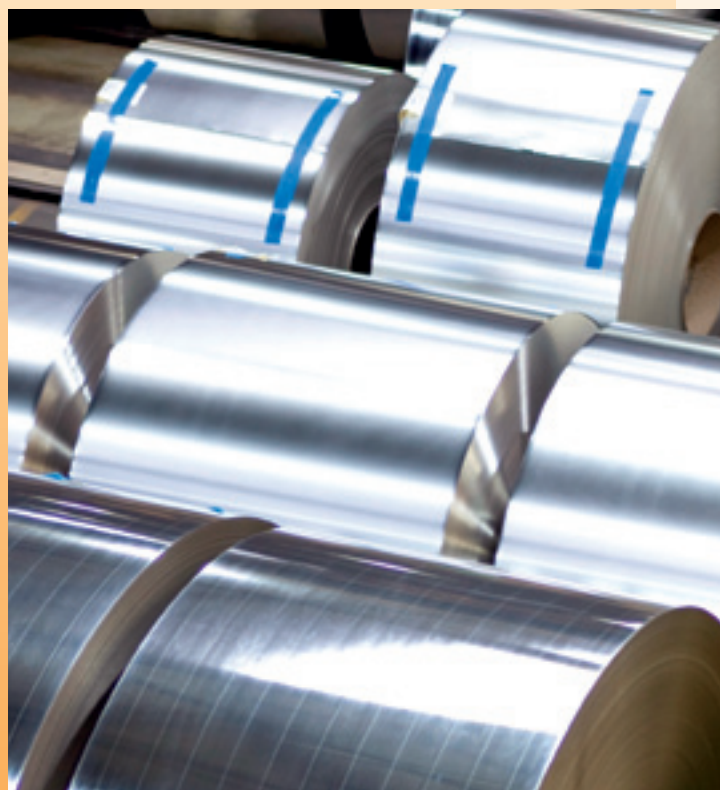


The Climate for Steel

Actions for, and conditions to,
a Copenhagen climate agreement from
the perspective of the EU steel sector

Clingendael International Energy Programme



Nederlands Instituut voor Internationale Betrekkingen
Netherlands Institute of International Relations
Clingendael

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CE Delft



Clingendael International Energy Programme

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Management Summary

Climate change is one of the greatest challenges for the future of steel industry. As a sector, it is responsible for 3 to 5% of worldwide CO₂ emissions. Any emission reduction commitments agreed at as an outcome of the climate change negotiations in Copenhagen in 2009, will have a substantial impact on the steel sector. This holds even more as the CO₂ performances differ widely per region and country, and between plants within countries. Europe has taken the lead in formulating ambitious climate change policies, but it remains to be seen if other countries and regions will follow.

In this context Corus Netherlands has asked the Clingendael International Energy Programme and CE Delft to write a position paper discussing the relationship between climate change policies and competitiveness in the global steel sector. Question is how the need for effective action to confront global climate change can be combined with a level playing field for competition in the global steel sector, taking into account the position of Corus Netherlands as a European steel producer. More specifically; what conditions in an international agreement could provide such a level playing field?

Chapter 2 of this paper briefly outlines some essential characteristics of the global and European steel sector. Regarding competitiveness of the European steel sector, it is noted that:

- Nine countries and regions dominate the world steel markets. These are China, Russia, Ukraine, the EU-27, the United States, Japan, Brazil and South Korea. China is by far the largest steel producer, with 36% of world production in 2007. The EU-27 covers nearly 16% of world steel production and is as a region the world's second largest producer.
- Steel is traded globally, although most steel trade takes place within geographical regions. This also holds for the European Union. However, 22% of EU imports and 24% of EU exports were extra-regional in 2006, thus signalling a significant influence of external trade on the position of the EU steel sector.
- The competitive situation of the European steel sector is subject to substantial changes in recent years. Over the last decade, the EU has been a net exporter, but this situation changed drastically since 2004 with a six-fold increase in monetary terms of imports. Whereas EU exports have remained constant over the last couple of years, especially imports from China, Russia and the Ukraine have risen sharply. Russia and Ukraine mainly import lower value semi-finished products, China's imports are dominant in the higher value segment of non-alloyed flat rolled steels. China could therefore be a more serious threat to European competitiveness in the long run than the other two countries, although increases in imports from the former two countries with significant impacts cannot be excluded either.
- The global financial crisis of 2008, has led to substantial cuts in EU and non-EU production. What this will mean for EU steel exports and imports still remains to be seen.

With regard to climate change, chapter 2 notes that:

- There are substantial variations in CO₂ emissions between regions and countries. The weighted average of CO₂ emission per tonne of steel produced is 1.7 tonne (BOF and EAF steel), but emissions vary from 3.5 tCO₂/tonne steel in Russia to less than 1 tonne in the EU-25 and South-Korea. Within regions and countries however, these emissions can significantly vary as well - with exporting factories often accounting for the best in class domestically.
- On a global as well as on a European level, the steel sector has taken various initiatives to reduce greenhouse gas emissions. These include an initiative for a sectoral approach and launching a CO₂ emissions database.

Chapter 3 outlines the present status quo of the multilateral climate change negotiation process towards the December 2009 Copenhagen conference. Main conclusions of this chapter are:

- The United Nations has set up a negotiation process that has led climate change discussions to many parts of the world. Starting with the United Nations Framework Convention on Climate Change in 1992 in Rio de Janeiro, the 1997 Kyoto Protocol has set for the first time binding emission reduction obligations for industrialised countries and economies in transition.
- Although many industrialised countries are presently struggling to meet their commitments under the Kyoto Protocol, it has become clear that global emission reductions for the future would require even further action from these countries, as well as from developing countries.
- In December 2009 parties will meet in a Copenhagen Climate Change Conference to agree about such emission reductions for the future after the end of the Kyoto commitment period in 2012. As a result of the United States opt-out to the Kyoto Protocol, the discussions so far have taken place under three tracks: A “Convention Track” including the United States, a “Protocol Track” including only parties to the Kyoto Protocol, and a third track outside the United Nations context in which the United States again play an important role.
- The three discussion tracks address a large array of topics, including long-term commitments, intermediary targets, carbon markets and ‘flexible mechanisms’, forestry and land-use change, technology transfer, mitigation, adaptation, finance. Many technical issues still have to be resolved and progress in the discussions is slow. No fundamental breakthroughs in any of the topics discussed have been obtained yet.

Chapter 4 gives a view on climate and competitiveness for the EU steel sector. The European steel industry together with other energy- and carbon-intensive industries is presently engaged in a fierce debate with the European institutions about ‘carbon leakage’. In this debate about the proposed EU climate measures and the competitiveness of European industry several issues are discussed, with most attention paid to the extent to which industries qualify for the free allocation of emission rights after 2012.

In December 2008, European Council and Parliament reached an agreement on this issue stating that “installations in sectors or sub-sectors which are exposed to a significant risk of carbon leakage will be allocated 100% of allowances free of charge at the level of the benchmark of the best available technology”. It was also decided that the list of exposed sectors shall be determined after taking into account the extent to which third countries also engage in climate measures “to an extent comparable to that of the EU” and “the extent to which carbon efficiency of installations located in these countries is comparable to that of the EU”. On 31 December 2009 the latest it will be decided what sectors are supposed to be exposed to carbon leakage and on 30 June 2010 the latest the Commission will hand it a report reviewing the proposed measures in the light of the outcomes of the December 2009 Copenhagen negotiations.

To answer the question what provisions in an international agreement more specifically could protect the EU steel industry from potential adverse effects on their competitive position it has to be taken into account that such an agreement is likely to consist of ten main building blocks: A global long-term target; An interim target; Developed world commitments and carbon markets; Developing world contributions; Sectoral action; Financing; Technology; Forests; Adaptation; Institutions and mechanisms for action.

Any international agreement will be a complicated trade-off that will involve all these building blocks. So far, however, the exact contents of none of the building blocks have been agreed upon. Up to now, the European Union is still the party that is most prepared to commit itself to emission reduction goals. Other main steel sector countries make their contributions conditional to the participation of developing countries (United States, Japan), or on receiving financial transfers (China and other

developing countries). The EU is also the only party so far that has made some progress, though hesitant, in reducing its emissions as a result of deliberate climate policies.

Some of the most relevant ideas and proposals for the EU steel sector presently discussed in the climate negotiations are:

- Which parties will have which obligations?

Whereas some parties argue that the Annex I / non-Annex I division of countries established under the Kyoto protocol should be maintained (Brazil), others state that a ‘new sight on the differentiation of countries is required’ (United States, Russian Federation). A 25-40% emission reduction for industrialised countries is suggested by the European Union and by New Zealand. The latter party makes this target conditional to developing countries reducing their emissions on aggregate by 15-30% below baseline.

However, developing countries so far are not willing to commit to quantitative emission reductions. Only Brazil made a statement that ‘developing countries should implement mitigation actions with a view to deviating emissions from baseline’. Crucial for understanding the position of developing countries is the statement made by Saudi Arabia, Argentina, G77 and China, Norway, Singapore and South Africa that ‘the extent to which developing country parties will effectively implement their commitments under the Convention will depend on provision of prior financial and technical support provided by the developed countries’.

- What is suggested regarding sectoral action?

Whereas sectoral actions should involve a critical mass of parties (United States) and be compatible with a global carbon market (EU), their implementation should be limited to promoting transfer of technology and cooperative action only (China). They should not replace national emission reduction actions (Japan, Bangladesh), nor lead to punitive trade measures, global standards or benchmarks (China). Suggested sectors to include are (several parties): energy, power generation, coal-fired power generation, energy efficiency, iron and steel, cement, residential and commercial, aluminium, transport, aviation, maritime bunkers, chemical industry, pulp and paper, forestry, agricultur and waste.

The EU, South Africa, Australia and the Republic of Korea propose to introduce emission trading on a sectoral basis, sectoral no-lose targets, no-lose sectoral crediting baselines and/or sectoral CDM based on efficiency standards. Setting up ‘robust governance schemes’ to monitor, report and verify sectoral action is suggested by the EU.

- What is discussed regarding measurability, reportability and verifiability of actions?

Several parties propose to establish a registry of NAMAs (‘Nationally Appropriate Mitigation Actions’). Suggested variables to monitor include: implementation of actions, sustainable development benefits, climate co-benefits and costs of actions, national greenhouse gas inventories, voluntary national action plans, sectoral data, deforestation data and level of financial and technical support received.

Chapter 5 finally provides conclusions and recommendations for provisions in an international agreement that could provide for a competitive level playing field in the steel sector. The chapter distinguishes between two main options for an international agreement that could limit potential adverse effects on the competitive position of the EU steel sector as a result of the proposed EU climate measures.

1) A **global sectoral agreement** would be the best outcome of the Copenhagen summit from a competitive point of view. If all competitors in the steel sector would be able to reach a voluntary agreement that could also be bound into the binding juridical framework for countries in the UNFCCC

context, a maximum engagement of all parties and a level playing field shaped primarily by the steel sector parties themselves could be guaranteed. The World Steel Association has already started an important voluntary sectoral initiative in this respect. This initiative deserves to be fully supported, advertised and also adapted to fit into the present Copenhagen discussions in order to provide optimal results. In order to do so, the WSA approach would have to be compared to presently discussed sectoral no-lose approaches for developing countries. The WSA approach could also benefit from experiences in, and coalitions with other sectors such as the cement and aluminium industry. Crucial for the success of this approach will be the incentives that can be provided to non-EU parties to participate in the steel sector initiative.

Minimum conditions for a sector-based approach for the steel sector in an international agreement will be:

- A reference to sectoral approaches as a means to fulfill, or in addition to, national obligations (to be worked out later in more detail);
- A reference to intensity-based (benchmarking) approaches as a means for sectoral action;
- Recognition of the WSA initiative as the start of a feasible sectoral approach for the global steel sector.
- The basis for a juridical framework that could link the informal sector-based approach to the formal obligations for countries.

It is likely that only in the case that a sectoral agreement specifically for the steel sector is included in an international agreement, a 100% level playing field for the steel sector can be guaranteed. Depending on the degree of participation in such a sectoral agreement and the resulting degree of 'carbon leakage', additional protective provisions on an EU level might still be necessary to avoid a more advantageous position of non-participants. These could include free emission rights for the participants until the level of a certain benchmark that is part of a sectoral agreement to compensate for additional costs that cannot be passed on to consumers, or border tax adjustments.

2) A second-best outcome for the EU steel sector would be an **international agreement without specific sectoral provisions**. In this case, a level playing field for competition would be harder to realise as the effects of climate measures in countries on the steel sector would only show indirectly. Although the advertised increase in emission reduction efforts from 20 to 30% by the EU in the case of an international agreement might well result in an extra burden for the EU steel sector, it is expected to be well below 10%: According to the European Commission's second strategic energy review, assuming an oil price of \$100 a barrel and a CO₂ price of 41 euro/tonne CO₂ the presently announced measures might already result in 23% emission reduction, and the bulk of additional measures is supposed to be taken outside the ETS.

Distortion of competition in this case could be reduced by some minimum conditions:

- Participation of a critical mass of steel sector countries, with at least binding targets for EU, Japan and the United States and substantial emission reduction efforts by China, Russia and the Ukraine.
- Emission reduction plans to be prepared and handed in by all parties to a common registry, regardless if actions are binding or voluntary. The registry should monitor at least implementation of actions and greenhouse gas emissions in all countries and their effect on specific important sectors;
- Technology and financial transfers of industrialised countries to developing countries coupled to the level of action of developing countries;

It will be more difficult to guarantee a level playing field in the steel sector without specifically mentioning sectoral actions in an international agreement. This in the end very much depends on the way other countries will treat their energy-intensive industries and how more general measures on a national level will affect these industries. Protective measures may be justified provided that the EU steel sector can make its case of distortion of competition.

1

Introduction

1.1 Background

The global and European steel sectors are facing challenging times. Ten years ago many steel companies were struggling for survival. Consolidation in the industry and a period of high economic growth led by the emerging economies in recent years has resulted in a “rebirth” of steel industry, with robust order books for some years ahead. According to the European steel industry federation, 2006 and 2007 even were two exceptionally good years for the steel sector in Europe¹.

However, with the global financial crisis also hitting Europe severely, the perspectives for the future once again are changing. Due to the expected decline in demand over 2009 as a result of the deteriorated economic circumstances, Arcelor Mittal, the world’s largest steel producer, in November 2008 announced to slash production by 30%², Corus Group will reduce production in the last quarter of 2008 and first quarter of 2009 by 30%³. Part of the personnel of Corus Netherlands even has been put on temporary leave and a 10% of wages for all personnel in the United Kingdom is discussed⁴.

Amidst these rapidly changing economic perspectives, climate change is one of the greatest challenges for the future of steel industry. The steel sector, together with the aluminium sector and the cement industry is one of the highest emitters of CO₂ worldwide and as such responsible for 3 to 5% of worldwide CO₂ emissions⁵. Any emission reduction commitments agreed at, as an outcome of the climate change negotiations in Copenhagen in 2009 will have a substantial impact on the steel sector. This holds even more as the CO₂ performances differ widely per region and between plants within countries. Europe has taken the lead in formulating ambitious climate change policies, but it remains to be seen if other countries and regions will follow. The outcomes of the UNFCCC conference in Poznan in December 2008 will give an update of the positions of the various countries on the “road to Copenhagen”.

In the steel sector, the former Dutch “Koninklijke Hoogovens” in 1999 became part of the British/Dutch Corus group, which in 2006 in turn became part of the Indian Tata Steel Group. Corus is Europe’s second largest steel producer, with an annual turnover of about 12 billion British pounds, and a steel production of over 20 million tonnes. Tata Steel is the world’s sixth largest steel producer, with a production capacity of 27 million tonnes steel spread over nearly 50 countries. Corus group aims at leadership in value creation as well as in sustainability. Its aim is to become the “world steel industry benchmark for value creation and corporate citizenship”⁶.

¹ Eurofer, Annual Report 2007, www.eurofer.org

² Financial Times, Crisis forces Arcelor Mittal to slash output, 6 November 2008

³ Corus Group website, Corus takes further action to align production and demand, 7 November 2008

⁴ Financieel dagblad, Lagere lonen bij Corus ondenkbaar, 12 December 2008

⁵ C. Watson, J. Newman, R.H.T. Upton, P. Hackmann, Can Transnational Agreements Help Reduce GHG Emissions? Round Table on Sustainable Development, OECD, No. SG/SD/RT(2005)1, 2005, Paris; World Steel Association website, October 2008, www.worldsteel.org

⁶ Corus website, October 2008, www.corusgroup.com

1.2 Question posed by Corus Netherlands

It is in this context that Corus Netherlands has asked the Clingendael International Energy Programme and CE Delft to write a position paper discussing the relationship between climate change policies and competitiveness in the global steel sector. Question is how the need for effective action to confront global climate change can be combined with a level playing field for competition in the global steel sector, taking into account the position of Corus Netherlands as a European steel producer. More specifically: what provisions in an international agreement could provide such a level playing field?

1.3 This paper

This position paper gives a view of the Clingendael International Energy Programme and CE Delft regarding the question posed by Corus Netherlands. With that aim, it will first give a brief outline of the global and European steel sector. Then it will describe the status quo of present multilateral climate change negotiations. Finally the paper will reflect on the position of the steel sector within the global climate change negotiations and provide some advice for the position to take by Corus Netherlands as a European steel producer.

2

The steel sector

This chapter gives an overview of the global and European steel sector as far as relevant to the discussion about climate and competitiveness.

2.1 The global steel sector

Due to the heterogeneity of steel products, there exists no world market price of finished steel products, neither a single market. There are variations in both steel grades and quality to satisfy a wide range of applications, including construction, automotive, packaging and manufacturing industries. Over the last two years, prices in North America were similar to the EU price level while prices in South East Asia were 25% lower than this level.⁷

Box 2.1 Steel Production Processes

Steel is produced from either iron ore or scrap. These production processes can be distinguished:

- 1 **Basic oxygen furnace (BOF).** The BOF process mainly involves the smelting of primary materials as iron ore and coal coke in large integrated facilities (3-15 Mt)⁸. The majority of the final products that emerge from this production process are so called flat products⁹. These are often specialties with a relative high value, especially used in the automotive industry¹⁰.
- 2 **Electric Arc Furnaces (EAF).** In the EAF process, steel is created by remelting secondary scrap that arises from downstream manufacturing processes and consumer goods. It takes place in relatively smaller mills. The largest part of the production is focused on long products¹¹. These are mostly commodities, used in for example the housing sector¹²;
- 3 **Open hearth furnace (OH).** Using oil or gas as fuel generator, in the OH process steel is produced by smelting primary materials or remelting secondary scrap – nowadays a rather obsolete technology.

Looking at this basic (crude) steel, worldwide production was more or less stable until 2001, fluctuating around the 7-800 Mton per year. Since then, production volumes have risen enormously (see Figure 2.1). In 2007, total production equalled 1.344 Mton. The largest share of this steel originates from BOF sites, accounting for nearly 66.5% of total steel making. About 31% of total production comprises EAF processes, whereas only 2.5% of the steel comes from OH furnaces¹³. In Europe most of the OH steel mills were closed by the early 1990s, in part due to their fuel

⁷ See e.g. <http://www.meps.co.uk/allproducts%20steel%20price.htm>

⁸ Hatch Beddows, EU ETS Competitiveness Impacts on the European Steel Industry, 2007, London.

⁹ In the EU, 75% of the steel products from BOF plants are flat end products, 25% are long end products (McKinsey/Ecofys, 2006).

¹⁰ McKinsey/Ecofys, EU ETS Review: Report on International Competitiveness, 2006, Brussels; Jean-Charles Hourcade, Damien Demaill, Karsten Neuhoff, Misato Sato et al. Climate Strategies Report: Differentiation and Dynamics of EU ETS Industrial competitiveness impacts, 2007.

¹¹ About 85% of the products from EAF plants are long end products, 15% are flat end products (McKinsey/Ecofys, 2006).

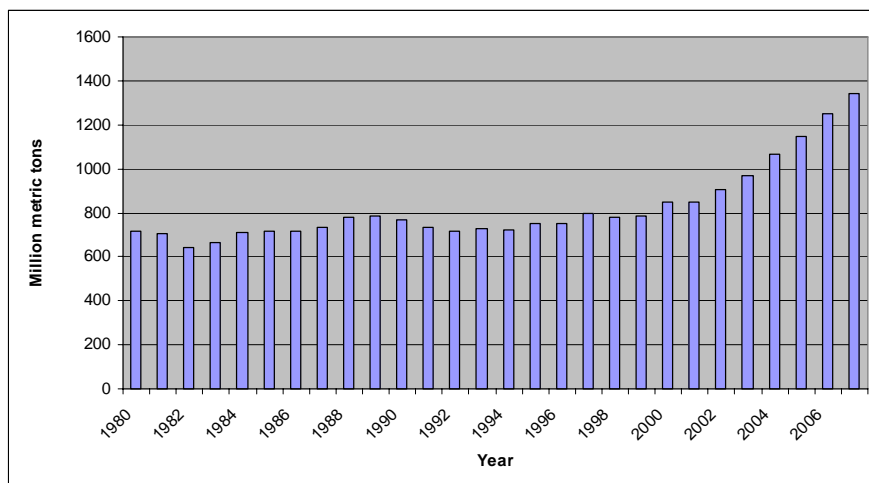
¹² McKinsey/Ecofys, EU ETS Review: Report on International Competitiveness, 2006, Brussels; Jean-Charles Hourcade, Damien Demaill, Karsten Neuhoff, Misato Sato et al. Climate Strategies Report: Differentiation and Dynamics of EU ETS Industrial competitiveness impacts, 2007.

¹³ World Steel Association, World steel in figures 2008, second edition, 2008,

<http://www.worldsteel.org/?action=programs&id=64>

inefficiency. They have been replaced by BOF and EAF. To date, the only remaining OH furnaces are located in Latvia and in non-European regions such as Russia and Ukraine¹⁴.

Figure 2.1 Worldwide production of crude steel, period 1980-2007 (Source: World Steel Association, 2008)



The production of steel (and iron) is one of the most CO₂ intensive manufacturing sectors. It accounts for 3-5 % of total global greenhouse gas emissions¹⁵ and for 27% of industrial CO₂ emissions¹⁶. Emissions depend substantially on the exact production process: The BOF production process is 5 times more emission intensive than EAF due to higher energy use, with 2.0 t CO₂ emitted per tonne of steel produced in the BOF process, and 0.4 tonne in the EAF process¹⁷. Combining the two processes, it is estimated that the production of one tonne of steel worldwide causes on average 1.7 t CO₂ emissions¹⁸.

Over 90% of the emissions originate from nine countries/regions: China, Brazil, EU-27, India, Japan, Korea, Russia, Ukraine and the US. These are the main steel producing areas. Emissions per region vary substantially; from on average 3.5 t CO₂ per tonne of steel in Russia, to less than 1 tonne in the EU-25 and South Korea (Figure 2.2). It has to be noted, however, that within regions and countries the CO₂ emissions per tonne of steel can also vary substantially. For instance, while CO₂ emissions per tonne of steel in China are relatively high, only 8% of its production (in 2005) was exported – with exporting factories often ranking best in class domestically in terms of emissions¹⁹. The steel making process in China of newly built plants might be less CO₂ intensive (emissions per ton of steel) than in other regions.

¹⁴ World Steel Association, World steel in figures 2008, second edition, 2008,

<http://www.worldsteel.org/?action=programs&id=64>

¹⁵ C. Watson, J. Newman, R.H.T. Upton, P. Hackmann, Can Transnational Agreements Help Reduce GHG Emissions? Round Table on Sustainable Development, OECD, No. SG/SD/RT(2005)1, 2005, Paris; International Iron and Steel Institute, A global sector approach to CO₂ emissions reduction for the steel industry, position paper, 2007.

¹⁶ Iron & steel, non metallic minerals and chemicals and petrochemicals together account for 70% of industrial CO₂ emissions. IEA, Tracking industrial energy efficiency and CO₂ emissions, Paris, 2008

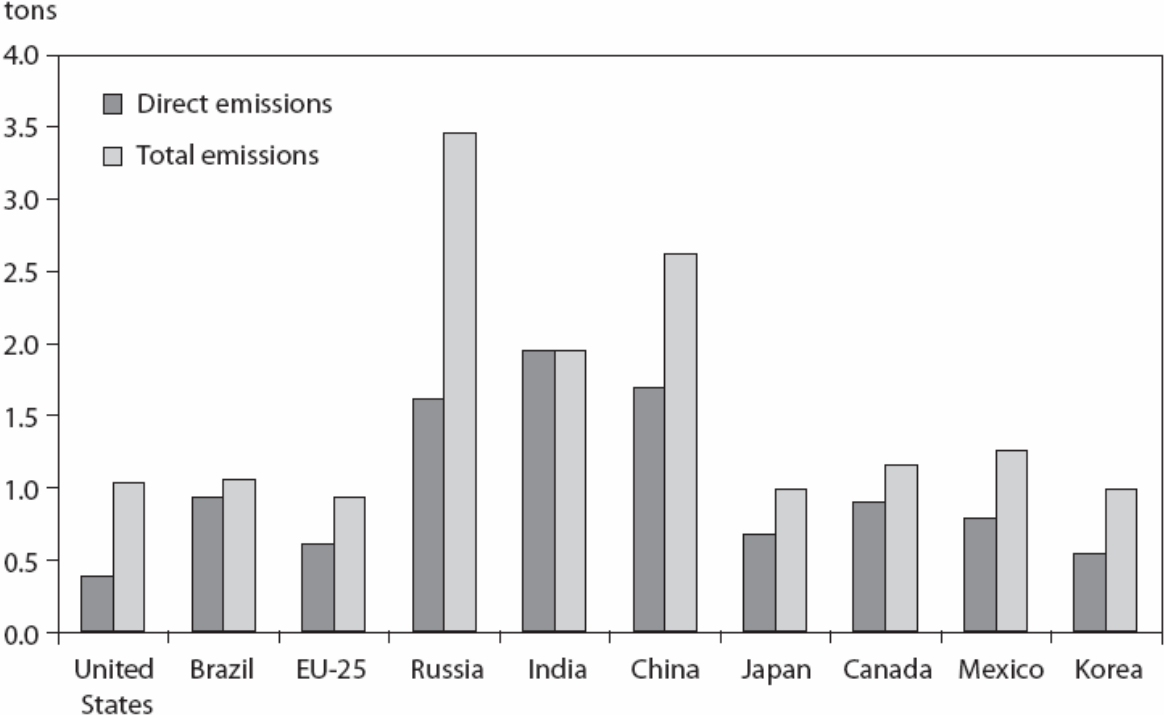
¹⁷ McKinsey/Ecofys, EU ETS Review : Report on International Competitiveness, 2006

¹⁸ World Steel Association, Steel as part of a climate change solution, 2008,

<http://www.worldsteel.org/index.php?action=storypages&id=226>

¹⁹ Peterson Institute and World Resources Institute, Leveling the Carbon Playing Field – International Competition and US Climate Policy Design, Washington DC, May 2008

Figure 2.2 Carbon intensity of steel, 2005 (tonnes of CO₂ production per tonne of steel, BOF and EAF weighted average), Source: Peterson Institute and World Resources Institute, 2005



Sources: International Iron and Steel Institute, *Steel Statistical Yearbook*, 2006; IEA (2007c); authors' estimates.

China is the world's leading steel producer, so its economic activity has an important influence on the steel markets. Accounting for nearly 490 Mt crude steel, China covers more than 36% of total global production in 2007. Over the last couple of years, its production has increased five fold (Figure 2.3). The EU-15 region as a whole follows China at distance with a production of 176 Mt. Its production grew only slightly over the years (see Figure 2.3). Japan is the second-largest steel producing country, making 120Mt of steel in 2007. It is followed by the US, Russia and India that produce 98 Mt, 72Mt and 53Mt respectively.

Concentration at the world level is low as the top 15 producers account for only 34% of the production volume in 2007. The transregional firm Arcelor Mittal is market leader with a production of 117 Mton. The company Nippon Steel ranks second with 35.7 Mt, followed by JFE with a production of 34. Mt. Tata steel, due to the acquisition of Corus, now ranks sixth (from rank 46 in 2006), with a production of nearly 27 Mt²⁰.

Most of the produced steel is traded within regions²¹. With respect to extra-regional trade major changes have taken place recently (see Figure 2.4). In 2006, Europe has become a net importer of steel, while it has been a net exporter at least since 1995²². China switched from being a net importer to a large net exporter of steel.

²⁰ World Steel Association, search statistics archive, 2008, http://www.worldsteel.org/?action=stats_search

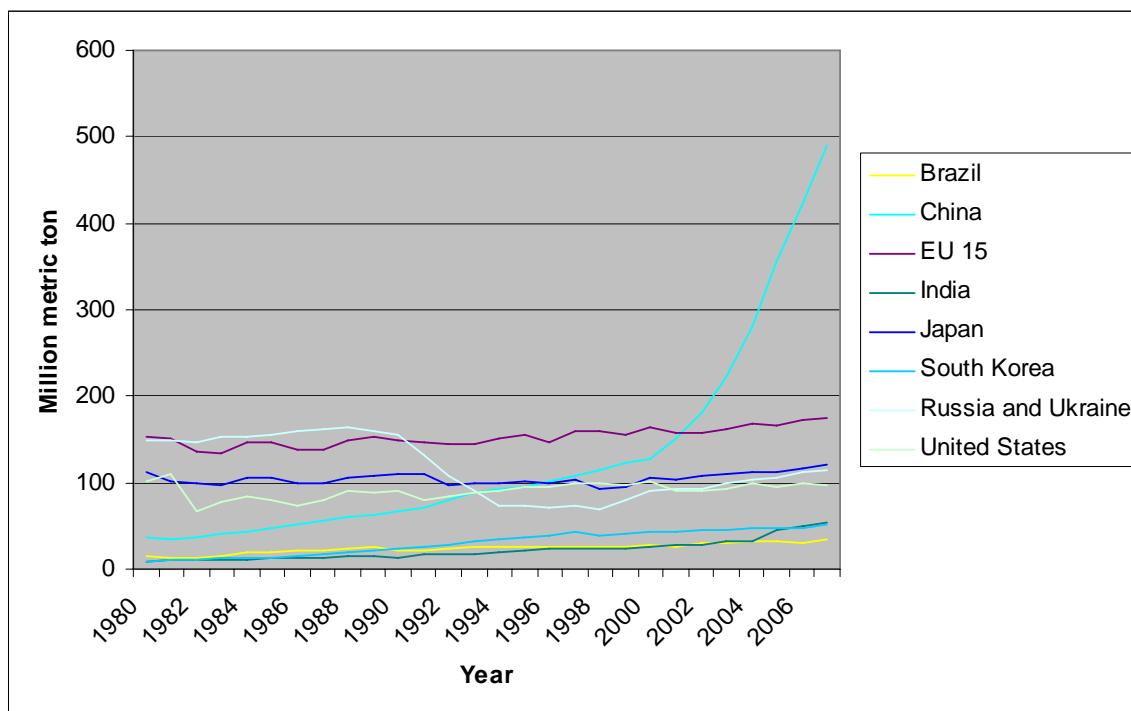
²¹ Steel is a heavily traded good; about 40% of worldwide production is being traded.

²² Julia Reinaud, Issues behind Competitiveness and Carbon Leakage. Focus on Heavy Industry, IEA Information paper, 2008, Paris.

Table 2.1 Global Top-15 Steel producers in 2007 (Source: World Steel Association, 2008²³)

| Rank | Company | Production (million metric tonnes) |
|------|-----------------|------------------------------------|
| 1 | Arcelor Mittal | 117 |
| 2 | Nippon Steel | 36 |
| 3 | JFE | 34 |
| 4 | POSCO | 31 |
| 5 | Baosteel | 29 |
| 6 | Tata Steel | 27 |
| 7 | Anshan-Benxi | 24 |
| 8 | Jiangsu Shagang | 23 |
| 9 | Tangshan | 23 |
| 10 | US Steel | 22 |
| 11 | Wuhan | 20 |
| 12 | Nucor | 20 |
| 13 | Gerdau Group | 19 |
| 14 | Riva | 18 |
| 15 | Severstal | 17 |
| | World | 1.344 |

Figure 2.3 Crude steel production per region, period 1980-2007²⁴ (Source: Corus, 2008)

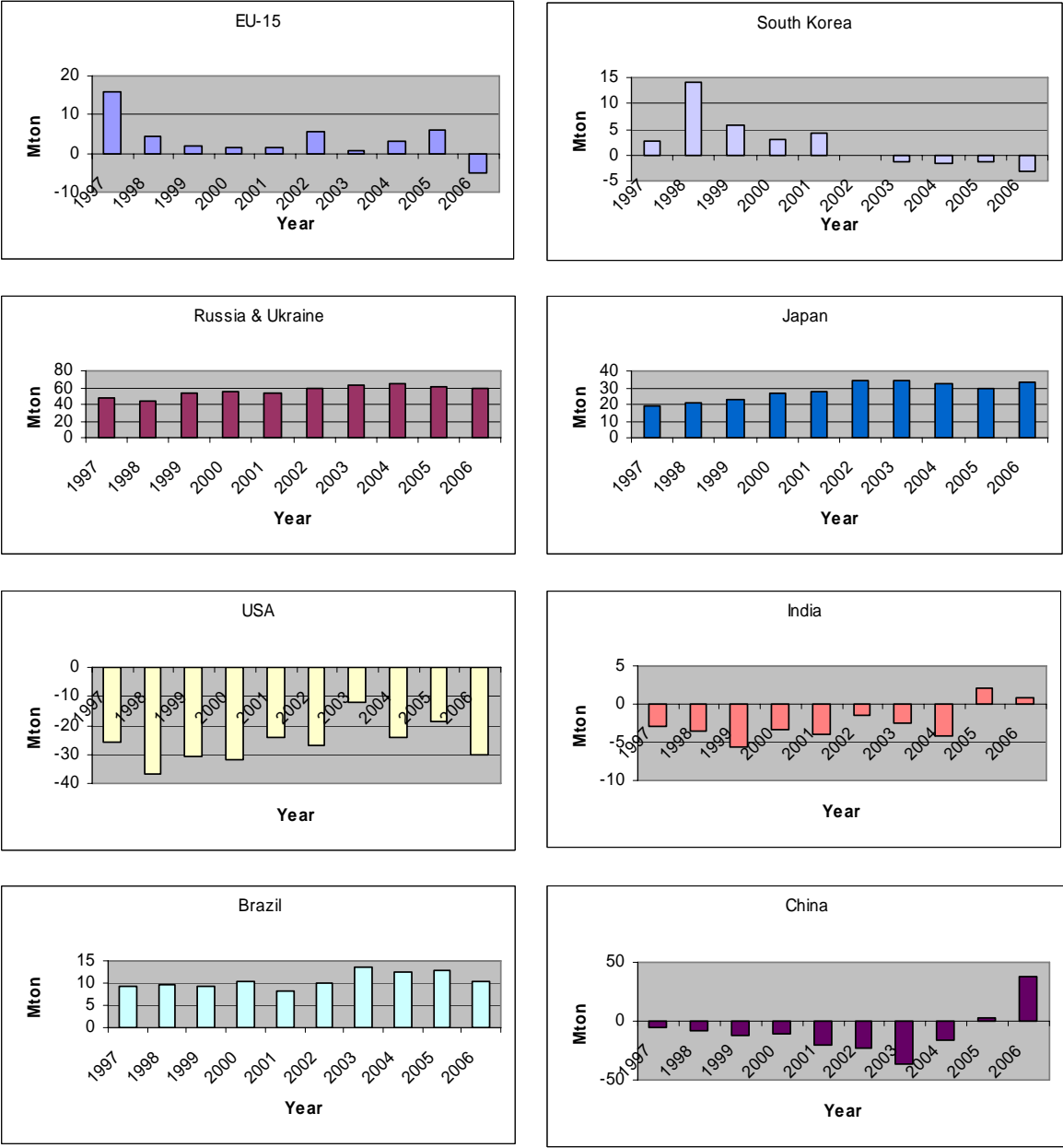


Source: data from World Steel Association, statistics archive, 2008

²³ Top steel producers 2007, <http://www.worldsteel.org/?action=storypages&id=284>

²⁴ Data for Russia and the Ukraine starts in 1992. For the period until 1990 USSR data is used. Production in 1991 is an average figure. Due to data constraints, EU-15 data is used for the European region. It includes the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland (till 2000), Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom. When considering data for EU-24 countries, since 1994, production is about 30 Mton higher but volume development shows the same pattern over time as the EU-15 figure indicates.

Figure 2.4 Net exports per region, period 1997-2006 (Source: Corus, 2008)



Note: net exports are computed by the difference between the apparent consumption and production of crude steel in a particular year. A negative figure means that the country/region is a net importer.

Source: data from World Steel Association, steel statistic yearbook 2007

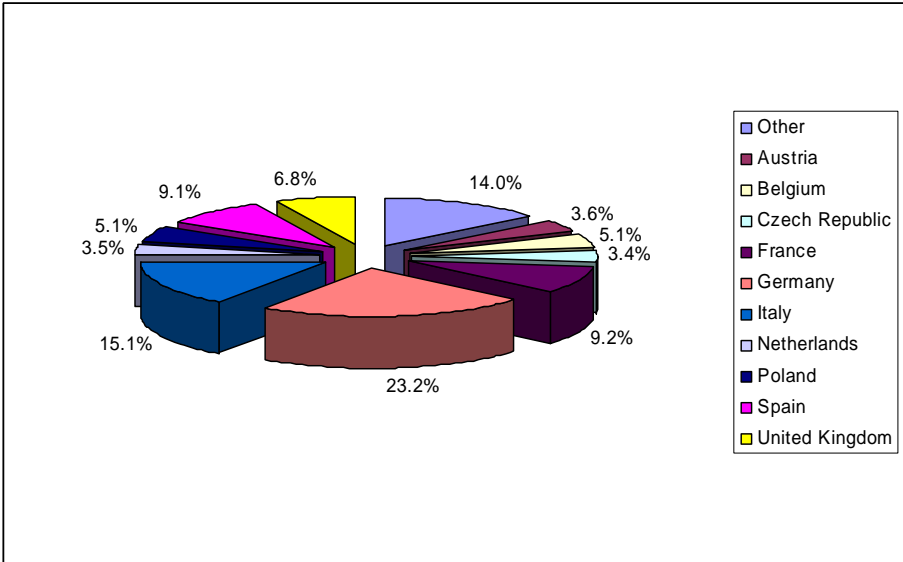
2.2 The EU steel sector

Total steel production in the EU-27 region was about 209.5 Mton in 2007²⁵. It thereby covers nearly 16% of worldwide production. Germany and Italy are the largest steel producing countries within the EU, with the Netherlands accounting for some 3.5% of production (see Figure 2.5).

The greatest part of European production, almost 60%, originates from BOF processes²⁶. EAF covers 40% of total EU production. This means that the EU uses, compared to global figures, relatively much EAF. Since EAF is less energy intensive than BOF, emissions per ton of steel are expected to be lower.

The supply side of the steel industry in the EU25 is characterised by a modest concentration for flat products and a high fragmentation for long products. Flat products are subject to strong import pressure. Long products experience less import pressure than flat products, since the market for long products has a more local nature given the size, weight and limited value of those products²⁷. New producers face high entry barriers, since the industry is capital intensive and market entrance requires specific investments²⁸.

Figure 2.5 Individual country shares in total EU-27 production in 2007 (Source: Eurofer, 2008)



As mentioned in section 2.1, most steel trade takes place within geographical regions. Still almost 22% of total EU exports (148.6Mt) and 24% of total imports (153.7 Mt), was extra-regional in 2006²⁹. Figure 2.6 shows that the import to the EU of all steel products has risen sharply since the beginning of 2004. In monetary values the increase is almost six fold. Part of this increase can be explained by the rising prices of steel globally. Measured in quantities, the total increase of imports of steel products is about four times.

Especially China, Russia and the Ukraine increased their exports to the EU27 during the last years. During the first seven months in 2008 Ukraine, China and Russia accounted for 60% of all imports to

²⁵ Eurofer, EU crude steel production figures, 2008, <http://www.eurofer.org/index.php/eng/Facts-Figures/Figures/EU-Crude-steel-production>

²⁶ World Steel Association, search statistics archive, 2008, http://www.worldsteel.org/?action=stats_search

²⁷ McKinsey/Ecofys, EU ETS Review : Report on International Competitiveness, 2006, Brussels

²⁸ Julia Reinaud, Industrial Competitiveness under the European Union Emissions Trading Scheme, IEA Information paper, 2005, Paris; McKinsey/Ecofys, EU ETS Review : Report on International Competitiveness, 2006, Brussels.

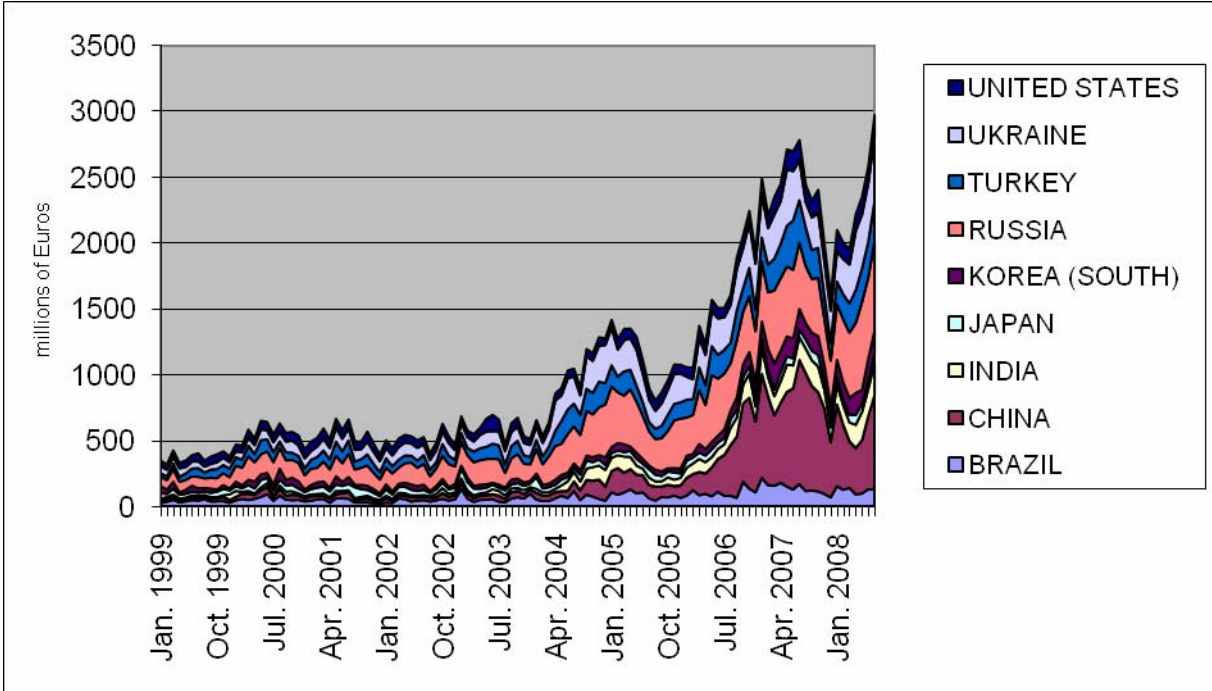
²⁹ World Steel Association, World steel in figures 2008, second edition, 2008, <http://www.worldsteel.org/?action=programs&id=64>

the EU in terms of monetary values and in 2007 about 70% in terms of weight. Imports from Russia and especially Ukraine are mainly semi-finished products with a low value that are being used for further processing within the iron and steel industry. China is very dominant in the non-alloyed flat rolled steels not coated/plated.

In the last two years China has also increased its exports to the EU in the high value range of products. It is expected that these latter imports are most important from the perspective of competitiveness because these high value products also tend to be more profitable to European steelmaking. Large increases in imports of some of these products (hot-dipped metallic coated sheets, wired rod and stainless cold-rolled products) at prices below the EU market level have even led to anti-dumping claims filed by the European Steel Federation Eurofer³⁰.

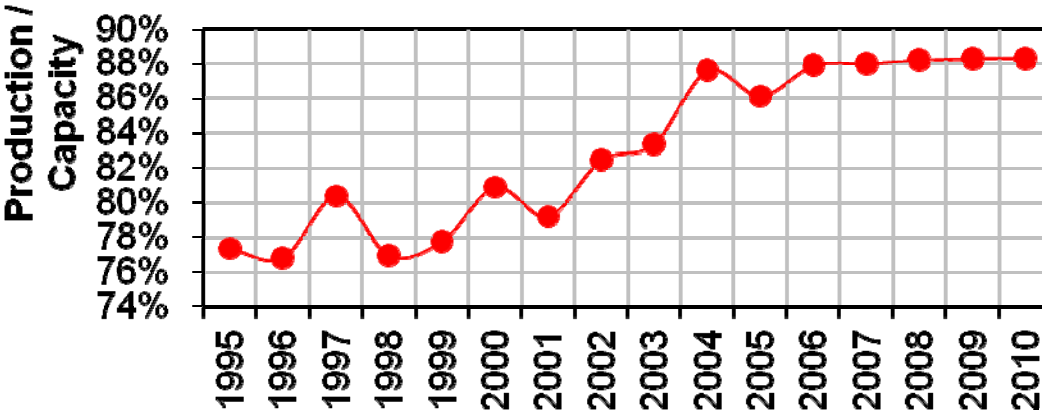
If imports to the EU will continue to increase in the future remains highly uncertain. On one hand, recent expansion of steel production in China and resulting export growth (Figure 2.6) might well continue in the future, and the WTO accession of the Ukraine in 2008 and a future accession of Russia could play an important role to facilitate exports from these countries to the EU. On the other hand, decreasing utilisation rates in the EU due to the 2008 financial crisis might also give more scope for domestic steel production meeting demand in the EU – provided that price and quality of EU steel can compete with that of non-EU parties.

Figure 2.6 Steel imports to the EU 27 (in million Euro), monthly figures 1999-2008 (Source: Eurostat, 2008)



³⁰ Eurofer trade defense cases, Eurofer website, 2008, <http://www.eurofer.org/index.php/eng/Issues-Positions/Trade/Trade-Defence/Eurofer-Trade-Defence-Cases>

Figure 2.7 Utilisation rates in the EU steel industry 1995-2007 and forecasts 2008-2010

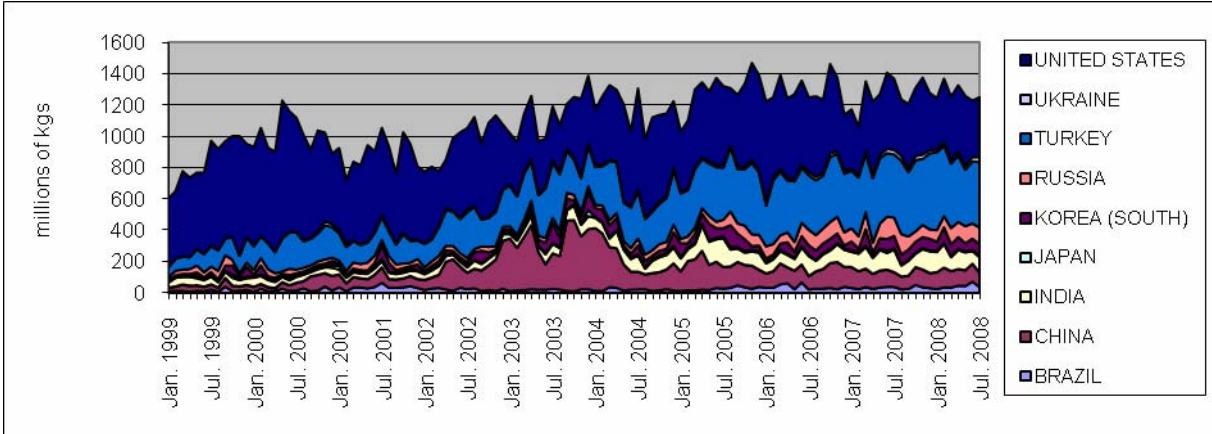


Note: Data: CRU. Forecasts will be outdated due to the global economic crisis.

The total volume of EU Exports has remained constant over the last years after a period of rising exports since 1999 (see Figure 2.8). Most prominent export markets are the United States and Turkey. Especially exports to Turkey have been growing rapidly in recent years.

It is still unclear what will be the overall consequences of the 2008 financial crisis on the competitive position of European steel industry. Main producers Arcelor Mittal and Corus have decided to reduce production by 20 to 30%, but also EU-external steel producers are severely affected. For instance, Ukrainian steel output plummeted 49% in October 2008 compared to the previous year³¹. The net effects of this crisis on steel exports and imports will have to show in the coming years.

Figure 2.8 EU Steel exports 1999-2008 (Source : Eurostat, 2008)



2.3 Steel sector responses to the climate change challenge

The World Steel Association (WSA, formerly known as the International Iron and Steel Institute) represents 75% of all steel production worldwide. It is actively pursuing a voluntary steel sector response to climate change. Cornerstones of the WSA approach are cooperation with customers to produce more CO₂ efficient applications of steel and to promote recycling; promotion of transfer of best practices around the world; research and development of breakthrough technology; and measuring

³¹ Financial Times, Drop in steel orders cools off Ukraine growth, 11 November 2008

and benchmarking the CO₂ intensity of steel plants with a common methodology³². The key indicator used for this approach is the CO₂ intensity per tonne of steel produced.

Benchmarking by the WSA is regarded as a first step towards technology transfer. The WSA also cooperates with the Asia Pacific Partnership, which has identified over 100 technologies that can be transferred. Main hurdles to be taken for further development of technology transfer according to the WSA are the lack of willingness of advanced steel companies to supply technologies, intellectual property rights and fears for undue subsidies of plants.

The European Confederation of Iron and Steel Industries (Eurofer) represents all steel producers in the EU. Associate members are steel confederations in Switzerland and Turkey. Eurofer regards climate change as “the greatest challenge facing the steel industry at this time”³³. Its principal efforts are guided by concerns about the ambitious EU climate change commitments leading to distortion of competition with non-EU steelmakers. This so-called ‘carbon leakage’ discussion has led to several lobbying actions, first designing a baseline-and-credit based alternative to the EU Emission Trading Scheme (ETS), later a benchmark based system that could be coupled to the EU ETS. Efforts are now principally directed at the EU to consider free allocation of emission rights for the steel sector, or similar measures.

Corus Group recognizes that ‘climate change is one of the most pressing issues the world faces today’³⁴. Aim of Corus is to be ‘part of the solution’ and ‘to achieve a leading position in the steel industry whilst creating value’. Corus contributes to climate change solutions by increasing energy efficiency, investing in longer term breakthrough technologies, reducing the environmental impact of its products, encouraging engagement of its employees and by ‘leading by example’. Meanwhile, Corus Netherlands stresses that it ‘agrees in principle with the European Emission Trading System, under the condition that everywhere the same rules are applied’³⁵. And Corus Group states that it is, through Eurofer, ‘actively lobbying the European Commission to oppose auctioning as the allocation strategy [in the ETS] since this would leave energy intensive sectors, such as steel, hugely disadvantaged compared to international competitors’³⁶.

2.4 Main Conclusions

Main conclusions from this chapter outlining the steel sector are:

- Nine countries and regions dominate the world steel markets. These are China, Russia, Ukraine, the EU-27, the United States, Japan, Brazil and South Korea. China is by far the largest steel producer, with 36% of world production in 2007 and a five fold increase of production in recent years. The EU-27 covers nearly 16% of world steel production and is as a region world’s second largest producer.
- Steel is traded globally, although most steel trade takes place within geographical regions. This also holds for the European Union. However, 22% of EU imports and 24% of EU exports were extra-regional in 2006, thus signalling a significant influence of external trade on the position of the EU steel sector³⁷.

³² Speech by Philippe Varin - CEO of Corus Group and Chairman of the World Steel Association Climate Change Policy Group - at the 2008 annual conference of the World Steel Association in Washington DC., 5-7 October 2008, <http://www.worldsteel.org/index.php?action=storypages&id=306>

³³ Eurofer Annual Report 2007, <http://www.eurofer.org/index.php/eng/News-Publications/Annual-Report/2007-Annual-Report>

³⁴ Corus Group website, http://www.corusgroup.com/en/responsibility/climate_change/strategy/

³⁵ Corus Netherlands website, <http://www.corus.nl/Issues/CO2%20Emissiehandel>

³⁶ Corus Corporate Responsibility Report 2007/08, http://www.corusgroup.com/file_source/StaticFiles/Functions/HSE/CorusCRR0708.pdf

³⁷ World Steel Association, World steel in figures 2008, second edition, 2008, <http://www.worldsteel.org/?action=programs&id=64>

- Over the last decade, The EU has been a net exporter, but this situation changed drastically since 2004 with a six-fold increase in monetary terms of imports. Especially imports from China, Russia and the Ukraine have risen sharply. Whereas Russia and Ukraine mainly import lower value semi-finished products, China's imports are dominant in the higher value segment of non-alloyed flat rolled steels. China could therefore be a more serious threat to European competitiveness in the long run than the other two countries, although increases in imports from the former two countries with significant impacts cannot be excluded either – also due to the recent accession of the Ukraine to the WTO and a possible future accession of Russia. However, net effects of the global financial crisis of 2008 on EU steel exports and imports remain to be seen.
- The steel sector contributes 3-5% to the world's overall CO₂ emissions and 27% of world industrial CO₂ emissions. Average CO₂ emission per tonne of steel produced is 1.7 tonnes (weighted average BOF and EAF steel), but there are substantial variations between regions: from 3.5 t CO₂/tonne steel in Russia to less than 1 tonne in the EU-25 and South-Korea. Within regions and countries however, these emissions can significantly vary as well, with exporting factories often accounting for the best in class domestically.
- On a global as well as on a European level, the steel sector has taken various initiatives to reduce greenhouse gas emissions. These include a proposed sectoral approach and launching a CO₂ emissions database.

3

The road to Copenhagen 2009

This chapter gives a brief overview of the status quo of the global climate change negotiations on the way to Copenhagen 2009. A major milestone on this road will be the UNFCCC Climate Conference in Poznan in December 2008.

3.1 1990 to 2012: The Convention and the Protocol

Main multilateral framework for climate change negotiations is the United Nations Framework Convention on Climate Change (UNFCCC), which was signed in 1992 in Rio de Janeiro and entered into force in 1994. More than 190 countries - including the United States - have ratified the convention, which aims at “to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”³⁸. The Convention does not contain legally binding emission reduction commitments, but provides the possibility for updates and specifications in the form of “Protocols”.

In 1997, such a Protocol was signed. It became known as the Kyoto Protocol, which, following ratification by Russia in October 2004 entered into force on 16 February 2005. As of April 2008, 179 countries plus the European Union have ratified the Protocol³⁹. The most important country that has not ratified the Protocol is the United States. In the Protocol, it was agreed that so-called Annex-I countries (OECD plus economies in transition) reduce their aggregate anthropogenic carbon dioxide equivalent emissions of 6 greenhouse gases by at least 5% below 1990 levels in the commitment period of 2008 to 2012. This overall target has been redistributed among the Annex-I countries, with obligations agreed to by individual parties varying from -8% for the EU-15 and several economies in transition to +8% for Australia and +10% for Iceland⁴⁰.

3.2 Post 2012: The Road to Copenhagen

The results so far of the Kyoto Protocol are mixed. Whereas emissions from economies in transition have declined substantially after 1990 as a result of the economic recession following the fall of the Soviet regime, other Annex-I parties have seen a sharp increase in emissions over that period⁴¹. Nevertheless, discussions about a successor to the Kyoto Protocol, for which main decisions have to be taken at the Copenhagen Climate Conference in 2009, are presently in full swing. It is clear that such a successive agreement to the Protocol has to include far more countries and far stricter emission reductions than the Kyoto Protocol itself in order to be effective to mitigate possible dangerous effects of climate change. How this has to take shape, however, is still far from obvious.

3.2.1 From Kyoto to Bali

At the Montreal Conference in 2005 a two-track approach to post-2012 negotiations was introduced as a way out of the stalemate which had been the result of the non-ratification of the Kyoto Protocol by the United States. One track continued discussions under the Framework Convention, to which the

³⁸ UNFCCC, article 2.

³⁹ Hecke, Karel van, From Kyoto to Copenhagen – Towards an International Climate Change Regime beyond 2012 pp. 199- Dehaese, F. (ed.) (2008) The Climate Change Challenge – International, European and Belgian Aspects. *Studia Diplomatica* Vol LXI, 2008, nr 1

⁴⁰ *ibid.*

⁴¹ Greenhouse gas emissions in economies in transition declined by -36% from 1990 to 2005, excluding forestry and land-use change. Emissions in non-EIT Annex-I countries increased by 11%. UNFCCC, National Greenhouse Gas Inventory Data 1990-2005, <http://unfccc.int/resource/docs/2007/sbi/eng/30.pdf>

United States are a partner, and one track sought further discussion under those parties that ratified the Kyoto track. See Box 3.1 and Figure 3.1.

Box 3.1 Separate Tracks of the Multilateral Climate Change Discussions

Kyoto Protocol track (AWG-KP)

The Kyoto-track aims to discuss post-2012 obligations for Annex-I parties that have ratified the Kyoto Protocol. As an executive body of this track an “Ad-hoc Working Group on Further Commitments under the Kyoto Protocol”(AWG-KP) was established. As a non-ratifying party to the Protocol, the United States did become only an observer here.

Convention Track (AWG-LCA)

The United States however did become a party in the second track, the so-called “Convention-track”. This track consists of a series of open and non-binding workshops about sustainable development, adaptation, technology and market-based opportunities. At the Montreal conference also deforestation appeared on the agenda. Discussions under the Convention Track after the Bali conference take place in the “Adhoc Working Group on Long-term Cooperative Action”(AWG-LCA)

“Third Track”

Outside the UNFCCC context, several forums discuss climate change issues, including the Major Economies Meetings, the G8 and the Asia Pacific Partnership. This could be seen as a ‘third track’.

With an intermediate conference in Nairobi in 2006 giving limited tangible results, it was the 2007 Bali conference that again managed to take a significant step in the post-2012 negotiation process. At this conference the so-called “Bali Action Plan” was adopted, according to which the informal discussions going on under the Convention-track were replaced by a formal negotiation process and a new negotiation body: the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA).

The Bali Action Plan distinguishes between four main ‘building blocks’ of the post-2012 climate regime:

- Mitigation,
- Adaptation,
- Technology and
- Finance & investment.

3.2.2 From Bali to Copenhagen

Although the result of the Bali conference introduced a new phase in the climate negotiation process with two clearly defined and formal negotiation tracks that both have to deliver results at the 2009 Copenhagen conference, it did not deliver concrete results in terms of emission reduction targets or commitments. These have to be negotiated in the period 2008 and 2009, and finally agreed upon in Copenhagen in December 2009.

Since the Bali summit, until November 2008 three intermediate meetings were held in respectively Bangkok, Bonn and Accra, and the next formal conference in Poznan in December 2008 has to show to what extent the discussions in these workshops have delivered results in terms of converging negotiation positions of the various parties.

Bangkok, 31 March – 4 April 2008

Main outcome of the Bangkok meeting early April 2008 was that a work programme for the two tracks was agreed. “The train to Copenhagen has left the station”, according to Mr Yvo de Boer, Executive Secretary of the UNFCCC, as “the work programme broke up the huge task of reaching a agreement into bite-sized, manageable chunks of work”⁴². Also, at the meeting according to de Boer the Ad-hoc Working Group under the Kyoto Protocol “has laid the foundation for the continuation of the Protocol’s market-based mechanisms” by stating that all flexible mechanisms under the Kyoto Protocol (emission trading, Joint Implementation and the Clean Development Mechanism) would be continued in the second commitment period. Furthermore it was agreed to include forest-related activities as a means to achieve emission reductions after 2012.

Bonn, 2-12 June 2008

In June 2008, talks were continued in Bonn. Under the Convention-track (AWG-LCA) three workshops were held about respectively adaptation, finance and technology. In the workshops, several proposals were put forward, mostly of a broad and fairly general nature, but no decisions were taken. The UNFCCC describes the outcomes of these workshops as follows⁴³: “While the tabling of these proposals was an important step in moving the negotiating process forward, the need for more targeted proposals in the next sessions was made clear. The AWG-LCA session ended with a call on Parties to submit specific textual proposals which are expected to provide the basis for an initial negotiating text in Poznan in December.”

Under the Kyoto-track, in Bonn a round table was held on the means to reach emission reduction targets. Most of the discussion in the round table focused on the Clean Development Mechanism (CDM). Issues discussed were the inclusion of projects on land-use, land-use change and forestry (LULUCF) in the CDM, the difficulty of guaranteeing the “additionality of projects”, the presently very uneven distribution of CDM projects over countries (most projects presently take place in China and India), and the possibility for sector-based approaches in the CDM. Other topics discussed were the inclusion of additional greenhouse gases, the inclusion of emissions from aviation and marine bunker fuels and overall approaches for targeting sectoral emissions.

In addition to the two working groups explicitly designed to negotiate the Copenhagen agreement, ongoing work under the UNFCCC and the Kyoto Protocol was taken forward. In the expert group on technology transfer⁴⁴, parties agreed on scaling up practical technology transfer efforts, in particular for Africa, Small Island developing states and least developed countries. This will include collaborative research and development of technologies and technology needs assessments. Parties also agreed to develop performance indicators to monitor and evaluate progress on technology transfer. Regarding adaptation, parties agreed to implement the second phase of the so-called “Nairobi Work Programme on impacts, vulnerability and adaptation to climate change”, during which a wide range of various activities will be carried out. Parties also agreed to streamline funding for adaptation projects.

Accra, 21-27 August 2008

Briefing the media on the final day of the Accra meeting, Yvo de Boer gave an upbeat assessment of progress made⁴⁵: “We’re still on track, the process has speeded up and governments are becoming very serious about negotiating a result in Copenhagen”. Main outcome, according to Mr de Boer, had been the mandate given by governments to the Chair of the working group on long-term cooperative action

⁴² UNFCCC website, Bangkok climate talks conclude, April 2008, <http://unfccc.int/meetings/items/4347.php>

⁴³ UNFCCC website, Outcome of the Bonn climate change talks, June 2008, <http://unfccc.int/meetings/sb28/items/4378.php>

⁴⁴ UNFCCC website, Working programme of the expert group on technology transfer, June 2008, <http://unfccc.int/resource/docs/2008/sb/eng/inf01.pdf>

⁴⁵ UNFCCC website, Accra climate change talks 2008, August 2008, <http://unfccc.int/meetings/intersessional/accra/items/4437.php>

to compile proposals made so far and to be made in the coming weeks⁴⁶. The achievement of the Accra meeting had therefore been in “providing the basis for real negotiations to begin in Poznań.”

In Accra, the AWG-LCA held two workshops: one on deforestation and another on sectoral approaches. The debate on the topic of deforestation and forest conservation, Mr de Boer said, resulted in countries expressing the clear desire for this issue to be part of a Copenhagen agreement. Further important discussions focused on ways of improving the clean development mechanism (CDM). Insufficient investment in Africa was cited as one of the CDM's shortcomings now being addressed. On the controversial issue of sectoral approaches, Mr. de Boer noted that a constructive debate had made it clear that they were not about imposing targets on developing countries.

The AWG-KP embarked on the first part of its sixth session. It continued work on the “means available to Annex I Parties to reach their emission reduction targets”, such as emissions trading and the project-based mechanisms; land use, land-use change and forestry; greenhouse gases sectors and source categories; and possible approaches targeting sectoral emissions. No report of this first part of the sixth session has been published yet, but according to the UNFCCC, in this first part of the session “the groundwork has been laid in Accra for Parties to move on to negotiate emission reduction ranges in Poznań in December”⁴⁷.

Poznan, 1-12 December 2008

The Conference in Poznań ended on Saturday 13 December with a commitment from governments to “shift into full negotiating mode” next year “in order to shape an ambitious and effective international response to climate change, to be agreed in Copenhagen at the end of 2009”⁴⁸. Parties agreed that the first draft of a concrete negotiating text would be available at a UNFCCC gathering in Bonn in June of 2009.

At Poznań, it was agreed that the Adaptation Fund would be a legal entity granting direct access to developing countries. Progress was also made on a number of ongoing issues that are particularly important for developing countries, including adaptation; finance; technology; reducing emissions from deforestation and forest degradation (REDD); and disaster management. However, few concrete decisions were taken.

A key event at the Conference was a ministerial round table on a shared vision on long-term cooperative action on climate change. At this round table, ministers committed to “achieving an ambitious and comprehensive deal in Copenhagen that can be ratified by all”. The next major UNFCCC gathering will take place next from 29 March to 8 April next year in Bonn, Germany.

3.2.3 Non-UN discussion routes

Apart from the UNFCCC process, there are several other multilateral forums where climate change issues are discussed. These are in particular the Major Economies Meetings, the Asia Pacific Pact, and the G8 meetings. Also, more specific issues are discussed in multilateral forums such as the IPEEC International partnership on energy efficiency.

G8 meetings

In recent years, the G8 discussions of leaders of eight leading industrialised nations have included several times the subject of climate change. At the Gleneagles summit in 2005, a communiqué and a

⁴⁶ Some 19 countries submitted contributions on a variety of issues until 30 September 2008. See <http://unfccc.int/meetings/items/4381.php>. The Chair of the AWG-LCA will now compile these contributions to a discussion document for the Poznan meeting.

⁴⁷ UNFCCC website, Accra climate change talks 2008, August 2008, <http://unfccc.int/meetings/intersessional/accra/items/4470.php>

⁴⁸ UNFCCC website, The UN Climate Change Conference in Poznan, 1-12 December 2008, http://unfccc.int/meetings/cop_14/items/4481.php

plan of action on climate change, clean energy and sustainable energy were issued. These called for measures in the field of “transforming energy use, powering a cleaner future, promoting research and development, financing a transition to cleaner energy, managing the impact of climate change and tackling illegal logging”⁴⁹. The G8 meeting at Heiligendamm in 2007 underlined these outcomes and stressed that the G8 “will consider seriously” to at least halve global greenhouse gas emissions by 2050. In the 2008 Hokkaido Toyako meeting, the parties agreed to “seek to share and adopt the 50% in 2050 target with all Parties to the United Nations Framework Convention on Climate Change”⁵⁰ and to “implement ambitious economy-wide mid-term goals”⁵¹. It was also recognized that sectoral approaches could be useful tools for achieving national emission objectives and for reducing greenhouse gas emissions, and the G8 leaders “welcomed and supported” the establishment of a Climate Investment Funds administered by the World Bank to support the efforts of developing countries.

Major Economies Meetings

In May 2007, just before the G8 Summit in Heiligendamm, US President Bush announced a new initiative. He proposed to host a new set of discussions among the major energy-consuming and greenhouse gas emitting-countries. Three meetings were held so far, in Washington DC (September 2007), Hawaii (January 2008) and Paris (April 2008)⁵². The Major Economies Meetings (MEM) have received mixed comments⁵³. Some observers saw them as an important symbolic step of the United States. Others considered it as a deliberate manoeuvre of the Bush administration to create a parallel negotiation process and thus divert attention from the G8 and the UNFCCC process. The fact that the MEM now explicitly states that it supports the UNFCCC process has somewhat eased these concerns.

Asia Pacific Partnership on Clean Development and Climate

The Asia Pacific Partnership on Clean Development and Climate (APP) was launched in January 2006⁵⁴. Members are Australia, Canada, India, Japan, China, South Korea and the United States. The APP is a voluntary, non-legally binding cooperation agreement focusing on the development and deployment of clean energy technologies. So far, under the APP eight sectoral task force groups have been set up in which government agencies and private sector companies from the seven member countries come together. Subjects covered in the discussions are aluminium, buildings and appliances, cement, cleaner fossil energy, coal mining, power generation and transmission, steel and renewable energy & distributed generation.

3.3 Main Conclusions

The main conclusions from this chapter about the multilateral climate change negotiation process are:

- The United Nations has set up a negotiation process that has led climate change discussions to many parts of the world. Starting with the United Nations Framework Convention on Climate Change in 1992 in Rio de Janeiro, the 1997 Kyoto Protocol has set for the first time binding emission reduction obligations for industrialised countries and economies in transition.

⁴⁹ Hecke, Karel van, From Kyoto to Copenhagen – Towards an International Climate Change Regime beyond 2012 pp. 199-Dehaussse, F. (ed.) (2008) The Climate Change Challenge – International, European and Belgian Aspects. Studia Diplomatica Vol LXI, 2008, nr 1

⁵⁰ Summary of the Hokkaido Toyako summit, July, 9, 2008, <http://www.g8summit.go.jp/eng/news/summary.html>

⁵¹ *ibid.*

⁵² US Department of State, Major Economies Process on Energy Security and Climate Change, <http://www.state.gov/g/oes/climate/mem/>

⁵³ Hecke, Karel van, From Kyoto to Copenhagen – Towards an International Climate Change Regime beyond 2012 pp. 199-Dehaussse, F. (ed.) (2008) The Climate Change Challenge – International, European and Belgian Aspects. Studia Diplomatica Vol LXI, 2008, nr 1

⁵⁴ Asia Pacific Partnership website, <http://www.asiapacificpartnership.org/>

- Although many industrialised countries are presently struggling to meet their commitments under the Kyoto Protocol, it has become clear that global emission reductions for the future would require even further action from these countries, as well as from developing countries.
- In December 2009 parties will meet in a Copenhagen Climate Change Conference to agree about such emission reductions for the future after the end of the Kyoto commitment period in 2012. As a result of the United States opt-out to the Kyoto Protocol, the discussions so far have taken place under three tracks: A “Convention Track” including the United States, a “Protocol Track” including only parties to the Kyoto Protocol, and a third track outside the United Nations context in which the United States again play an important role. In the run-up to the Copenhagen conference, a series of meetings under the first two tracks will be organised.
- The three discussion tracks address a large array of topics, including long-term commitments, intermediary targets, carbon markets and ‘flexible mechanisms’, forestry and land-use change, technology transfer, mitigation, adaptation, finance. Many technical issues still have to be resolved and progress in the discussions is slow. No fundamental breakthroughs on any of the topics discussed have been obtained yet.

4

A view on climate and competitiveness for the EU steel sector

4.1 Competitiveness of the EU steel sector

The EU steel sector fears a serious impact on their competitiveness position if the EU undertakes unilateral climate change policy actions. One important question in this respect is what competitiveness exactly implies.

The debate about competitiveness issues from unilateral environmental policies is at least a dozen years old and started with Jaffe *et al.* (1995). With respect to firms, competitiveness may be defined as the ability of the firm to maintain its operations in a given market. This ability is difficult to measure beforehand but various cost-concepts (such as additional costs over net profits or the cost price increase of the products) have been developed which may give a hint on the impact of environmental regulation on profit margins (see OECD, 1993 for various concepts).⁵⁵

If the costs of environmental regulation “eats out” profits, firms will close. If the profitability of firms falls under certain thresholds, capital will flow to other, more profitable, investments and the future of the production facility may be at stake. When companies try to maintain their profits and increase prices another problem emerges: under certain conditions this will fuel import substitution and replace products of companies under environmental regulation with products from companies that are not affected by environmental regulations.

Given the fact that GHG emissions are a global problem, a shift in production in a country under a CO₂ cap not accompanied by an accommodated shift in consumption simply implies carbon leakage. The risk of carbon leakage has dominated the debate on EU-ETS currently. Recent economic modeling efforts (see e.g. CPB, 2008) have suggested that the risk of carbon leakage due to the shift of production from countries with a cap on CO₂ to countries with no climate change policies is rather low. Energy intensive industries are generally characterized by high sunk costs and the relatively high costs of transport relative to the value of their products acts as a natural trade barrier. However, it should be noted that such modeling efforts are mainly focusing on the effects on the medium-term (e.g. 10-20 years ahead) and most economic models are stylized facts of real-world relationships. Longer-term effects are by definition more uncertain. Moreover, if EU-ETS raises carbon prices considerably (e.g. above €60/ton CO₂), the risk of carbon leakage becomes considerably higher.

The present study does not take a position in the debate about the extent of carbon leakage effects for the steel industry, but assumes that such effects *could* exist given the discussion about the EU steel sector and its external trade in chapter 2. It is therefore crucially important for the European steel industry to identify which climate change strategies might provide for a reduction of steel sector emissions in the EU and elsewhere with a minimal distortion of competition.

4.2 Building blocks of a Copenhagen agreement

The Bali conference identified four main topics to be discussed for an agreement: mitigation, adaptation, technology and finance & investment. However, in practice the discussions span a wider

⁵⁵ Most literature investigating the competitiveness of firms uses a myriad of indicators, such as output measures of performance (i.e. profitability, productivity, return on investment, etc) and input measures of performance (such as R&D spending, employment). There is no conceptual framework that has identified the “ideal” indicator in this respect.

range of topics. An initiative by the former British Prime Minister Tony Blair⁵⁶ identifies ten main building blocks that have to be discussed and that will be negotiated:

- A global long-term target
- An interim target
- Developed world commitments and carbon markets
- Developing world contributions
- Sectoral action
- Financing
- Technology
- Forests
- Adaptation
- Institutions and mechanisms for action.

For the steel sector and its competitiveness, the most important questions are what long-term and intermediary targets will be agreed, how carbon markets will develop, and how the targets and contributions will be distributed over the main steel producing countries. Sectoral action and technology are also important building blocks for the steel sector, in particular if a global steel sector agreement is aimed at. Institutions and mechanisms for action are important in order to make any actions agreed on measurable, reportable and verifiable.

It should be remembered, however, that an international agreement will be a complicated trade-off that will involve all building blocks: steel sector objectives regarding one particular building block can only be obtained if concessions are made in other building blocks. Forests and adaptation therefore on first hand appear less important to the steel sector, but their relevance in a Copenhagen ‘package deal’ should not be neglected. Another important aspect to take into account for the steel industry is that it is itself not a party to the Copenhagen negotiations. Any influence it can take therefore will have to be directed at those parties that are at the negotiation table: national governments and the European Union.

So far, the exact contents of none of the building blocks are known yet. An overall emission reduction target of 50% in 2050 compared to 1990 is often heard about, but there is no agreement whatsoever about this target. If such an agreement were to be decided upon, this would mean emission reductions of more than 80% in industrialised countries over that period, and substantial contributions by developing countries. Up to now, however, developing countries as represented by the G77 in general are not prepared to commit to any quantitative emission reduction targets. Neither have they shown prepared to split their heterogeneous group into ‘emerging economies’, which would have to undertake some actions, and a group of ‘least developed countries’, which for the moment would be exempted from such obligations.

The extent to which developing countries will be willing to agree to any contributions will depend critically on the funds that will be made available by industrialised countries for technology transfer and adaptation. These funds will have to be generated in part by donations from industrialised countries, but also to a substantial extent by carbon markets to be developed. So far, the only existing carbon market on a larger scale is the emission trading system of the EU, but recently more initiatives have been announced in the United States, Canada, Australia, South Korea and Japan. For forests and land-use change there is an overall consensus that additional action is needed. One option that seems promising is the development of a separate ‘flexible mechanism’ next to carbon markets, clean development mechanism and joint implementation. On the institutional level, one discussion focuses on how any actions can be made ‘measurable, reportable and verifiable’.

Sectoral approaches are another topic of lively debate. The recent Japanese proposals in this direction have been received very critically by developing countries, as they were seen as a way for Japan to

⁵⁶ The Climate Group website, http://www.theclimategroup.org/major_initiatives/breaking_the_climate_deadlock

reduce its own obligations and an attempt to impose quantitative targets on developing countries ‘via the backdoor’. Other approaches to sectoral agreements are also discussed, like baseline and credit systems or sectoral no-lose targets for developing countries⁵⁷.

Finally, another discussion that might be relevant for the steel sector is that if the overall emission reduction target should be expanded with other gases and additional, transnational sectors such as marine bunkers and aviation. In particular a CO₂ price on shipments could substantially change the competitive position of steel that has to be transported over sea.

4.3 Positions of the main non-EU steel countries

As outlined before, world steel production concentrates in nine main countries and regions: China, the EU-27, Japan, India, South Korea, Russia, Ukraine, United States and Brazil. From a climate perspective, these can be divided into three main groups: industrialised countries (EU-27, Japan, US), economies in transition (Russia, Ukraine) and emerging economies (other parties). In the UNFCCC context, the industrialised countries and economies in transition are Annex-I countries, the other countries are non-Annex I countries (Table 4.1).

Table 4.1 Annex-I and Non Annex-I steel sector countries

| <i>Annex-I</i> | | <i>Non Annex-I</i> |
|---------------------------------|-------------------------------|---|
| Industrialised countries | Economies in Transition | Emerging Markets |
| EU-27 United States Japan | Russian Federation Ukraine | China India South Korea Brazil |

In order to better understand the positions of these countries and regions in the climate negotiations, it is important to have a look at their emissions in recent years. Of the industrialised countries, the only party that is on schedule for an emission reduction is the EU (Table 4.2). Having reduced its emissions so far by 1.5%, the reduction target of –8% is, according to the European Environmental Agency, still within reach⁵⁸. Japan, as a party to the Kyoto protocol obliged to reduce its emissions by 6 %, is most likely to end the Kyoto period with an increase of emissions as its present emissions are 7% higher than in the base year. The United States, which have not signed the Kyoto protocol and therefore are not obliged to reduce their emissions, presently show an increase of greenhouse gas emissions of 16%.

Russia and the Ukraine as so-called ‘Economies in Transition’ are also Annex-I countries. Due to their economic decline after the fall of the Soviet Union, their emissions have decreased dramatically (-29% and –55% respectively). It is generally expected that it still will take many years until their emissions have returned to those of the base year. The emerging economies China, India, South Korea on the other hand have seen good economic development in recent years and therefore a large increase in emissions. Economic growth rates in China have even led to a growth in emissions by 137%.

⁵⁷ See e.g. Höhne, N., E. Worrell, Chr. Ellermann, M. Vieweg, M. Hagemann, Sectoral approach and development, Ecofys, 16 September 2008

⁵⁸ European Environmental Agency, press release, 16 October 2008, <http://www.eea.europa.eu/pressroom/newsreleases/eu-15-on-target-for-kyoto-despite-mixed-performances>

Table 4.2 Greenhouse gas emissions of the main steel countries in recent years

| | Kyoto Protocol commitments (emission reduction in 2010 compared to 1990) | Actual emissions in 2005 compared to 1990 (UNFCCC, 2008 and EIA, 2008) | Remarks |
|--------------------|---|---|---|
| EU-27 | -8% | -1,5% | Target for EU-15. Projected to be met with additional policies announced by member states in 2008 (EEA, 2008) |
| United States | -7% | +16% | Kyoto protocol not ratified. 2008 President-elect Obama favours a cap-and-trade system |
| Japan | -6% | +7% | Voluntary CO ₂ market launched in 2008 |
| Russian Federation | +0% | -29% | Reductions due to industrial breakdown after 1990 |
| Ukraine | +0% | -55% | Reductions due to industrial breakdown after 1990 |
| Brazil | - | +65% | |
| China | - | +137% | Very high economic growth rates in recent years |
| India | - | +22% | |
| South-Korea | - | +17% | |

Sources: Energy Information Administration, 2007, <http://www.eia.doe.gov/pub/international/iealf/tableh1.xls> and UNFCCC, 2007, http://unfccc.int/files/inc/graphics/image/gif/graph3_2007_ori.gif

Emission profiles so far, together with national preferences and considerations that include security of supply and strategic use of domestic fossil fuel reserves, to a large extent determine the negotiation positions of the main steel countries.

The *United States* have announced only to enter into binding emission reductions if developing countries also agree to serious contributions. President-elect Obama is proponent of a cap-and-trade system in which 100% of the emissions will be auctioned. His plans include an emission reduction of 80% in 2050 compared to the 1990 level and 25% renewable energy in 2025. He wants to invest \$ 150 billion in advanced energy technologies⁵⁹.

Japan stresses the importance of energy efficiency as a means of mitigation. It is in favour of a global 50% target for 2050 on the condition that the United States, China and India participate in an agreement. Sectoral approaches are seen as the best way to achieve emission reduction and for that purpose a differentiation between developing countries is needed.

The *Russian Federation* is not very active in the discussions so far. It is against a collective target for Annex-I countries and prefers non-punitive and not-enforceable sectoral targets. Voluntary actions by

⁵⁹ Barack Obama and Joe Biden, New Energy for America, Plan of the President elect <http://my.barackobama.com/page/content/newenergy>

countries taken after 1990 should be recognized. Russia aims not to emit more greenhouse gases in 2020 than in 1990.

The *Ukraine* is in favour of absolute emission reductions. A global target of 20% emission reduction in 2020 should be feasible.

China supports quantitative targets for Annex-I countries, but opposes differentiation between developing countries. China would agree to a global long-term target of –50% if the industrialised countries commit to minus 25 to 40% emissions in 2020 and 80 to 95% less reductions in 2050. Industrial countries should financially support developing countries' mitigation and adaptation actions.

India is in general pessimistic about the ambitions of a Copenhagen agreement. Emission reduction results so far are not promising. There is a historical responsibility of industrialised countries to reduce their emissions, so the focus should be on Annex-I actions.

Brazil is willing to contribute to emission reduction based on 'common but differentiated responsibilities'. Main actions should be taken by Annex-I countries. Adaptation is important, every country should have a national adaptation plan.

South Korea examines the possibilities for a national emission trading system. It proposes a register of voluntary mitigation actions that would contribute to make measures taken measurable, reportable and verifiable.

4.4 Position of the EU

The EU wants to be a frontrunner in the climate negotiations. For that purpose, it has announced and put into force an ambitious set of climate measures. In January 2007 the European Commission adopted the Strategic Energy Review as an important step towards an effective energy policy for Europe⁶⁰. The point of departure for a European energy policy in this Review was threefold: combating climate change, promoting jobs and growth, and limiting the EU's external vulnerability to gas and oil imports. The mainstay of the new policy was a core energy objective for Europe: that the EU should reduce greenhouse gas emissions from its energy consumption by 20% by 2020.

The EU target needs to be seen in the context of the need for international action of industrial nations on climate change. When such a commitment exists, the EU committed itself to do more. Its aim is to increase the target to a 30% reduction by 2020 and 60-80% by 2050 if an international agreement on climate change is agreed at the Copenhagen Summit. The European Council endorsed the proposals at its Spring Summit on 8/9 March 2007 and asked the Commission to come forward with concrete proposals.

To achieve the energy policy goals as endorsed by the Spring Council 2007, the European Commission published its *Renewable Energy and Climate Change Package* on 23 January 2008. This 'Green' package has become famous for its 20/20/20 slogan, which had already in principle been agreed upon at the spring council of 2007. The targets are: 20% reduction of greenhouse gas emissions compared to 1990 (binding), 20% renewable energy in the energy consumption of the EU (binding) and 20% lower energy consumption as a result of energy efficiency measures (indicative)⁶¹.

Under strong pressure of the forthcoming elections for the EP and by major efforts of the French Presidency the Council and the European Parliament reached an early agreement on this legislative package in December 2008. This has resulted in an Directive on the share of renewable energy in the energy mix of Member States and in two Directives for CO₂ reduction of which the first aims to limit greenhouse gas emissions within the EU emission trading system, and second to reduce emissions in

⁶⁰ European Commission, An Energy Policy for Europe, COM(2007)1, Brussels, January 2007

⁶¹ It is interesting to note that the three targets of 20 % are not totally consistent with each other. 20 % renewables and 20% more efficiency would lead to more than 20 % reduction of greenhouse gases. It would indeed be closer to 30 % emission reduction, the target for the EU when other blocks in the world agree on a climate deal in Copenhagen.

the non-ETS sectors. Non-ETS sectors are for instance housing, transport and agriculture and the smaller industrial installations. The two Directives together will result in binding reduction for all greenhouse gases from 2013 on. The ETS Directive applies directly at community level to around 10000 installations of large power producers and industry and will from 2013 on also include the aviation industry (adopted by the Council on 24 October 2008). The Directive covering the non-ETS sector (so-called Effort Sharing Directive) and sets targets per Member State.

Several aspects of the adopted ETS Directive are of high importance to the energy- and carbon-intensive steel sector. These concern in particular the extent to which emission rights to the steel sector will be allocated on the basis of auctioning or free of charge as described in Article 10a points 7 to 9 of the Directive:

- For industrial sectors **not** exposed to the risk of carbon leakage
The auctioning rate to be reached in 2020 is set at 70 %, with a view to reaching 100% in 2027, bearing in mind that the initial level in 2013 is set at 20 %.
Installations in sectors or sub-sectors which **are** exposed to a significant risk of carbon leakage will be allocated 100 % of allowances free of charge at the level of the benchmark of the best available technology.
- A sector or sub-sector is deemed to be exposed to a significant risk of carbon leakage if the sum of direct and indirect additional costs induced by the implementation of the Directive would lead to an increase in production costs exceeding 5 % of its Gross Value Added and if the total value of its exports and imports divided by the total value of its turnover and imports exceeds 10 %. By way of derogation, a sector or sub-sector is also deemed to be exposed to a significant risk of carbon leakage if the sum of the direct and indirect additional costs induced by the implementation of the Directive would lead to an increase in production costs exceeding 30 % of its Gross Value Added or if the total value of its exports and imports divided by the total value of its turnover and imports exceeds 30 %.
- At the latest by 31 December 2009 and every 5 years thereafter the Commission shall determine, after discussion in the European Council, the sectors exposed to a significant risk of carbon leakage. Every year the Commission may, at its own initiative or on request of a Member State, add to the list referred to in paragraph 8 a sector or subsector if it can be demonstrated, in an analytical report, that this sector or subsector qualifies for the criteria below, following a change that has a substantial impact on the sector's activities
- The list of sectors or subsectors exposed to a significant risk of carbon leakage shall be determined after taking into account, where the relevant data are available, the extent to which third countries, representing a decisive share of world production of products in sectors deemed to be at risk of carbon leakage, firmly commit to reducing greenhouse gas emissions in the relevant sectors and within the same time frame to an extent comparable to that of the EU and the extent to which carbon efficiency of installations located in these countries is comparable to that of the EU.

4.5 The most relevant ideas and proposals of parties

Some of the most relevant ideas and proposals of parties in the Copenhagen climate negotiations for the competitive position of European steel industry are discussed in this section. These are in particular:

- Which parties have which obligations?
- What is suggested regarding sectoral action?
- What is discussed regarding measurability, reportability and verifiability of actions?

Proposals reflect the position of parties in the run up to the December 2008 Poznan Conference⁶².

- **Which parties have which obligations?**

As outlined, under the Kyoto Protocol there are two groups of countries distinguished: Annex I and non-Annex I countries. The former are roughly the OECD countries and Economies in Transition, the latter are the developing countries. Whereas the Annex I countries have emission reduction obligations under the Kyoto protocol, the latter have not. Therefore it is very important for parties if in a new international agreement the present division of Annex I and non Annex I parties will be maintained or not.

Whereas some argue that the present divide Annex I / non Annex I should be maintained, others plea for a new division. Two extremes are:

- ‘New sight on the differentiation of countries is required’ (United States, Russian Federation)
- ‘A shared vision should reiterate the established legal distinction between the obligations of Annex I and non-Annex I countries’(Brazil)

Industrialised countries have to continue to take the lead in reducing global greenhouse gas emissions, according to the EU, Japan and Singapore. The EU proposes emission reduction commitments for developed countries in the range of 25-40 per cent below 1990 levels by 2020. Interesting is the proposal of New Zealand, who makes developed country efforts conditional to efforts in developing countries:

- New Zealand suggests an ‘Indicative range of emissions for Annex I parties as a group of 25-40 per cent below 1990 levels by 2020, *in the context of a global goal and agreement that has comparable effort from all developed countries and mitigation actions from developing countries that reduce their aggregate emissions in the range of 15-30 per cent below baseline.*’

Developing countries, however, are far from willing to accept binding and quantitative emission reduction commitments. The most ambitious statement by developing countries until now is that ‘Developing countries should implement mitigation actions with a view to deviating emission trends from the baseline’(Brazil)

Crucial for understanding the position of developing countries is the following quote:

‘The extent to which developing country parties will effectively implement their commitments under the Convention will depend on provision of prior financial and technical support provided by the developed countries’ (Saudi Arabia, Argentina, G77 and China, Norway, Singapore, South Africa)

Any agreement on reduction obligations of developing countries will therefore crucially depend on the extent to which industrial countries are willing to support measures of developing countries financially and technically.

- **What is suggested regarding sectoral action?**

There are several statements made by parties on what sectoral approaches and actions should and should not include. Some of the most important are given below.

They should:

- Involve a critical mass of parties that account for most of the GHG output from a particular sector (United States)

⁶² UNFCCC, Ideas and proposals on paragraph 1 of the Bali Action Plan, FCCC/AWGLCA/2008/16, 20 November 2008

- Be compatible with the global carbon market whenever market instruments are introduced (EU)
- Strictly focus on article 4, paragraph 1 c) of the Convention ('promoting transfer of technology and sectoral cooperative action') (China)

They should not:

- Replace national emission reduction actions (Japan, Bangladesh)
- Replace legally binding absolute emission reduction targets for all Annex I parties (G77 and China)
- Lead to trade sanctions nor to the application of single common standards to all countries (Japan)
- Global standards or benchmarks (China)
- Trade barriers, punitive trade measures (China)
- Unjustifiable discrimination or disguised restriction of access for non-Annex I parties to international trade

Suggested sectors to be included are:

- Energy or power generation (Bangladesh, Republic of Korea)
- Coal-fired power generation (Japan, AOSIS)
- Energy efficiency (India)
- Iron and steel (Japan, Republic of Korea)
- Cement (Japan, Republic of Korea, AOSIS)
- Residential, commercial (Japan)
- Aluminium (Japan, Republic of Korea)
- Transport (Bangladesh), road transport (Japan, AOSIS)
- Chemical industry (Republic of Korea)
- Pulp and paper (Republic of Korea)
- Forestry (Bangladesh), LULUCF (Japan)
- Agriculture (Japan, New Zealand)
- Waste (Japan)

Other sectoral proposals include:

- Norway suggests to establish an independent legally binding agreement for some sectors addressing in particular emissions from international transport (shipping, aviation). This is supported by the EU and Australia.

- China suggests to develop 'strategies, guidance and programmes for sectors'.

- The EU proposes to introduce emissions trading on a sectoral basis. More specifically, establishment of sectoral crediting mechanisms is proposed by Canada, the EU, Japan and the Republic of Korea. This can include sectoral no-lose mechanisms (EU), targets (Australia), no-lose sectoral crediting baselines (South Africa) or programmatic and/or sectoral CDM based on efficiency standards (Republic of Korea)

- China mentions that sectoral approaches should include mechanisms for capacity-building and finance. Similarly, Japan states that 'technical and financial support should be provided by developed countries for energy efficiency targets or action plans in developing countries'.

- The EU, supported by Japan and Norway, suggests setting up robust governance schemes for monitoring, reporting and verification of sectoral approaches. According to the EU a regulatory framework (codes and norms) for technology agreements in sectors should be developed.

Box 4.1 External proposals for a sectoral approach in the cement sector and in the steel sector

For the cement sector, a recently published study proposed four possible sectoral approaches that consist of different obligations for developed and developing countries⁶³. In developed countries, the cement sector could either be subject to an absolute sectoral cap, or an intensity based cap. In developing countries, either a baseline & credit system could be applied, or sectoral no-lose targets. The approach proposed by the World Steel Association (WSA) seems to apply a fifth option, that is an intensity-based cap to industrialised and developing countries alike. This system is neither conform to the EU ETS based system, which implies an absolute sectoral cap, nor it is conform to the aspirations of developing countries of baseline & credit or sectoral no-lose targets. The WSA approach seems to be most in line with the Japanese proposals. In order to make it feasible in the Copenhagen negotiations, the WSA approach therefore would need to be adapted.

• **What is discussed regarding measurability, reportability and verifiability of actions?**

For industrialised countries, under the Kyoto Protocol a registry of greenhouse gas emissions has been established. Regarding a post-2012 regime, discussions now focus on the measurability of possible developing country actions. Parties so far proposed to establish a registry of NAMAs (‘Nationally Appropriate Mitigation Actions’). ‘The registry could serve as a basis of an institutional framework of recognizing domestic actions of developing countries as international mitigation actions in the post-2012 climate regime’ (Republic of Korea) ‘and would enhance existing provisions of the Convention’ (South Africa).

Suggestions on what needs to be measured and reported include:

- Implementation of actions (Brazil)
- Sustainable development benefits, climate co-benefits and costs of actions (South Africa)
- National GHG inventories (Japan, New Zealand, United States)
- Voluntary national action plans by countries without binding commitments (Japan)
- Sectoral data (Japan)
- Specific data relating to reducing deforestation (Brazil, Australia, New Zealand, Norway, EU, Indonesia)
- Level of financial and technological support received (Saudi Arabia, Brazil, G77 and China, New Zealand, South Africa)

4.6 Main conclusions

The European steel industry together with other energy- and carbon-intensive industries is presently engaged in a fierce debate with the European institutions about ‘carbon leakage’. In this debate about the proposed EU climate measures and the competitiveness of European industry several issues are discussed, with most attention paid to the extent to which industries qualify and to what extent for the free allocation of emission rights after 2012. In December 2008, European Council and Parliament reached an agreement on this issue, stating that in sectors exposed to carbon leakage 100% of allowances will be allocated free of charge “at the level of the benchmark of the best available technology”. It was also decided that the list of exposed sectors shall be determined after taking into account the extent to which third countries also engage in climate measures “to an extent comparable to that of the EU” and “the extent to which carbon efficiency of installations located in these countries is comparable to that of the EU”. On 31 December 2009 the latest it will be decided what sectors are supposed to be exposed to carbon leakage and on 30 June 2010 the latest the Commission will hand it a report reviewing the proposed measures in the light of the outcomes of the December 2009 Copenhagen negotiations.

⁶³ Höhne, N. and Chr. Ellermann, A sectoral approach and technology transfer for the cement sector, Ecofys, 20 August 2008

To answer the question what provisions in an international agreement more specifically could protect the EU steel industry from potential adverse effects on their competitive position it has to be taken into account that such an agreement is likely to consist of ten main building blocks: A global long-term target; An interim target; Developed world commitments and carbon markets; Developing world contributions; Sectoral action; Financing; Technology; Forests; Adaptation; Institutions and mechanisms for action.

Any international agreement will be a complicated trade-off that will involve all these building blocks. So far, however, the exact contents of none of the building blocks have been agreed upon. Up to now, the European Union is still the party that is most prepared to commit itself to emission reduction goals. Other main steel sector countries make their contributions conditional to the participation of developing countries (United States, Japan), or on receiving financial transfers (China and other developing countries). The EU is also the only party so far that has made some progress, though hesitant, in reducing its emissions as a result of deliberate climate policies.

Some of the most relevant ideas and proposals for the EU steel sector presently discussed in the climate negotiations are:

- **Which parties will have which obligations?**
- **What is suggested regarding sectoral action?**
- **What is discussed regarding measurability, reportability and verifiability of actions?**

Discussions on all three topics are still characterised by a wide divide in positions of the various parties.

5

Conclusions and recommendations for steel sector actions

In the previous chapters the structure of the global steel sector, its specific challenges regarding competitiveness and climate change, the present status of the multilateral climate change negotiations and the positions of the main actors have been discussed. This chapter combines all these elements to advice Corus about possible strategies for action on the ‘road towards Copenhagen’.

We recall from the previous chapters in particular that:

- Although most EU steel trade takes place within the EU, non-EU imports and exports play a substantial role in the EU steel markets for several products;
- Main importers to the EU at this moment are China, Russia and the Ukraine; main export markets presently are the United States and Turkey. Other important parties in the world steel market in general are Japan, South-Korea, Brazil and India.
- From a climate perspective, these countries represent either industrialised countries or economies in transition with emission reduction obligations under Annex-I of the present Kyoto protocol, or emerging economies without present emission reduction obligations.
- The World Steel Association is already engaged in a voluntary initiative for a global steel sector approach.

5.1 Possible outcomes of the Copenhagen negotiations

Three possible outcomes of the Copenhagen negotiations can be identified.

1. **An international agreement that includes a global sectoral agreement for the steel industry;**
2. **An international agreement without special reference to the steel sector;**
3. **No international agreement.**

In the case that no international agreement could be obtained, an emission reduction of 20% would have to be obtained within the EU until 2020 and the exceptions for sectors exposed to carbon leakage as recently decided on by the EU would be effectuated. If an international agreement could be obtained, depending on the conditions agreed on the EU would decide to increase its reduction percentage to 30%.

An international agreement could either include a global sectoral agreement for the steel industry or could be designed without specific reference to the steel sector or other sectors. These two cases will be discussed in more detail in order to identify what provisions in particular could result in a competitive level playing field for the steel sector.

5.2 Strategy for a global sectoral agreement

A global sectoral agreement for the steel sector would be the optimal outcome of the Copenhagen summit from a competitive point of view. As outlined, an important initiative in this direction is already undertaken by the steel sector itself within the World Steel Association (WSA). This offensive approach of the steel sector can only be welcomed, and is to some extent comparable with the previously successfully applied voluntary “Covenant” approach in the Netherlands. In order to be also successfully included in a Copenhagen agreement the following observations and statements apply:

- The WSA approach is based on a benchmarking system regarding CO₂ emissions per tonne steel produced. This approach as such seems feasible. Its scenario's however still show 'a massive gap' with the UNFCCC scenarios¹. For any WSA approach to be credible in the Copenhagen negotiations, its scenarios need to be calibrated to those used by the IPCC.

- WSA scenarios also need to take into account that any sectoral approach, if decided upon, will come on top of national obligations rather than as an alternative to such obligations. These national obligations are, given the present status of the negotiations, very likely to include absolute emission reduction targets at least for Annex-I countries. Benchmark-based WSA scenarios that do not bear any reference at all to absolute emission reduction targets therefore at this moment seem of little credibility in the negotiations.

- A practical solution to incorporate benchmarking into absolute targets needs to be found. Some options to be investigated are linking the WSA approach to a baseline & credit system and to sectoral no-lose targets for developing countries. The benchmarking approach also needs to take into account non-participants. An example of how this could be done is given in Box 5.1.

- Worthwhile investigating are also the consequences of a cap-and-trade system incorporating marine bunkers, as presently discussed. Emission reduction targets for shipping might well substantially decrease the competitiveness of long-range steel shipments and therefore 'shield' the EU industry to some extent from Chinese imports.

Box 5.1 An example of a practical approach to coupling benchmarking and national targets

In case of a global sectoral agreement, the emission reduction results should be credited to the national targets of countries where these industries are situated. For the EU this could be given shape in a way that the sectors concerned in the emission trading system receive free allowances until the international benchmark for those additional costs that cannot be passed on to consumers, or receive CDM's for reduction obtained outside the EU under the benchmark. CDM's ideally should be obtained from projects within the iron and steel sector.

Industries inside the EU that do not participate at the sectoral agreement have to buy all allowances they need. Imported products of industries outside the EU that do not participate at the sectoral agreement should be subject to a default "payment" of allowances reflecting the average global GHG footprint of the product unless they can prove that this is less in their case.

- From the available information about the current WSA scenarios it is not clear what are the 'carrots' for less efficient steel plants are to participate in the proposed benchmarking system. It needs to be worked out in more detail how the steel sector proposes for instance to promote technology transfer as an incentive for low-performers to participate.

- As discussed before, any climate agreement in Copenhagen will be a 'package deal' consisting of some ten basic building blocks. The building blocks 'forestry' and 'adaptation' do not seem at first glance relevant to the steel sector. However, the steel sector might well consider these building blocks as well as part of a possible package that it could offer – for instance in terms of financial contributions to forestry schemes or adaptation funds.

¹ Christmas, I. (2008) IISI Climate Change Policy, Report to the Board of Directors 13 April 2008, St Petersburg

- Other energy-intensive sectors have to cope with a similar situation as the steel sector, in particular the cement and aluminium industry as well as the electricity sector. The option of seeking coalitions with these sectors certainly deserves attention.

Scenario 1: What needs to be agreed in Copenhagen for a steel sector agreement?

Copenhagen

- A reference to / allowing for sectoral approaches in addition to, or as a means to fulfil national obligations;
- A reference to intensity-based (benchmarking) approaches as a means for sectoral action;
- Recognition of the WSA as a party in Copenhagen and of the WSA initiative as the start of a possible voluntary approach that could, if worked out in more detail and in line with the aspirations of all participating countries, become part of the UNFCCC legislative framework;
- The basis for a legal framework in the UNFCCC that could link a voluntary sectoral approach to binding obligations for countries.

It is likely that only in the case that a sectoral agreement specifically for the steel sector is included in an international agreement a 100% level playing field for the steel sector can be guaranteed. Depending on the degree of participation in such a sectoral agreement and the resulting degree of 'carbon leakage', additional protective provisions on an EU level might still be necessary for non-participants.

5.3 Strategy in the case of a Copenhagen agreement without sectoral provisions

In case of a Copenhagen agreement without sectoral provisions it becomes of even more importance how the non-sectoral building blocks of the agreement are 'filled'. Box 5.2 gives an idea of one possible outcome of a Copenhagen agreement without sectoral provisions.

Box 5.2 Elements of a possible Copenhagen agreement without sectoral provisions

- A global 50% emission reduction target for 2050, with 1990 and 2005 as base-years
- Intermediary targets to be worked out later;
- Annex-I countries agree to national quantitative long-term targets amounting to 50% emission reduction compared to a base-year of 1990;
- Non Annex-I countries are split in two separate groups: emerging economies and least-developed countries. Emerging economies agree at least to non-binding voluntary action that becomes binding once certain financial transfers are received from Annex-I countries under the technology transfer- and adaptation funds;
- CDM will be restructured to show more geographical diversity and better accounting for additionality;
- Forestry and land-use change are accounted for in a separate flexible mechanism;
- Monitoring, reporting and verification facilities are improved.
- The EU increases its reduction target from 20% in 2020 to 30%.

In the case of a climate agreement in Copenhagen, the EU will change its emission reduction target from 20% to 30% in 2020 and the reduction efforts for the iron and steel sector will increase as well².

² The extent to which this is the case is subject to debate. The recent Strategic Energy Review of the European Commission suggests that with a oil price of \$100/barrel and a CO2 price of euro 41, presently announced policies will result in an

The precise extent to which this is the case is subject to debate. The recent Strategic Energy Review of the European Commission suggests that with a oil price of \$100/barrel and a CO₂ price of euro 41, presently announced policies will result in an emission reduction of 23%, meaning that only 7% of additional measures are needed. Also, according to the Review, additional measures will be sought primarily in non-energy related CO₂ emissions and in non- CO₂ greenhouse gases. In addition, the financial burden may increase to a smaller extent as it is proposed that half of the extra emission reduction effort can be accounted for by additional CDM and JI activities.

While the costs for the European iron and steel sector will increase as a result of additional emission reduction efforts in the case of an international agreement, the impacts on competitiveness on one hand will be reduced by the fact that other countries in this case will have to install or enhance climate change policies too. It is important in this respect that a critical mass of the nine big steel producing countries will agree to absolute national caps on their emissions in the future that will lead to reduction efforts within their economies to curb carbon emissions. Only in this case carbon will become a cost factor in their economies. On the other hand, the relative costs to their economies will differ. This is due to the fact that income levels between the nine steel producing countries differ to a great extent and countries with higher income levels will, somehow, be forced to pay a larger share of the reduction efforts than countries with lower income levels. This difference in costs may negatively influence the competitive position for the EU iron and steel industries.

The competitive position of the EU iron and steel industries would be best protected if the nine big steel countries would divide the burden of efforts more or less equally between industry, electricity and households. In the Netherlands the –20% target will apply to all sectors and none of the sectors will receive smaller targets.³ Ideally, the Copenhagen Agreement should include a similar notice that “none of the sectors is being exempted from reduction efforts”. However, this is not a necessary condition for reducing the impacts on the competitiveness of EU’s industry. One could argue that the distribution of the cap is in the end a matter of national policy and the costs of climate policies must, in the end, be borne by industries also. For example, countries could decide to exclude their energy-intensive industries from reduction efforts and demand much higher reduction from their non-exposed sectors, such as the built environment, to meet the targets. However, in a market economy, this will raise the cost of living for the citizens of that country. They will demand compensation for their decreased real wages and therefore the costs of labor inputs for the energy-intensive industries will rise. Hence, the question who pays for the reduction efforts is not as simple as often suggested. If labour markets are tight, exempting energy intensive industries might in the long run even involve higher costs for industries than paying the climate bill directly.

This shows that the impacts on competitiveness from a Copenhagen agreement that does not include a specific deal for the steel sector are far more uncertain than under the “global sector agreement” scheme. The stringency of the targets and the division of the targets over the economy are here main variables. The impacts on EU steel sector competitiveness in the end might well be less than under the scenario of “no agreement” even if the EU adheres to a –30% target. However, this cannot be determined beforehand and largely depends on the exact outcomes of a Copenhagen agreement.

Some observations that apply to this ‘second best’ case for the steel industry are:

- Competitiveness conditions for the EU steel sector under a Copenhagen agreement that does not include a specific deal for the steel sector will improve compared to the case of no agreement if a critical mass of, and preferably all nine main steel producing countries agree at least to some extent of emission reduction actions which also are realised within the steel sectors of these countries. More specifically, with this respect a deal in Copenhagen should aim at:

emission reduction of 23%, meaning that only 7% of additional measures are needed. Also, according to the Review, additional measures will be sought primarily in non-energy related CO₂ emissions and in non-CO₂ greenhouse gases.

³ However, one should notice that there is a small difference between the efforts of the EU-ETS sectors (which have to reduce –21%) and the small sectors that have to reduce–14%. The lower target for small industry comes from the higher costs of abatement the smaller companies face.

- Binding and ambitious emission reduction targets for the industrialised parties EU-27, United States and Japan;
- A split of the existing group of non Annex-I parties into emerging economies and least-developed countries, with substantial emission reduction efforts of the former (that will have to be financed in part by industrialised countries). This group would have to include at least China as a main competitor to the EU steel sector, but preferably also South-Korea, Brazil and India;
- Similar emission reduction efforts of the Economies in Transition, including Russia and the Ukraine;
- Measurable, verifiable and reportable emission reduction actions of all these parties starting with obligatory preparation of national mitigation plans;
- Actions that also in a measurable, verifiable and reportable way involve the steel sector of these countries, or provisions that no sectors of these economies will be exempted from measures;
- Technology transfer and financial aid made conditional to such actions.

- By seeking access to national governments of the main steel producing countries and offering contributions in the fields of technology transfer and perhaps adaptation and forestry, engaging in such voluntary or binding action could be made more attractive to these governments.

- Parallel it should be examined to what extent global competition in the steel sector would be distorted by a Copenhagen agreement without sectoral provisions. However, this can only be concluded with some degree of certainty 'ex-post', once the exact conditions of the Copenhagen agreement are known.

- It should also be investigated how potential trade distortions as a result of such an asymmetric agreement could be repaired in accordance with WTO rules. Free allocation of emission rights in the EU, refunding of auctioned emission rights and border taxes are three basic options.

- Steel industry could also seek to convince the European Commission to make the (non) application of protective measures part of the negotiations. In case that emerging economies agree to stricter (and verifiable) emission reduction actions, the degree of protective measures could be released.

- It will be more difficult to guarantee a level playing field in the steel sector without specifically mentioning sectoral actions in an international agreement. Protective measures on an EU level may therefore be needed. However, this in the end, very much depends on the way other countries will treat their energy-intensive industries. Protective measures may be justified provided that the EU steel sector can make its case of distortion of competition.

Scenario 2: What needs to be agreed in Copenhagen in case of an agreement without sectoral provisions?

- Participation of a critical mass of the main steel sector countries with either binding or voluntary actions.
- Binding emission reductions agreed on by the US, Japan and EU-27. Credible and significant action in economies in transition and developing countries that also explicitly involves actions in the steel sectors of these countries. Participation of China, Russia and the Ukraine in emission reduction actions is particularly important from a EU competitive point of view.
- Preparation of national mitigation plans by all parties, in which results of the mitigation plans for the national steel sector are outlined in a ‘measurable, reportable, verifiable’ way also with respect to the steel sector.
- Technology transfer in the steel sector made conditional to ‘measurable, reportable and verifiable’ action undertaken by the parties that receive the technology.

5.4 Final remarks

The steel sector can benefit from an ambitious climate deal in Copenhagen in 2009. This holds even more if the sector itself can contribute to shaping such a deal by proposing and working out a global sectoral agreement for steel. Obviously such a deal should include minimum conditions such as being monitorable, verifiable, and enforceable, including timelines and a involving a minimal critical mass of participating countries. First promising steps for such a voluntary approach in the context of the World Steel Association have been made. Now it will come to fine-tuning and calibrating the steel sector approach to the multilateral Copenhagen negotiation process. If the steel sector succeeds in ‘leading by example’ as it aims to, steel can indeed become a main contributor to a global low-carbon economy within a level playing field for competition between steel producers worldwide.

However, if no sectoral agreement can be obtained the outcome will be more uncertain. In particular inclusion in a global deal of parties like China, Russia, the Ukraine, the United States and Japan, and to a lesser extent the other main steel sector countries then seems to be a fair condition to ask for by the EU steel sector. Actions of these countries should be as measurable, reportable and verifiable as those of the EU and –directly or indirectly- result in a comparable burden to the steel sector of these countries. Finally, any international climate agreement will be the result of a complex negotiation process involving ‘give and take’ on a large number of very different issues. So far, the EU steel industry and most other parties have announced clearly what they want to ‘take’ from such a deal. In order for a climate deal to be indeed concluded, however, it seems now time that all parties also stress what they want to ‘give’. Only in that way, a level playing field for competition in the global steel sector *and* a climate agreement to the benefit of all can be obtained.

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