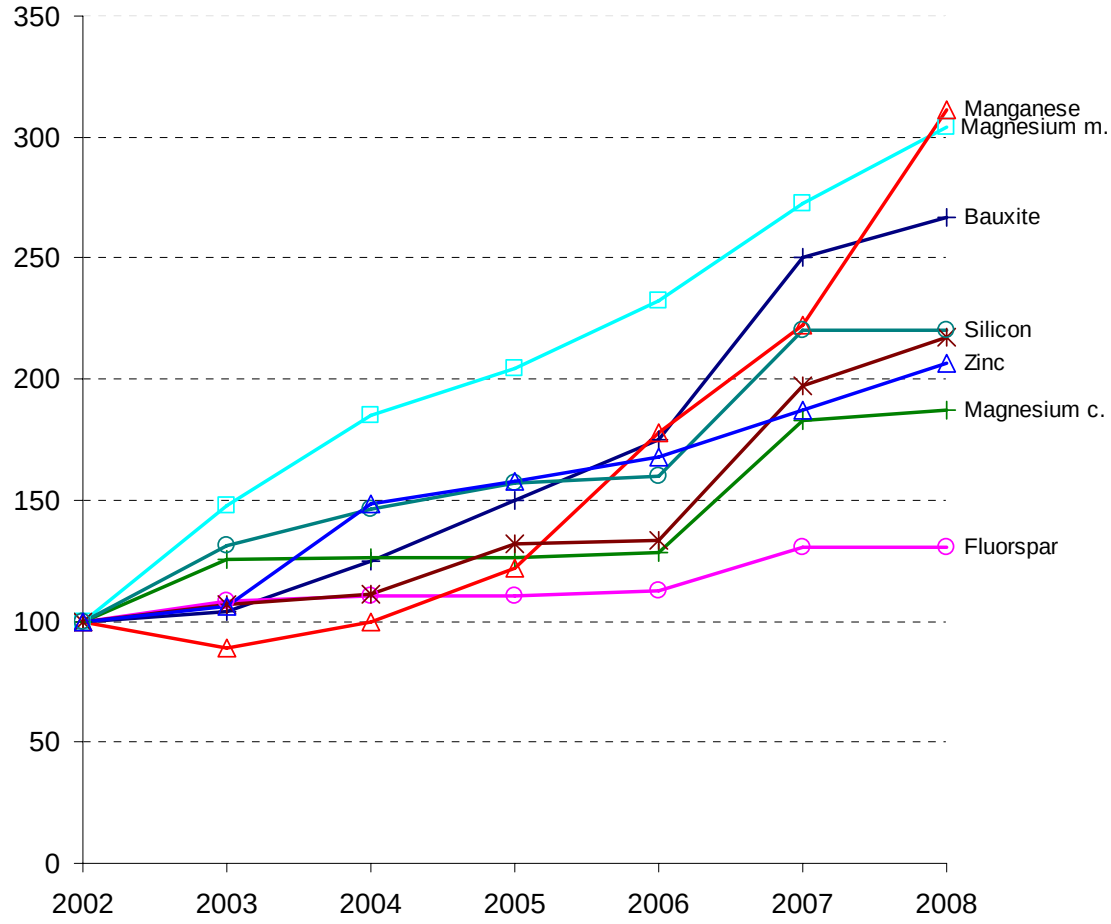
	Applications	2002 (000 tons)	2008 (000 tons)	2002–2008 Growth (percent)	Share in World Production (percent)
Bauxite	Main source of aluminium, which is widely used in packaging, transportation, building, electrical and consumer durables	12000	32000	167	31
Fluorspar	Used in production of hydrofluoric acid, which is used in the electroplating, stainless steel, refrigerant, and plastics industries.	2450	3200	31	55
Magnesium Compounds	Used in refractories and in agricultural, chemical, construction, environmental, and industrial applications	1070	2000	87	45
Magnesium Metal	Used as a constituent of aluminium-based alloys that are used for packaging, transportation, and other applications	230	700	204	87
Manganese	Used in steel production, pig iron manufacture and in upgrading ore to ferroalloys. Also used in dry cell batteries, plant fertilizers and animal feed	900	2800	211	21
Phosphate	Mined to manufacture phosphoric acid and superphosphoric acid, used in fertilizers, animal feed supplements, food-additives and industrial applications	23000	50000	117	30
Silicon	Used by producers of aluminium and aluminium alloys, the chemical industry, and the semiconductor industry	1500	3300	120	58
Zinc	Used in galvanizing, in zinc-based alloys, and in brass and bronze. Zinc compounds and dust are used by the agriculture, chemical, paint, and rubber industries	1550	3200	106	28

Source: Compiled by the Author based on USGS Mineral Commodity Summaries (2010)
*Due to data source incompatibility, the table excludes coke, which is not a mineral. It is a solid carbonaceous residue derived from low-ash, low-sulfur bituminous coal. It is used as a fuel and as a reducing agent in smelting iron ore in a blast furnace. It is reported that China's coke output amounted to 327 million tons in 2008, constituting a share of over 60 percent of world's total production.[35]

In 2008, China's share in world production of the minerals listed above is reported to range between 28 percent for zinc to 87 percent for magnesium metal. For some sub-products of these minerals, such as yellow phosphorus (sub-product of phosphate), the share of China is higher than that of the main minerals listed here. For fluorspar, silicon, magnesium metal and coke, China is responsible for more than half of the world's total production. As such China is a major, and in some cases the biggest, producer of these commodities.

[35] 8th China International Coking Technology and Coke Market Congress, available at <http://www.coke-china.com/ > (visited 20 February 2010).

Figure 1: Production trends in selected minerals in China*, (2002 = 100)



Source: USGS Mineral Commodity Summaries (2010)
* Magnesium m. : Magnesium metal ; Magnesium c. : Magnesium compounds

The picture for trade flows and volumes, however, is different. For some minerals, China is a major exporter, and for others, it has become a major importer, despite also being a major producer. The volume of its exports has fluctuated over the past few years. Between 2002 and 2008, the export volumes of silicon and magnesium increased considerably. The biggest rise was in silicon exports which grew by 90 percent, while the volumes of magnesium increased by 25 percent. By contrast, the exports of some other minerals have declined considerably. The biggest drops were seen in exports of bauxite and zinc (82 percent each). Among the listed minerals, phosphate exports, which had the highest volume in 2002, fell sharply in 2006, followed by a slight recovery.

Fluctuations in export volumes also reflect the trends in China's market share in world export markets. As of 2008, among the listed minerals, the highest market shares held by China were for Silicon and Magnesium, each amounting to about 45 percent of total world exports. Although not a mineral, China's share in the coke market is considerable too. Although they declined from 44 percent in 2002, China's exports of coke accounted for approximately one third of world exports in 2008. The next most important were fluorspar (8 percent) and manganese (7 percent). In sum, China controls a substantial share

of world markets in silicon, magnesium and coke. And it is also an important supplier of fluorspar, manganese and phosphate (see Table 2 below).[36]

As for bauxite, manganese and zinc, China has been a major importer. Between 2002 and 2008, the volume of its bauxite imports grew by approximately 2400 percent, from 1.1 million metric tons to more than 28 million metric tons. Similarly its magnesium imports grew by almost 300 percent (see Figure 2 below).

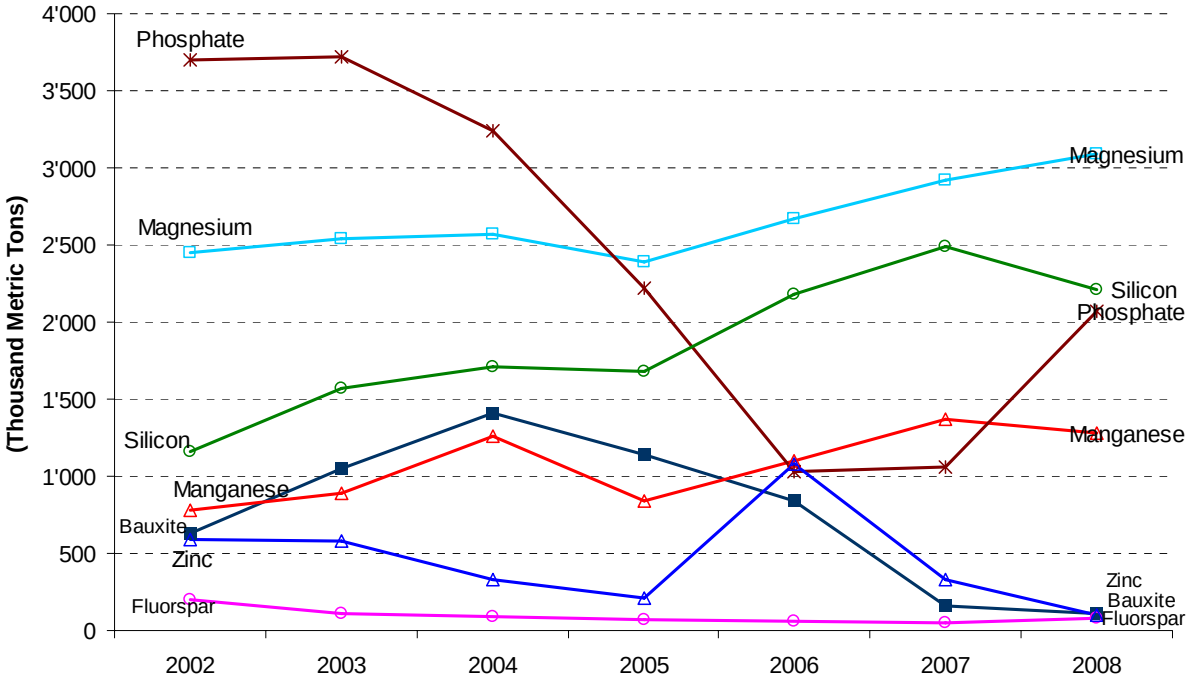
Table 2: Volume of exports (thousand metric tons) in selected minerals in China, 2002–2008

	2002	2003	2004	2005	2006	2007	2008	Share in World Exports (percent) 2002	2008
Bauxite	635	1048	1410	1144	840	164	112	2.1	0.2
Fluorspar	200	115	93	70	59	53	84	11.4	8.2
Magnesium	2452	2543	2567	2389	2671	2916	3091	40.4	43.5
Manganese	777	887	1261	842	1096	1366	1277	2.2	6.7
Phosphate	3697	3716	3236	2216	1034	1062	2069	16.0	6.2
Silicon	1160	1574	1710	1676	2183	2491	2212	28.0	45.2
Zinc	590	583	331	209	1085	332	104	4.4	0.7
Coke	1358	1475	1507	1288	1454	1533	1229	43.9	33.6

Source: UnComtrade (2010), compiled by the Author based on the following HS codes:
Bauxite: 260600, 262040, 760110, 760200
Fluorspar: 252921, 252922
Magnesium: 810411, 810419, 810420, 251910, 251990, 253020, 281610, 282731, 283321
Manganese: 260200, 811100, 282010, 720211, 720230
Phosphate: 251010, 251020,280470
Silicon: 280461, 280469, 284920, 720221, 720229
Zinc: 260800, 262011, 262019, 281700, 790111, 790112, 790120, 790200
Coke: 270400

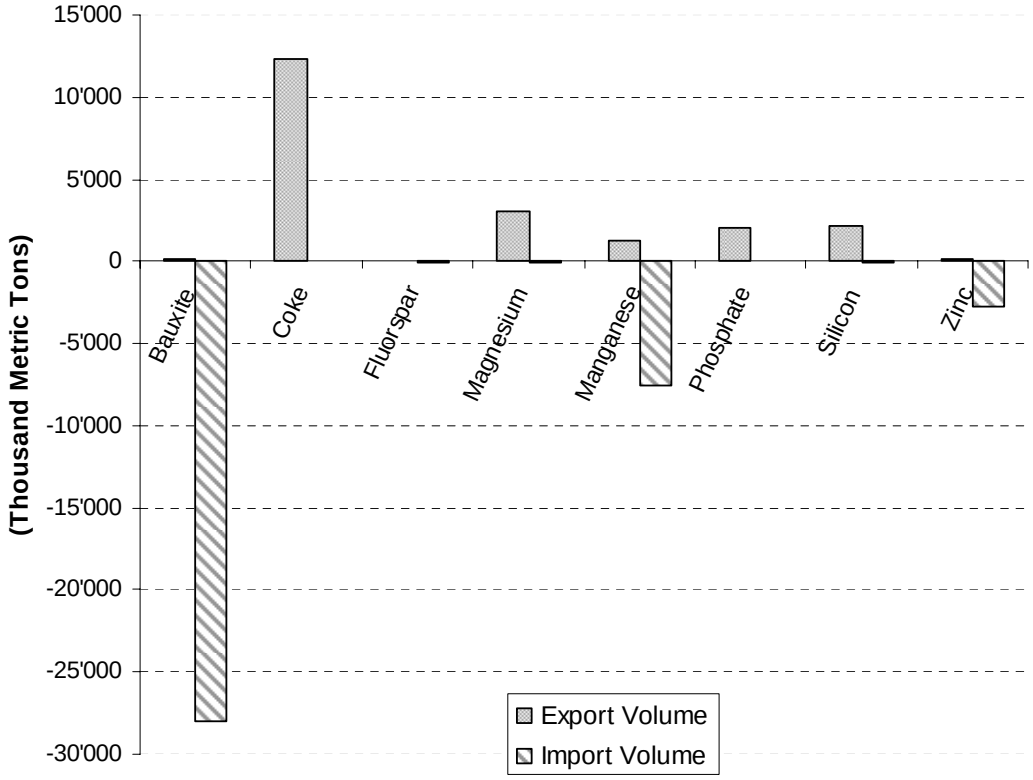
[36] UnComtrade (2010), available at <http://comtrade.un.org/db/dqBasicQuery.aspx> (visited 20 February 2010).

Figure 2: Volume of exports in selected minerals in China, 2002–2008



Source: UnComtrade (2010)

Figure 3: Volume of exports vs imports for selected minerals in China, 2008



Source: UnComtrade (2010)

Many factors may have affected these trade flows. Fluctuations in world commodity prices; the burgeoning of the manufacturing sector in China which has led to the diversion of some of the minerals from export markets to domestic consumption; fluctuations global demand depending on the business cycle of major downstream manufacturing sectors; variations in production capacity and supply elasticity of other major producers; trade policies of major importers, and last but not least, China's own trade policies, including export restrictions, are some major factors which might have an impact on these trends.

B. Export Restrictions

Turning to the WTO case at hand, the imposition of export restrictions on a range of commodities has long been part of China's trade policy. The list of items subjected to various forms of export restrictions goes beyond the minerals listed in this case. A number of agricultural products (timber, cattle, chemical fertilisers), and other minerals, such as molybdenum, chromium and rare earths are commodity groups which have been subject to export restrictions. For clarity of the analysis, however, the section below focuses on the minerals mentioned in the case.[37]

1. Quantitative Restrictions on Exports

Based on the official announcements of China's Ministry of Commerce, the following industrial commodities are subject to export quotas in 2009 and 2010. Five of the commodity groups listed under industrial products are mentioned in the case – namely bauxite, fluor, silicon carbide, magnesium and phosphorite. Both in 2009 and 2010, bauxite was subject to an export quota of 930,000 tons, while the quota for fluor was 550,000 tons. The quota for magnesium carbonate was slightly reduced from 1,400,000 tons in 2009 to 1,330,000 tons in 2010 (see Table 3 below).[38] However, it is important to note that some of these export quotas, for instance for bauxite, are not fully utilised by exporters – as they are higher than the total volume of annual exports.

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[37] Annex 1 of this paper lists the range of other minerals which were subject to export restrictions between 2002 and 2008.

[38] Ministry of Commerce (2008) 'Total Amount of Export Quotas of Agricultural and Industrial Products in 2009', Announcement, No.83, Available at <http://english.mofcom.gov.cn/aarticle/policyrelease/domesticpolicy/200810/20081005840047.html> (visited 8 January 2010)
See also < http://smm.cn/Information/NewsDetail.aspx?newsid=3007903> (visited 8 January 2010).

Table 3: Total Export Quota for Selected Industrial Products in China, 2009–2010

Commodity Name	Unit	Quota Amount 2009	2010
Bauxite	10,000 ton	93	93
Fluor	10,000 ton	55	55
Carborundum (Silicon carbide)	10,000 ton	21.6	21.6
Light (heavy) calcined magnesite (Magnesium Carbonate)	10,000 ton	140	133
Phosphorite	10,000 ton		150

Source: Ministry of Commerce, Announcement No.83 (2008), Total Amount of Export Quotas of Agricultural and Industrial Products in 2009

The first component of the case against China challenges the WTO compatibility of these quantitative restrictions. It is clear that, unless justified by exceptions, the mere existence of these measures is inconsistent with GATT XI:1. Moreover, Paragraph 162 of the Working Party Report refers to export restrictions and provides that 'China would abide by WTO rules in respect of non-automatic export licensing and export restrictions… Moreover, export restrictions and licensing would only be applied, after the date of accession, in those cases where this was justified by GATT provisions'. As such, before going into an analysis of the possibility of exceptional conditions which may allow these measures, it is clear that China's quantitative export restrictions violate its commitments under GATT XI and the Accession Protocol.

2. Export Taxes

China also resorts to export taxes quite extensively. According to the 'Circular of the Customs Tariff Commission of the State Council on the Tariff Execution Plan 2010', a total of 329 tariff lines (8-digit Harmonized System (HS) are subject to export taxes, which are applied in the form of 'export tariffs', and/or 'interim tariffs' and/or 'special export tariffs'. All of the minerals mentioned in this case are listed in the Tariff Execution Plan 2010.[39] Ranging from 5 percent for magnesium oxide to 40 percent for coke, various degrees of export taxes are imposed (see Table 4 below).

[39] ETCN (2010), <http://www.e-to-china.com/tariff_changes/data_tariff_changes/2010/0108/73155.html (Visited 18 February 2010).

Table 4: Export Taxes Imposed on Selected Minerals by China, 2010

	Product Form	Export Tariff	Interim Tariff	WTO Accession Annex 6
Bauxite	Aluminium unwrought, not alloyed, >99.95% pure	%30	%0	
	Aluminium unwrought, not alloyed, <99.95% pure	%30	%15	
	Unwrought aluminium alloy	%30	%15	%30
	Waste or scrap, aluminium	%30	%15	%30
Fluorspar	Fluorspar, >97% calcium fluoride		%15	
	Fluorspar, <97% calcium fluoride		%15	
Magnesium	Magnesium unwrought > 99.8% pure		%10	
	Magnesium unwrought		%10	
	Magnesium waste or scrap		%10	
	Fused magnesia		%10	
	Dead-burned magnesia		%10	
	Light-burned magnesia		%5	
	Natural magnesium carbonate (magnesite)		%5	
	Magnesium oxide		%5	
	Other mineral products with 70% or more magnesia		%5	
Manganese	Manganese ores, concentrates, iron ores >20% manganese		%15	
	Manganese, articles thereof, waste or scrap		%20	
	Ferro-manganese, >2% carbon	%20		%20
	Ferro-silico-manganese	%20		%20
Phosphate	Natural calcium phosphates, unground		35%	
	Natural calcium phosphates, ground		35%	
	Yellow phosphorus	%20		20%
	Other phosphorus	%20	10%	20%
Silicon	Silicon, <99.99% pure		15%	
	Ferro-silicon, >55% silicon	%25		%25
	Ferro-silicon, <55% silicon	%25		%25
Zinc	Zinc, not alloyed, unwrought, >99.995% pure	%20	0%	
	Zinc, not alloyed, unwrought, >99.99% pure, <99.995% pure	%20	5%	
	Zinc, not alloyed, unwrought, <99.99% pure	%20	15%	20%
	Zinc waste or scrap		%10	
	Zinc ores and concentrates	%30		30%
	Ash or residues containing hard zinc spelter		%10	
	Ash or residues containing mainly zinc (not spelter)		%10	
Coke	Coke, semi-coke of coal, lignite, peat & retort carbon		%40	

Source: Compiled by the Author based on ETCN (2010), and China Accession Protocol
According to a 'Circular of the Customs Tariff Commission of the State Council on the Tariff Execution Plan 2010', Export tariffs in the 'export tariff' column remain the same while the 'Interim tariff' will be applied on part of the exported commodities listed. For the products on which an export tariff was imposed prior to 1 January 2010, the scale of trade mode covered by export tariff will remain the same.

As for the WTO compatibility of its export taxes, which is under dispute, China faces significant constraints arising from its accession commitments rather than its obligations under GATT, which allows Members to impose export taxes. Its Accession Protocol explicitly limits the number of items and the level of export taxes that China is allowed to impose. According to Article 11.3 of the Accession Protocol, 'China shall eliminate all taxes and charges applied to exports unless specifically provided for in Annex 6 of this Protocol or applied in conformity with the provisions of Article VIII of the GATT 1994'.[40] Accordingly, Annex 6 lists a total of 84 tariff lines (8-digit HS), with maximum levels of export duties. China also confirmed that it would maintain the applied rates imposed at the time of the agreement and would consult with its trade partners who would potentially be affected, if under 'exceptional circumstances', it had to increase its applied rates (still not to exceed the maximum level indicated in Annex 6).[41]

As such, it is clear that Annex 6 only allows China to impose export taxes that are strictly capped, and does not allow for quantitative restrictions under any circumstances. China's trading rights commitments do not authorize it to add to or change the list of commodities after accession. Therefore, in order to establish whether China complies with its commitments under the Accession Protocol, the question is whether China imposes export duties on commodities which are not listed in Annex 6, and whether it exceeds the maximum levels designated in Annex 6.

As is indicated in the table above, China imposes export taxes on a number of minerals that Annex 6 does not include. Nine forms of magnesium, two forms of fluorspar, and coke are subject to varying degrees of export taxes, although they are not listed in Annex 6.[42] On the other hand, the export taxes on some of the minerals that are listed in Annex 6 exceed the maximum rates indicated. For instance, 'unwrought aluminium alloy' and 'Zinc, not alloyed, unwrought, <99.99% pure' exceed the allowed rate (if the export tariff and temporary tariff are combined).

It should also be noted that China revises its export taxes quite often, apparently following trends in prices and the demand and supply situation related to the commodity in question. Hence, although tax levels of some minerals for 2010 might be in line with Annex 6, the taxes imposed on these minerals exceeded the permitted limit in previous years. For instance, since 2008, export tariffs on yellow phosphorus have been revised several times. At the height of the commodity boom in May 2008, the government imposed an additional 100% export tax. It was then reduced to 75% in December 2008 and 50% in January 2009, as the world prices of phosphorus went down. Finally in

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[40] WTO Secretariat, Accession Protocol, above no 32.

[41] Ibid, Annex 6, at 95.

[42] China also imposes export taxes on some sub-products of minerals which are listed in Annex 6. For instance, although 'not alloyed, unwrought Zinc (<99.99% pure)' and 'Zinc ores and concentrates' are allowed to be subject to export taxes, China imposes taxes on 'Zinc waste or scrap" and 'Ash or residues containing hard zinc spelter' which are not listed in Annex 6.

July 2009, in order to help the sector to face the decline in its export volumes due to the global economic slowdown, China cancelled all the additional export taxes on yellow phosphorus and lowered the original export duty form 70% to 20%.[43]

The fact that China's 'Tariff Commission of the State Council on the Tariff Execution Plan 2010', includes 329 items while Annex 6 of its Accession Protocol includes only 84 items (both 8-digit HS), illustrates that the coverage of China's export taxes goes beyond the list of commodities designated in Annex 6. Moreover, its export tax measures, which sometimes also include special export tariffs on top of existing taxes, often exceed the levels to which China committed itself with its Accession Protocol.

C. Favouring Downstream Sectors?

The impact of these measures on domestic prices is particularly apparent when considering those minerals of which China is a major exporter. For instance, the domestic prices of minerals such as ferro-silicon, silicon metal and ferro-manganese, of which China is one the world's biggest producers and exporters, have been consistently lower than the international prices. As is shown in Figure 4 below, between February 2007 and February 2010, domestic prices of ferro silicon (75% pure) were significantly lower than those in the Western markets, namely Europe and the US. As of March 2010, the domestic price of 75% grade ferro-silicon in China is reported to be around Rmb 6200–6400/tonne (US$ 905–935/tonne), while the export prices were US$ 1270–1290/tonne.[44] This represents a 35–40 percent price differential between the domestic and export prices, which is due at least in part to export taxes up to 25 percent. Other restrictions such as licensing requirements and quotas might also play a role. Similar price differentials between domestic and international prices exist in other minerals such as silicon metal and ferro manganese (see Figures 5 and 6).

Such price differentials clearly offer significant price advantages to the domestic downstream manufacturing sectors over foreign producers, which is one of the main concerns of the countries which brought the case before the DSB. For instance, given that China is a major producer and exporter in the downstream sectors of silicon metal and manganese - which include semiconductors, steel and dry cell batteries - the export restrictions imposed on these minerals allow the downstream producers to enjoy significant price advantages over their foreign competitors. [45]

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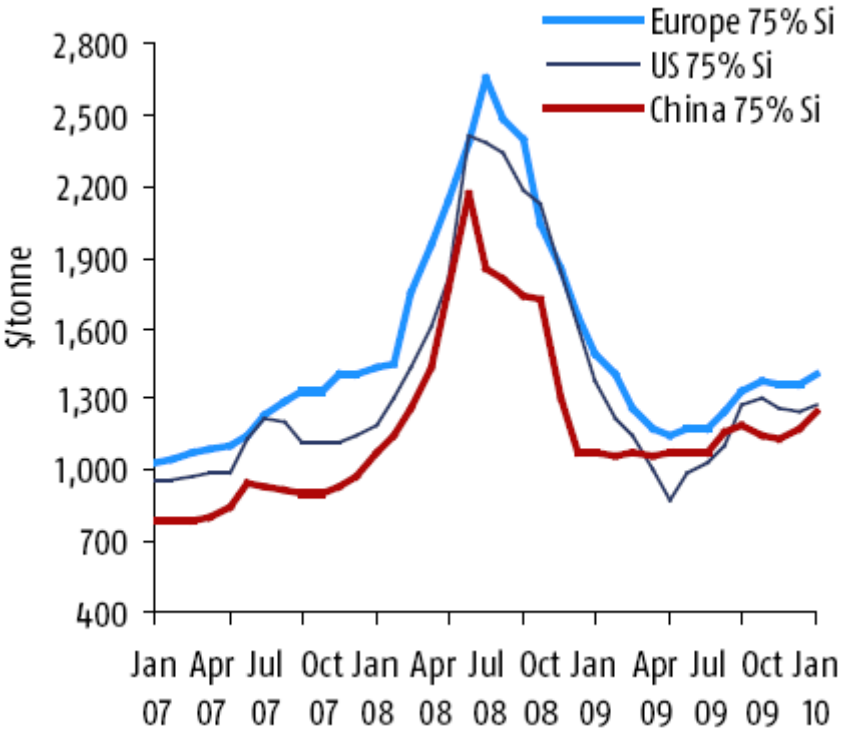
[43] Available at <http://www.encyclopedia.com/doc/1G1-208703452.html> (visited 16.02.1010).

[44] Metal Bulleting Research, Ferro Alloys: Ferro Silicon Highlights February 2010, <http://www.metalbulletinresearch.com/Article/2400643/Europe-rallies-on-demand-dollar-Ferro-silicon-highlights.html> (visited 1 March 2010)

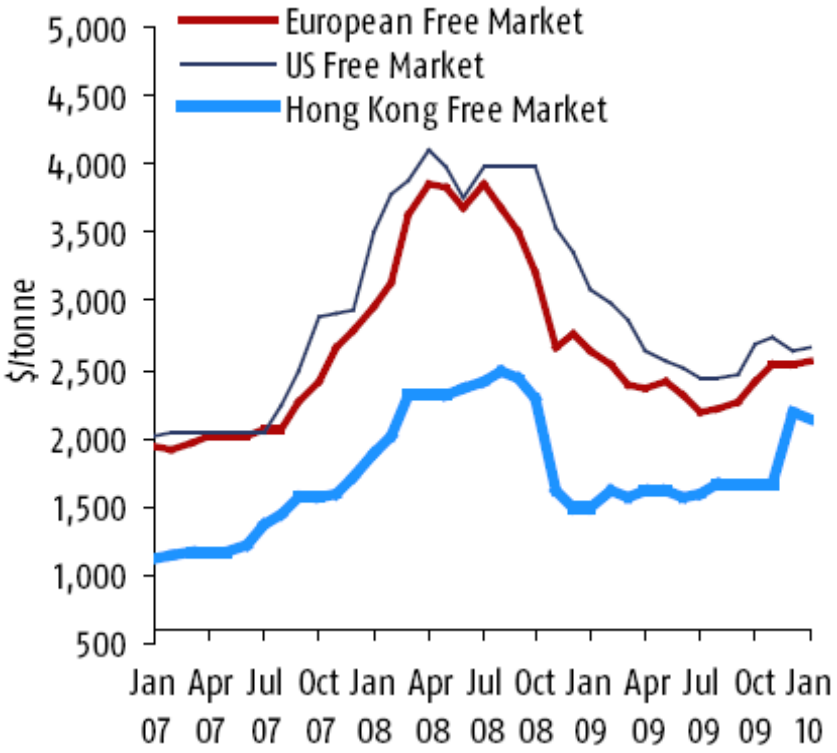
[45] On the other hand, one could also argue that China's undervalued currency, the renminbi (RmB), partly offsets the impact of export restrictions, albeit that is not the policy intention. The large body of literature on Chinese currency estimates that the renminbi is undervalued by a range of 10–40 percent against the US dollar (averaging around 20–25 percent) to the price advantage of Chinese exporters (see Dani Rodrik, 'Making Room for China in the World

Figure 4: Ferro-silicon prices, China, Europe, US, 2007-2010



Source: Metal Bulleting Research 2010

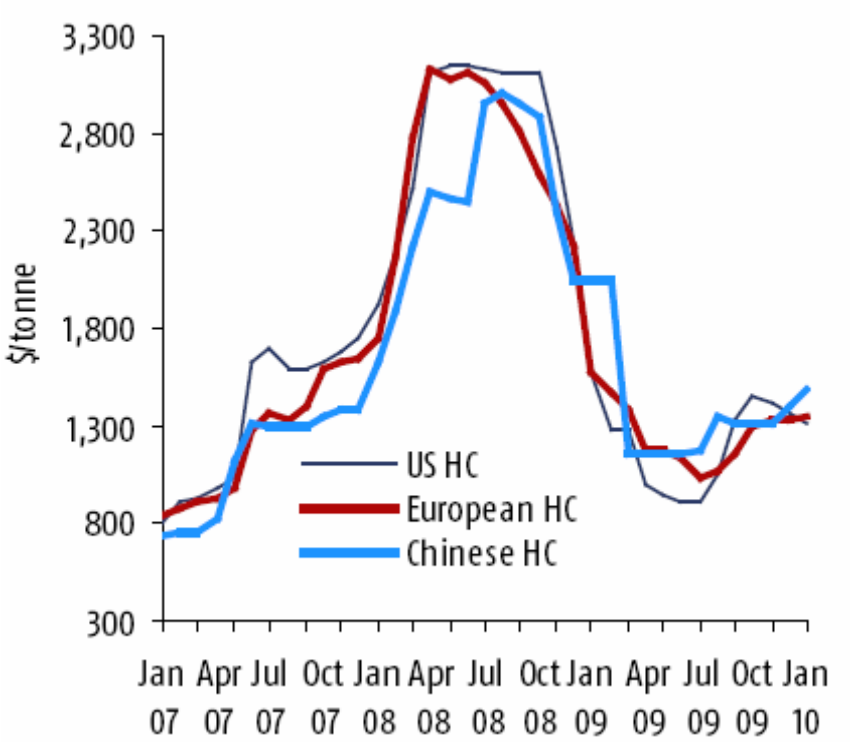
Figure 5: Silicon metal prices, Hong Kong, Europe, US, 2007-2010



Source: Metal Bulleting Research 2010

Economy ', AEA session on Growth in a Partially De-Globalized World (2009)). Therefore, export taxes in effect take away some of that additional advantage, although this is not the policy objective of China's undervalued currency and cannot in any way justify the violation of its commitments on export restrictions under the WTO law.

Figure 6: Ferro-Manganese prices, China, Europe, US, 2007-2010



Source: Metal Bulleting Research 2010

D. Conservation of natural resources?

Given that its export restriction measures appear inconsistent with its commitments under GATT 1994 and the Accession Protocol, China will have to demonstrate that its measures satisfy certain exception(s) under Article XX of GATT 1994. As the Appellate Body explicitly clarified during the recent 'China — Publications and Audiovisual Products' case, there is no doubt that China may invoke GATT Article XX to excuse itself from its commitments under its Accession Protocol.[46] In fact, responding to the panel request by the complaining parties, some Chinese officials have already indicated that the

[46] The Panel, in this case, did look at, on an *arguendo* basis, whether China's measures in question could be justified under GATT Article XX (b). Since it concluded that the measures did not qualify for an exception satisfying the requirements of GATT Article XX, the Panel decided that it was not necessary for it to determine whether China has the right to invoke GATT Article XX in cases of inconsistency with its Accession Protocol. However the Appellate Body decided to clarify this ambiguity and concluded that China's right to invoke GATT Article XX also covers its commitments under its Accession Protocol. WTO Panel Report, *China — Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products*, WT/DS363/R, 12 August 2009, para 7.745 <http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds363_e.htm>
WTO Appellate Body Report, *China — Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products (China — Publications and Audiovisual Products)*, 21 December 2009, para 415(a).
< http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds363_e.htm>

objective of these policies was related to environmental protection.[47] In that case, China will have to demonstrate that its export restriction measures satisfy the requirement of 'relating to' the conservation of natural resources in the meaning of GATT Article XX, paragraph (g), and that its measures operate 'in conjunction with restrictions on domestic production or consumption,' that they are in line with the 'even-handedness requirement'. In addition, China will have to demonstrate that these measures do not constitute 'a disguised restriction on international trade' as mentioned in the 'chapeau' of Article XX.[48]

1. Environmental Regulation of Mineral Production in China

The Environmental Protection Law of China defines the 'environment' as 'the total body of all natural elements and artificially transformed natural elements affecting human existence and development, which includes the atmosphere, water, seas, land, minerals, forests, grasslands, wildlife, natural and human remains, nature reserves, historic sites and scenic spots, and urban and rural areas'. [49] As such, protection of minerals, as part and parcel of the environment, could be classified as environmental protection under domestic law. This is particularly relevant in the context of China's Foreign Trade Law – as it allows for restrictions and bans on the imports and exports of goods in order to protect, among other things, the environment (Article 16(2)).[50]

However China's domestic environmental regulation specifically addressing production of minerals is highly fragmented. There are a number of laws dealing directly or partly with environmental issues related to mining operations:

The Mineral Resources Law requires mining enterprises to have a report on the 'mining area, its mining design or mining plan, production and technological conditions and safety and environmental protection measures'

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[47] The Chinese Ministry of Commerce's comment on the establishment of the Panel was 'The goal of export administrative measures on some raw materials is to protect the environment and our limited resources'. 'The regulations conform to the needs of China's own (sustainable) development, while also advancing China's efforts towards the sustainable development of the global economy.' See EUbusiness, 'China defends export restrictions on raw materials', 05 November 2009, http://www.eubusiness.com/news-eu/us-china-trade-wto.1bf/ (visited 20 March 2010).

[48] Article XX(g) reads 'Relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption". The full text of the GATT Article XX is available at: <http://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm.>

[49] Environmental Protection Law of China Article 2, available at <http://www.mwr.gov.cn/english/laws.html >

[50] Foreign Trade Law of the People's Republic of China Article 16, available at < http://wms2.mofcom.gov.cn/aarticle/policyreleasingcenter/200905/20090506257820.html >

with an examination and approval by relevant State authorities (Article 15).[51] It bans mining near large-scale water conservancy areas (Article 20(2)). In cases of mine closures, the former operators are obliged to prepare reports on, among other things, land reclamation and utilization, and environmental protection of the site in question (Article 21). The law also requires mining enterprises to 'economize' on the use of land, including arable land, grassland and forests. It makes the enterprises liable for potential damages and requires them to take measures concerning land reclamation, tree and grass planting.[52]

The Law on Water and Soil Conservation requires mining enterprises to have a water and soil conservation programme which is approved by the Department of Water Administration (Article 19). It also obliges mining operators to dispose of their soil, rock and other waste material in a designated area, banning them from being dumped into rivers, lakes and other water reservoirs (Article 18). The operators are also responsible for taking measures against soil erosion (Article 20), and carrying out land rehabilitation if soil erosion occurs (Article 36).[53] In case of non-compliance, the enterprise may face a suspension of business imposed by the Central Government or People's Government at the provincial level. The Law of the Prevention and Control of Water Pollution, on the other hand, requires those responsible for underground mining operations to take protective measures against groundwater pollution (Article 35).[54]

The main objective of the abovementioned laws is to ensure that mining operations do not cause environmental damage through pollution of land, water and air. Although government authorities may decline to grant permission for production on sites or for operations that may lead to environmental damage, or they may authorize suspension of business in cases of actual environmental damages, these measures cannot be considered as direct restrictions on production intended to protect or to prevent the depletion of minerals as environmental resources.

Moreover, it has been argued that the implementation and enforcement of these regulations have been highly problematic. The fact that many government institutions are involved in various aspects of these laws leads to enforcement difficulties. In addition, the rules are often not specific enough in identifying obligations and liabilities. Such lack of clarity creates additional difficulty in implementing the laws and regulations and arguably encourages

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[51] Mineral Resources Law of the People's Republic of China, available at
< http://www.ccchina.gov.cn/en/NewsInfo.asp?NewsId=5381>
[52] Ibid.
[53] Law of the People's Republic of China on Water and Soil Conservation, available at
<http://www.mwr.gov.cn/english/laws.html>
[54] Law of the People's Republic of China on the Prevention and Control of Water Pollution, available at
<http://www.mwr.gov.cn/english/laws.html>

corruption and undue discretion.[55] For instance, in the coal mining industry, complicated institutional and regulatory structures and inconsistencies of implementation have been reported as major causes of a range of environmental damage, high numbers of casualties among miners and economic inefficiencies in small-scale mining operations.[56]

2. Resource Tax

There is one measure, however, which is directly aimed at production: the Resource Tax. It is a quantifiable measure which acts as a disincentive to production through a 'market mechanism'. It is directly imposed on production of non-metal ores, crude oil, natural gas, coal, and solid salt. In the case of non-metal ores, depending on the type of mineral, its grade (purity), and the location of production, different tax rates apply. Among the listed minerals under dispute, the resource tax is Rmb 20.00/ton (US$ 2.9/ton) for bauxite (grade 3); Rmb 2/tonne (US$ 0.3/ton) for manganese ore; and Rmb 2–4 (US$ 0.3–0.6/ton) for zinc ore (grades1–5).[57] The Rules for the Implementation of the Regulations on Resource Tax allow the People's Governments at the province level, and autonomous regions and municipalities the right to decide to collect or temporarily postpone the collection of resource tax on other non-metal ores and non-ferrous ores other than the ones designated in the original list of materials (Article 4).[58]

However, these market measures are relatively insignificant when compared to the overall volume/value of production. The price of manganese ore (30%min, Fe 10%max) was around Rmb 700/tonne (US$ 102/t) in early March 2010.[59] Although these prices range widely depending on the grade of the mineral, the resource taxes are relatively small compared to the prices. For instance, it amounts to only 0.3% of the current price of manganese ore.

Since the market prices of these commodities have fluctuated substantially, especially in recent years, the relative significance of the tax and its impact on production varies too. It is important to note that when the demand for the mineral in question is high, pushing up the prices, the proportion of the tax relative to the price gets smaller, weakening its impact on production. While

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[55] See X. Cao, 'Regulating mine land reclamation in developing countries: The case of China', Land Use Policy, Vol. 24, No. 2 (2007) at 477.

[56] See for example, P. Andrews-Speed, M. Y. Yang, L. Shen and S. Cao, 'The regulation of China's township and village coal mines: a study of complexity and ineffectiveness', Journal of Cleaner Production, Vol. 11, No. 2 (2003), 185-196.
T. Wright, 'The political economy of coal mine disasters in China: 'Your rice bowl or your life'', China Quarterly, No. 179 (2004), 629-646.

[57] State Administration of Taxation, 'Rules for the Implementation of the Regulations on Resource Tax of the People's Republic of China', available at <http://202.108.90.130/n6669073/n6669088/6888452.html> (visited 12 February 2010).

[58] Ibid.

[59] Asia Metal, 2010, available at <http://www.asianmetal.com/Metal_News/Metal_News_selinfo_en.asp?ID=570671> (visited 15 March 2010).

the prices are low due to weak demand, on the other hand, the proportion of the tax goes up, and so does its potentially restrictive impact on production.

As for the impact of the resource tax on protection of natural resources, it has serious limitations. First, it only covers a limited number of minerals, and the majority of minerals (including some of those that are subject to export restrictions) are not covered. Secondly, for those minerals to which it applies, the proportion of the resource tax is somewhat insignificant compared to the price of the minerals in question, hence it has a very limited impact on constraining production. Thirdly, since its based on production volume rather than price, its potential impact on the environment through curbing production weakens when the demand for the commodities goes up, which is also when the pressure on the environment intensifies. Hence the current design and implementation of the Resource Tax does not offer an effective mechanism to curb production and conserve minerals, albeit allowing local provinces to raise tax revenues.[60]

3. Mineral-Specific Environmental Measures

On the other hand, the Government takes some other mineral-specific measures, directly or indirectly related to the environment, which affect the mining sector. For example, it imposes limitations on electricity consumption for mineral production and processing which constrains production and hence affects prices. In early 2008, in response to electricity shortages in some areas, the government announced that its preferential pricing of electricity to aluminium smelters and alumina refineries would be eliminated.[61] And more recently, a substantial proportion of silicon metal production capacity has been reportedly made redundant due to high electricity prices and shortage of power.[62]

The government has also introduced a set of standards regarding the scale and the potential for pollution of production and processing facilities of some minerals such as lead, magnesium, manganese and zinc (See Table 5 below). Since small-scale producers are often more energy intensive (due to diseconomies of scale), create more pollution and are more difficult to monitor than large-scale mines and smelters, the Government has been closing down

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[60] There have been reports that the policy has been under revision and tonnage-based taxation will be changed to a floating system where the tax rate will be based on the price of the minerals targeted. See, Reuters, 'China to annouce revamped resource tax soon-analyst', 25 March 2010, available at <http://www.reuters.com/article/idUKTOE62O02R20100325> (visited 30 March 2010).

[61] U.S. Geological Survey (USGS), 2008 Minerals Yearbook: Bauxite and Alumina, available at <http://minerals.usgs.gov/minerals/pubs/commodity/bauxite/myb1-2008-bauxi.pdf> (visited 15 March 2010).

[62] Metal Bulleting Research, 2010, 'March 2010 Ferro Alloys: Chinese Silicon-metal exports decline in response to slowdown in global demand', available at <http://www.metalbulletinresearch.com/Article/2402817/Chinese-silicon-metal-exports-decline-in-response-to-slowdown-in-global-demand.html> (visited 1 March 2010)

small operations. In 2008, according to the China Magnesium Association, 18 magnesium plants with high energy consumption and pollution intensity (as a result of relying on direct coal combustion) were closed down.[63] However, according to some estimates, since the total volume of mineral production by such small-scale operators is relatively low, for instance for manganese, such closures were not expected to reduce total production significantly.[64]

On the other hand, the Government is becoming increasingly responsive to human health-related environmental damage caused by the mining sector. This has become a politically sensitive issue – as such damage often triggers public protests. Hence the Government has promised to shut down some highly polluting lead, zinc and manganese plants which have allegedly caused thousands of cases of child poisoning in their vicinity. The Ministry of Environmental Protection has recently announced limitations on the amount of waste materials, such as sulfur dioxide, that mining operations are allowed to discharge.[65]

As such, mineral-specific environmental restrictions have a range of objectives. The primary goals are to achieve greater energy efficiency in the context of China's goal of reducing the energy intensity of its economy; to reduce pollution, especially if it poses a threat to human health; to gain greater control over supplies and to eliminate smuggling (by closing down small operations).

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[63] China Magnesium Industry & Market Bulletin, 2007, no. 23, November 23, p. 4-5, available at
< http://www.metalbulletin.net.cn/pdf/CMIMB11232007.pdf> (visited 15 March 2010). Also see China Magnesium Industry & Market Bulletin, no. 80, February 20, p. 4-5 cited in Mineral Industry Surveys: Magnesium in the fourth quarter 2008, available at <http://minerals.usgs.gov/minerals/pubs/commodity/magnesium/mis-2008q4-mgmet.pdf> (visited 15 March 2010).

[64] TEX Report, 2007, 'Battle line on manganese business in China for Q4/07 is still heated atmosphere: TEX Report', 26 September 2007, available at <http://www.texreport.co.jp/xenglish/eng-genryou/200709/200709261107Wed-4.html> (visited 15 March 2010).

[65] China Mining Association, 'China Issues Environment Standards for Lead Smelting Industry' available at <http://www.chinamining.org/Policies/2009-11-26/1259215333d31630.html> (visited 10 February 2010).

Table 5: Selected environmental restrictions specific to minerals under dispute

	Environmental Restrictions	Resource Tax
Bauxite	Aluminium smelters are subject to electricity rationing, which constrains production. In February 2008, due to shortage of electricity during a period cold weather, the Government announced the elimination of its preferential pricing of electricity to aluminium smelters and alumina refineries. Aluminium plants were also forced to cut production to reduce air pollution prior to the Beijing Olympics in 2008.[66]	Rmb 20/ton
Magnesium	According to the China Magnesium Association, 18 magnesium plants with high energy consumption and pollution intensity (as a result of relying on direct coal combustion) were closed down in 2008.[67]	
Manganese	In 2007, with the aim of reducing air pollution, Government regulation prohibited small blast furnaces of less than 300 cubic metres to produce ferromanganese.[68]	Rmb 2/ton
Silicon	As of March 2010, more than half of silicon metal production capacity has been made redundant due to the increased cost of electricity and power shortages (in conjunction with declining foreign demand).[69]	
Zinc	According to the of standards issued by the National Development and Reform Commission, all new zinc smelting projects must have a minimum capacity of 100,000 t/yr, and new lead-zinc mines must have a capacity of 30,000 t/yr with at least a 15-year mine life. The main objective of the measures was to eliminate production facilities using outdated technologies and to regulate excess smelter capacity in the country.[70]	Rmb 2-4/ton

Source: Compiled by the Author. Data on resource tax is based on State Administration of Taxation

In sum, China's environmental regulation concerning the mining sector in general, and its measures dealing with the minerals which are the subject of the WTO case in particular, is fragmented and difficult to assess in terms of its impact on preserving minerals as part of the environment (as defined by the Environmental Protection Law of China) and on reducing the pollutant effects of mining operations on land, water and air. The Resource Tax – which seems to be the only regulation which may qualify as a direct restriction on

[66] U.S. Geological Survey (USGS), above no 61.
[67] China Magnesium Industry & Market Bulletin above no 63.
[68] TEX Report, above no 64.
[69] Metal Bulleting Research, 2010, above no 62.
[70] U.S. Geological Survey (USGS), 2007 Minerals Yearbook: Zinc, available at < http://minerals.usgs.gov/minerals/pubs/commodity/zinc/index.html#myb> (visited 15 February 2010).

production – covers only a few minerals and does not have a substantial impact on production. The other mineral-specific measures which have been mentioned above are related to environmental protection, albeit often indirectly, for example, through electricity rationing, a measure which is sometimes an unavoidable necessity to cope with high demand for electricity rather than to achieve environmental protection.

Therefore it is highly likely that China will have difficulty in demonstrating that its export restrictions in the context of its environmental regulation satisfy the requirements of Article XX (g). First, although the Appellate Body's interpretation of the 'relating to' facet of Article XX(g) is less stricter than the GATT jurisprudence requiring the measures in question to be 'primarily aimed at' rendering effective the restrictions on domestic production and consumption,[71] China still has to establish that its export restrictions are 'reasonably related' to the policy goal of conservation of exhaustible natural resources. However, as is indicated above, its measures do not appear to be part of its highly fragmented environmental regulation dealing with mineral production. It would be difficult to establish that the measures in question are 'fairly narrowly focused'.

Secondly, whether the measures concerned are applied 'in conjunction with restrictions on domestic production or consumption' (the even-handedness requirement), there are difficulties too. They seem to impose restrictions, just in respect of the exports of the minerals in question, not with respect to domestic production and consumption. As such they restrict purchases of these minerals only by foreign processors and consumers and not those made by domestic processors and consumers. In addition these restrictions only apply to supplies in unprocessed form and do not cover exports of processed products which are composed of the raw materials in question. On the other hand, the abovementioned restrictions on domestic production (e.g. the recourse tax), or the products specific environmental measures cover other natural resources which are not subject to export restrictions. Hence, it is unlikely that the measures concerned would satisfy the even-handedness requirement. For the next step of examination as to whether they would satisfy the chapeau of Article XX (i.e. that they are not 'a disguised restriction on international trade'), the measures have to pass the first tier of the analysis (i.e. 'relating to' and the 'even-handedness requirement').

VI. MERCANTILISM vs. SUSTAINABLE DEVELOPMENT

The review of the GATT/WTO cases on export restrictions illustrates that the vast majority of the disputes involved alleged 'unfair' advantages that the measures created for the downstream producers and processors of the country instituting them, at the expense of the downstream sectors in complainant countries. For the defendants, economic and political objectives seem to have been the primary motivation. For the complainants the primary motivation

[71] GATT Dispute Settlement Report, *Canada – Salmon,* above no 17.

was the objective of obtaining greater access to raw materials (e.g. minerals, fisheries, leather etc.) and other intermediary goods (e.g. in the case of Japanese semi-conductors). As such, the latest dispute between China and the US, EU and Mexico could be seen as another example of competition over resources. As the world economy recovers from the current slowdown and when the international competition over raw material picks up again, it is highly likely that there will be more disputes over export restrictions coming before the DSB.

Problems of 'unfair' competition and related global welfare losses would be substantial if a country in a monopoly supplier position of a commodity with limited substitution resorts to export-protectionist measures (or 'resource nationalism'). Similarly, as was experienced during the food crisis of 2007-2008, in case of thin market conditions (e.g. agricultural markets), supply constraints in major producers combined with export restrictions could inflate prices rapidly, to the detriment of net importing countries. On the other hand, under competitive market conditions of high supply elasticity at the global level, the negative impacts of export restrictions unilaterally imposed by a country would be limited. On the positive side, they could help developing countries to promote high added-value sectors and to raise tax revenues. A differentiated export tax on raw materials may offer an important incentive for investment in high value downstream manufacturing sectors in resource-rich developing countries which aim to move up the value chain.

As for the WTO law, there have been proposals to tighten the disciplines on export restrictions, mainly in relation to agricultural commodities. While being biased towards export-oriented countries/sectors, the WTO law has little to offer to import-dependent countries which are pushing for reform in this area. Japan proposed to 'tariffy' all export prohibitions and restrictions, and to bind all export taxes. It called for export restrictions to be used only in cases of emergency and under strictly defined conditions. Proposals by Switzerland and Jordan were stricter - as they envisaged the elimination of all export restrictions and the binding at zero of all export tariffs.[72] The Cairns Group proposed tighter disciplines combined with the elimination of tariff escalation which would promote the capacity of exporting countries to develop processing industries. A recent proposal by Japan and Switzerland which was circulated before the WTO Ministerial Conference in July 2008, called for consultations between the country instituting export restrictions and its trading partners which would be affected by the measures. If the consultations fail to produce agreement within a set period, the measure would be referred to a 'standing committee of experts' for binding arbitration. However, the

[72] For proposals that mention export restrictions, see WTO Secretariat, 'Export restrictions and taxes', available at <http://www.wto.org/english/tratop_e/agric_e/negs_bkgrnd09_taxes_e.htm> (visited 24 March 2010).

proposal did not receive consensus support. In particular, some developing countries opposed it.[73]

Looking beyond the pure economics of the matter, however, the relevance of export restrictions in the context of environmental protection is crucial. In the 'Canada- Herring and Salmon' case, environment-related exceptions under GATT Article XX were not found to be applicable. Such an outcome is highly likely for the 'China – Raw Materials' case too. This is mainly because the environmental component/objective of the measures in question was relatively weak compared to their economic component/objective with a restrictive impact on trade. However, this does not refute the fact such measures could have substantially contributed if the genuine objective was environmental protection. A carefully measured export restriction policy in conjunction with other domestic measures limiting production and consumption could well help protect the environment and slow down the depletion of exhaustible resources, such as minerals, forestry products, fisheries and endangered species.

As the market prices do not reflect the social cost of scarcity, simply exposing exhaustible resources to the growing demand of global markets – in the face of increasing population, intensifying demand from advanced developing countries, rising disposable incomes resulting in changes in consumption patterns – might irreversibly damage the sustainable use of these resources and limit the ability of future generations to benefit from them.[74] In this context, the WTO law shows signs of serious disproportionality. It is strongly biased against the late accession Members, the majority being developing countries, which have had to commit themselves to stricter rules. As argued by some analysts, the accession negotiations were not used to improve sustainable development;[75] on the contrary, the WTO seems to have used its bargaining leverage to demand 'WTO-plus' commitments.

In this context, the findings of the Panel on the China – Raw Materials case or the potential interpretations of the Appellate Body are likely to have far reaching consequences – as they will define the extent to which Article XX(g) could be invoked to justify restrictions on the exports of natural resources. In particular, their decisions and interpretations will expand the existing case law examining the relationship between the design of the measure and its environmental objective. It would be interesting to note if the Panel or the Appellate Body would consider the efficiency of export restrictions on

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[73] WTO Secretariat, 'Unofficial guide to the 10 July 2008 'revised draft modalities'', 18 July 2008, available at < http://www.wto.org/english/tratop_E/agric_e/ag_modals_july08_e.htm> (visited 24 March 2010).

[74] Although China is a defendant in the case described above, it pursues highly offensive trade policies when it comes to importing natural resources from low income developing countries, particularly those in sub-Saharan Africa. These countries could use export restrictions to shield their non-renewable resources from resource-thirsty economies such as China.

[75] Steve Charnovitz, 'The WTO's Environmental Progress', Journal of International Economic Law 10 (2007) pp. 691-692.

environmental protection or look at the availability of various other policy tools that might be less trade restrictive.

CONCLUSION

Does the field of export restrictions represent a case of 'under-regulation' or 'regulatory deficiency' in WTO law? The answer to this question is far more multifaceted than a simple description of the regulation which explicitly deals with the issue, most notably through GATT Article XI. Whether export restrictions escaped strict forms of WTO regulation because of lack of foresight on the part of law makers or as a result of omissions by leading Members pushing their export-driven interests is no longer relevant. The important question now is to decide whether and how to reform the existing legislation to correct the 'regulatory deficiency' or to treat what appears to be an area of 'unintended policy space' as a means to correct major market failures in the context of the growing importance of promoting environmental sustainability and inter-generational equity.

Various reform proposals in this field, which involve 'tariffication' of quantitative restrictions and binding of export taxes, have received cold response from many developing countries. Leaving aside the political non-feasibility of introducing verifiable commitments on export taxes, however, such restrictions would also take away an important tool which could be highly effective in protecting exhaustible resources, and in promoting high value-added sectors in resource-rich developing countries. As such, restricting this unintentionally large policy space may not only be politically unfeasible but also undesirable.

Annex 1. Export restrictions imposed on selected minerals by China, 2002-2008

Minerals & Metals	Product Form	Date	Quantitative Restrictions	Export Tax
Antimony	Ore/concentrate	2008		10%
	Unwroght antimony	2008		5%
Copper	Ore/concentrate	2008		10%
				30%
Chromium	Ferrochromium	2005		5%
	Chrome Ore/concentrate	2008		15%
	Unwroght chromium	2008		15%
	Chromium scrap	June 2005		15%
Germanium	Oxide	2008		5%
Indium		2008 (?)	Export quota: 240T	
		2007		15%
Manganese		2008		39%
	Ores and concentrate	2008		15%
Molybdenum	Molybdenum	2008	Export quota: 26,300T	
	Molybdenum	2007	Export quota: 35,700T	
	Ferromolybdenum	Jan 1, 2008		20%
	Concentrate/oxides/ ferromol.	Jan 1, 2007		10%
	Powder/unwrought/scrap	Jan 1, 2007		15%
	Hydroxides/salts/ammonium m.	Jul 1, 2007	VAT rebate cancelled	
	Wire &other moly.products	Jul 1, 2007	VAT rebate reduced to 5%	
		Jun, 2007	Export licensing system implemented granting export licenses to selected producers who meet certain criteria	
		Aug.01- Feb.02	Export limit of 8861T to the EU following dumping duties	
Nickel	Ores and concentrate	2008		15%
Rare Earths		2004-2005	Export quota: 48,040T	
		May, 2005	Export VAT rebate cancelled	
		Late 2006		
		2006	Export quota: 45,752T	
		2007	Export quota: 43,573T	10%
		2008		
	Europium, terbium, dysprosium, yttrium as oxides, carbonates or chlorides; rare earth metals (except neodymium)			25%
	All other rare earth oxides, carbonates and chlorides	2008 2008		
	Neodymium metal	2008	Export quota: 37,189T	15%
	Ferro rare earth alloys			20%

Silicon		2008	Export quota: 216,000T	
				5-15%
	Silicon metal	2008		10%
Silver		2008	Export quota: 48,000T	
	Ores and concentrate	2008		10%
Titanium	Titanium white	July 2007	VAT rebate increased from 0% to 13%.	
Tungsten	Tungsten and tungsten products	2008	Export quota: 14,600T	
	Tungsten and tungsten products	2007	Export quota: 15,400T	
	Ammonium paratungstate, etc.	2007		5%
	Tungsten and tungsten products	2006	Export quota: 15,800T	
	Ferro-tungsten	Nov 1, 2006		10%
	Tungsten scrap	Nov 1, 2006		15%
	Tungsten and tungsten products	Jan 1, 2006	VAT rebate reduced to 5%.	
	Tungsten and tungsten products	May 1, 2005	VAT rebate reduced to 8%.	
	Tungsten and tungsten products	2004- 2005	Export quota: 16,300T	
	Tungsten products (except powder/con./ scrap)	2004	VAT rebate reduced to 5%	
	Tungsten concentrat. and scrap	2004	VAT rebate cancelled.	
	Tungsten and tungsten products	2002-2003	Export quota: 16,300T	

Source: Korinek and Kim, 'Export Restrictions on Strategic Raw Materials and Their Impact on Trade and Global Supply ', above no 7.